Rowan University

Undergraduate Catalog
2022-2023

22-031

201 Mullica Hill Road
Glassboro, NJ 08028

rowan.edu/catalogs

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Rowan University In Brief

Type
Comprehensive, coeducational, non-sectarian, state-supported, public research university, opened in 1923.

Colleges and Schools
Business, Communication & Creative Arts, Education, Engineering, Humanities & Social Sciences, Performing Arts, and Science & Mathematics, Cooper Medical School of Rowan University, Graduate School of Biomedical Sciences, School of Earth and Environment, School of Nursing & Health Professions, School of Osteopathic Medicine, the Division of Global Learning and Partnerships, the John H. Martinson Honors College, and the Rowan University School of Veterinary Medicine, which is expected to welcome its first class in Fall 2025.

Degrees
Bachelor of Arts (B.A.), Bachelor of Music (B.M.), Bachelor of Fine Arts (B.F.A.), Bachelor of Science (B.S.), Bachelor of Science Nursing (B.S.N.), Bachelor of General Studies (B.G.S.), Master of Arts (M.A.), Master of Business Administration (M.B.A.), Master of Education (M.Ed.), Master of Engineering Management (M.E.M.), Master of Music (M.M.), Master of Science (M.S.), Master of Science in Nursing (M.S.N.), Master of Science in Teaching (M.S.T.), Educational Specialist (Ed.S.), Doctor of Osteopathic Medicine (D.O.), Doctor of Education (Ed.D), Doctor of Medicine (M.D.), and Doctor of Philosophy (Ph.D).

Campuses
Main Campus – Glassboro, N.J. (approximately 20 miles southeast of Philadelphia), Camden, and Stratford.

Size
As of Fall, about 23,000 students.

Rowan's Proud History and Bright Future

In the course of more than nine decades, our diplomas have borne five names for our institution: New Jersey State Normal School at Glassboro (1923), New Jersey State Teachers College at Glassboro—also known as Glassboro State Teachers College (1937), Glassboro State College (1958), Rowan College of New Jersey (1992) and Rowan University (1997).

As the successive names suggest, the institution has continually reinvented itself. What started nearly a century ago as a small normal school to prepare teachers for South Jersey classrooms is today a multi-campus comprehensive public research university boasting prestigious accreditations and Carnegie R2 (high research activity) status.

In addition to the main Glassboro campus and long-standing Camden academic campus, Rowan has developed a thriving online education program, the South Jersey Technology Park in Mantua and Harrison townships, and Cooper Medical School of Rowan University in Camden. It has also integrated the School of Osteopathic Medicine and Graduate School of Biomedical Sciences in Stratford and added a second campus in Sewell. Rowan is one of just three universities in the nation to offer both the M.D. and D.O. degrees.

Extraordinary growth and opportunity
Begun with just 236 students and 16 faculty, Rowan today enrolls about 23,000 students and employs more than 4,250 people, more than 2,505 of them faculty. The University offers 90 bachelor's degrees, 48 master's degrees, eight doctoral degrees, two professional (medical) degrees and roughly three dozen certificates across its academic colleges, schools and the multidisciplinary, recently renamed, John H. Martinson Honors College. The other colleges and schools include the:

- William G. Rohrer College of Business
- Ric Edelman College of Communication & Creative Arts
- College of Education
- Henry M. Rowan College of Engineering
- College of Humanities & Social Sciences
- Virtua Health College of Medicine & Health Sciences
- College of Performing Arts
- College of Science & Mathematics
- Graduate School of Biomedical Sciences
- School of Earth & Environment
- School of Innovation & Entrepreneurship
- Cooper Medical School of Rowan University
- Virtua Health School of Nursing & Health Professions
- School of Osteopathic Medicine
- School of Translational Biomedical Engineering & Sciences

Rowan is noted for its student-faculty ratio of 17:1, similar to that of smaller, private schools. Exceptionally gifted students find even greater academic challenge in the endowed, interdisciplinary Bantivoglio Honors program. Among Rowan's brightest, 25 students have earned coveted Fulbright Program scholarships since 2000. Others qualified for prestigious Goldwater and Boren awards.

Accolades and headlines

Since 2001, Rowan University consistently has placed in regional and national indexes, including The Chronicle of Higher Education 2022 Almanac, which named Rowan the nation's fourth fastest-growing public doctoral institution for the third consecutive year and its fourth year in the top 10.

Also in 2022:

- U.S. News & World Report ranked Rowan #88 among national public research universities and the Henry M. Rowan College of Engineering #19 among programs that primarily enroll undergraduates.
- the Broadcast Education Association placed the Ric Edelman College of Communication & Creative Arts #9 overall in international rankings, with radio/television/film programs #3 in audio, #6 for documentary, #9 in film and video, and #18 for news programming.
- Rowan's entrepreneurship program earned a top 50 rank nationally and #12 in the Northeast from The Princeton Review, in partnership with Entrepreneur Magazine.

Two of Rowan's most celebrated moments came during events that earned international attention. While still called Glassboro State College and best known for excellent teacher education programs, the institution in 1967 became the focus of the world when it hosted the landmark summit conference between U.S. President Lyndon Johnson and Soviet Premier Alexei Kosygin. Today, Hollybush Mansion displays memorabilia from the momentous international event, as well as local history.

The institution again gained worldwide attention in 1992 when businessman Henry Rowan and his wife, Betty, contributed $100 million to the school. The gift was the largest to date made to a public institution, granted with the request to transform engineering education. The gift allowed the school to create the award-winning and highly ranked Henry M. Rowan College of Engineering and served as a catalyst for growth and change throughout the institution, renamed to honor its donors.

Milestones and goals

Rowan's extraordinary growth and success reflect the University's determination to address changing demands in education, health care, business and more. Rowan's resources and influence are driving the region's economic growth, especially through public-private partnerships, research collaboration and commercialization.

Drawing on institutional agility, strength and vision that continue to shape its future, Rowan University has in just the last decade:

- nearly doubled enrollment to 23,000, while maintaining quality and increasing diversity to 36%;
- more than tripled research awards and earned Carnegie R2 research status for high research activity. The classsification makes possible more undergraduate and graduate programs and enhances Rowan's increased focus on research initiatives and developing marketable solutions for real-world problems;
- announced its affiliation with Virtua Health to create an academic health system that will transform and advance medical and health sciences education, clinical care, and research, supported by Virtua's $85 million philanthropic investment;
- began the process to create New Jersey's first School of Veterinary Medicine, planned to open in 2025;
- exceeded its ambitious goal for Rising: The Campaign for Rowan University. More than 22,000 donors gave more than $120 million to support new discoveries, create inspiring spaces for learning and living, and most importantly, improve the lives of students;
- completed the $426 million public-private redevelopment project that brought housing, office, classroom, professional and retail space and revitalized the corridor that joins the Glassboro main campus to the historic downtown;
- formed one of the nation's first university divisions designed to support diversity, equity, and inclusion;
- invested in, partnered and encouraged more than $1.58 billion in construction and design projects on and around Rowan campuses that built new academic, research, and clinical facilities, plus private and public development;
- integrated the School of Osteopathic Medicine and the Graduate School of Biomedical Sciences in Stratford, nationally known for clinical services and research supported by prestigious private and public funders;
- opened Cooper Medical School of Rowan University in Camden, offering the first four-year M.D. program in southern New Jersey. The innovative curriculum and urban-based mission of the School address the State's most pressing medical education challenges;
- opened Discovery Hall and new buildings for the Henry M. Rowan College of Engineering and the William G. Rohrer College of Business to help accommodate students and develop more partnerships with business, industry, K-12 schools and the community at large;
- preserved a historic tract in Mantua Township, the site of paleontology research for decades, with plans to open the Jean & Ric Edelman Fossil Park & Museum in 2023, supported by the alumni donors' commitment to STEM education;

- partnered with community colleges in South Jersey to improve access to and affordability of obtaining four-year undergraduate degrees. Though still independent, the institutions changed their names to Rowan College at Gloucester County (2014), now Rowan College of South Jersey, and Rowan College at Burlington County (2015) to reflect the closer ties;
- opened a new facility to expand osteopathic medical education and Rowan Medicine clinical services in Sewell;
- responded to the coronavirus pandemic with an unprecedented effort to provide remote learning, protect health and safety and provide more than 60,000 COVID-19 vaccinations, among other innovations and interventions with private and public health partners.

Poised for the future

Building on its proud and proven record for nearly 100 years, Rowan continues to develop students to help lead New Jersey's bright future. Many are the first in their family to earn a college degree (first-generation college students make up about a quarter of enrollment) and most will be long-term New Jersey residents, helping build thriving communities and businesses as they invest themselves in their neighborhoods and professions.

With a remarkable history, proud alumni, able partners, and extraordinary potential, Rowan University is dedicated to leading progress, creating opportunities, and encouraging excellence. This is the legacy of Rowan University. This is the pride of all who are part of the Rowan community.

Mission

Rowan seeks to improve and expand the model for public higher education by being inclusive, agile, and responsive, offering diverse scholarly and creative educational experiences, pathways, environments, and services to meet the needs of all students; maintaining agility by strategically delivering organizational capacity across the institution, and responding to emerging demands and opportunities regionally and nationally.

Rowan's Strategic Pillars are:

Access

Rowan is committed to expanding quality educational opportunities for students by increasing our enrollment capacity; supporting student success; utilizing an increasing array of pedagogies and platforms; and creating new pathways to undergraduate, graduate, post-graduate and professional studies.

Affordability

We are committed to keeping education affordable by managing costs, diversifying our revenue streams, limiting student debt, restricting tuition increases to the rate of inflation, and enhancing internship and employment opportunities for students and graduates.

Quality

We are committed to providing rigorous and engaging educational experiences; supporting scholarly, creative and research activities; maintaining a vibrant and healthy campus life with a richly intellectual, cultural, and artistic environment, and ensuring a safe, supportive and inclusive culture that respects and values the diversity of all of our members.

Economic Engine

Rowan is committed to benefiting our local and state communities by partnering with and investing in regional businesses and organizations that contribute to furthering our mission; preparing an educated citizenry and skilled workforce; enhancing the health of our citizens and the quality of life; and developing innovative products, services, and ideas.

Using This Catalog

Rowan University has multiple catalogs:

- The Undergraduate Catalog includes the program requirements and course descriptions for all traditional-format undergraduate programs (courses offered on-campus and across 16-weeks each term).
- The Global Learning & Partnerships (Rowan Global) Catalog includes program requirements and course descriptions for accelerated, online, and off-site undergraduate programs and all graduate and post-baccalaureate programs.
- The Cooper Medical School of Rowan University (CMSRU) Catalog describes the curriculum and policies for the Doctor of Medicine (MD) program.
- The Rowan University School of Osteopathic Medicine Catalog describes the curriculum and policies for the Doctor of Osteopathic Medicine (DO) program.
- The Graduate School of Biomedical Sciences (GSBS) Catalog describes the curriculum and policies for the academic programs offered by GSBS.

Academic Calendar 2022-2023

Fall Semester 2022

Labor Day (no classes)	Monday, September 5
Semester Classes Begin	Tuesday, September 6
Thanksgiving Recess (no classes)	Thursday-Saturday, November 24-26
Reading & Review (no classes)	Wednesday, December 14
Finals Week	Thursday-Wednesday, December 15-21 (includes Saturday, December 17)
Flexible Time Day	Thursday, December 22

Spring Semester 2023

Semester Classes Begin	Tuesday, January 17
Spring Break	Monday, March 13-Saturday, March 18
Reading & Review (no classes)	Friday, April 28
Final Exam Week	Saturday-Friday, April 29-May 5 (includes Saturday, April 29)
Commencement Week	Saturday, May 6; Monday-Friday, May 8-12

Summer Sessions 2023

Memorial Day (no classes)	Monday, May 29
Fourth of July (no classes)	Tuesday, July 4

Summer Sessions are Subject to Change. Visit the Office of Winter, Summer, and Special Sessions for the Term calendars www.rowan.edu/winter/summer/calendars.

NOTE:

Please note that this calendar applies to traditional programs offered on the Glassboro and Camden campuses during the fall and spring semesters. Visit www.rowan.edu/university/academic/calendars and use the links listed for calendars from The Division of Global Learning & Partnerships, Office of Winter, Summer, and Special Sessions, the Cooper Medical School of Rowan University, the Rowan University School of Osteopathic Medicine, and the Graduate School of Biomedical Sciences.

Office of the President

Ali A. Houshmand
President
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RJ Tallarida
Chief of Staff
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Theresa DeVecchis
Director of Operations/Deputy Board Liaison
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The President works with the Board of Trustees and the Executive Cabinet to determine the vision and strategy for the University. The President's Office is comprised of the President, his Chief of Staff, and the Director of Operations/Deputy Board Liaison.

Division of Academic Affairs & Student Affairs

Anthony M. Lowman
Senior Vice President and Provost
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Roberta Harvey
Vice President for Academic Affairs
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Mariano J. Savelski
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Rory McElwee
Vice President for Student Affairs
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Kevin S. Koett
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Scott Woodside
Director, Wellness Center
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The Academic Affairs Division is headed by the Provost or Chief Academic Officer. The Provost reports directly to the President and is responsible for leadership and oversight of academic programs, faculty affairs, and library services. The Deans of the Colleges of Business, Communication & Creative Arts, Education, Engineering, Performing Arts, Humanities & Social Sciences, Science & Mathematics, and Honors; and Schools of Earth & Environment and Nursing & Health Professions report to the Provost. The Vice President for Academic Affairs, Associate Provosts for Faculty Affairs,

Academic Affairs, and Library Information Services, and the Director of the International Center also report to the Provost. The Assistant Vice President for Academic Affairs, Director of the Faculty Center for Excellence in Teaching and Learning, University Registrar and Director of Assessment report to the Vice President for Academic Affairs.

Academic Affairs

Roberta Harvey
Vice President for Academic Affairs
Bole Hall
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harvey@rowan.edu

Center for Academic Innovation

A primary focus of the Center is to engage internal and external stakeholders in the creation of educational experiences to prepare students for successful careers, meaningful lives, and continuous learning. Business and community outreach, pathway building, curriculum design, marketing, recruitment, program delivery, and assessment are brought together in the development process from idea to launch. The Center mobilizes the competitive advantages of the University as a premium provider of academic credentials and leverages these advantages to deliver learning opportunities to new populations and next generations of students.

Office of Assessment

Jeff Bonfield
Director
Bole Hall
856.256.5116
bonfield@rowan.edu

The purpose of academic assessment is to enhance Rowan University's capacity to improve every student's knowledge, skills and abilities. In addition to academic assessment, the University engages in assessment of its facilities, services, and administration. Together, these assessment efforts help Rowan University determine how well it is fulfilling its mission and make informed decisions about how best to use resources. Assessment is the process of collecting and using reliable information as a basis for program improvement. At Rowan University, we systematically measure the extent to which we are achieving desired student learning outcomes and institutional effectiveness targets.

Office of the University Registrar

Linda Drexel
University Registrar
Savitz Hall
856.256.4350
drexel@rowan.edu

registrar@rowan.edu

The Office of the University Registrar oversees registration and registration-related issues for all of Rowan's undergraduate and graduate (non-medical) students. The Registrar is responsible for student records, including transcripts and enrollment verifications; coordination of graduation audits; awarding of credits, degrees, and certificates; and processing of diplomas. The Office coordinates compliance with the Statewide Transfer Agreement and provides resources for transfer students, including the management of ongoing transfer credit articulations and credit postings for individual undergraduate and graduate students. In addition, the Office also coordinates updates to official curriculum in the system, including programs and courses. The Registrar works closely with all academic colleges as well as University Scheduling, the Offices of Admissions, Advising and Student Retention, and directly supports the Office of Academic Affairs.

Faculty Affairs

Mariano J. Savelski
Vice Provost for Faculty Affairs
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Faculty Center for Excellence in Teaching and Learning

Jill Perry
Director

Herman D. James Hall
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Mission Statement:

The Faculty Center for Excellence in Teaching and Learning creates valuable and appropriate connections across campus in order to facilitate individuals' growth as engaged university citizens; and serves faculty, pertinent supporting offices, and the institution in pursuit of teaching, scholarship and creative excellence. The Center's three areas of activity are 1) induction and ongoing support of faculty; 2) professional development focused on research-based and culturally responsive teaching practices, acquisition of skills to support diverse learners, and academic career progress; and 3) institutional change relevant to diversity, equity and inclusion in teaching, scholarship and creative activities. Programming is designed to encourage reflective pedagogy and assist in creating an equitable learning environment for all faculty and students. The Center encourages self-directed inquiry through various modes including programs, learning communities, affinity and discussion groups, and conference participation.

Our Goals:

- Promote a high standard of quality teaching and learning encompassing a commitment to diversity, equity and inclusion.
- Support junior faculty throughout the tenure and recontracting process
- Support faculty in development of inclusive teaching principles
- Create an inclusive community with equitable opportunities for all faculty
- Represent the interests of teaching and learning at the university
- Build faculty leadership capability
- Maintain currency in the field

Student Affairs

Rory McElwee
Vice President for Student Affairs
856-256-5187
mcelwee@rowan.edu

Student Affairs provides numerous services to support all students in achieving their academic, career, and personal goals. With a focus on student holistic well-being, dedicated professionals provide expert support and intervention for students through University Advising Services, Student Support Services, Tutoring, Success Coaching, Exploratory Studies & Pre-Business Programs, Degree Completion Initiatives, Accessibility Services, Military Services, Testing Services, the Office of Career Advancement, and the Office of Pre-Health Programs. We also offer the student success academic courses Rowan Seminar, Rowan 101: College Success (INTR01.107), Financial Wellness (INTR01.108), and Career Planning & Development (INTR01.488).

Rowan Seminar

Rowan Seminar is designed to help our first year students make a smooth academic transition to university life. Rowan Seminar courses are special sections of courses taken by first-year students (either General Education or major-specific courses), many of which are popular with new college students and are reserved for first-year students only. Most major programs have designated specific courses for first year students. Students receive regular credit for successful completion of these courses.

Extensive research on the first-year experience provides compelling evidence that the high school learning environment is not always sufficient preparation for college-level learning. Our own research at Rowan suggests that although entering first-year students believe they know what will be expected of them academically, many benefit from the careful attention given to issues of transition from high school to college. Also, our research strongly suggests that participation increases retention rates and four-year graduation rates among students who take Rowan Seminar courses.

Rowan Seminar courses are designed to introduce students to the academic skills needed to succeed at Rowan and to college level expectations of the learning process. What distinguishes a RS course from any other section of the same course is how the course material is used to help each student understand academic expectations that accompany the college level learning process. Rowan Seminar courses are designated in a student's schedule with an RS after the title. Within the subject context of the course, the professor will introduce every student to the following skills, values, and expectations at the college level:

- Strengthen writing and critical thinking skills through their application to specific course content
- Nurture library research skills within a course context
- Reinforce the value of cooperative learning
- Strengthen the academic skills needed for college

First-year students are assigned to Rowan Seminar sections in the fall semester. Any student unable to enroll in a section in the fall will have the opportunity to take a Rowan Seminar section offered in the spring.

For more information about Rowan Seminar or if you have any questions about the program, please contact the Office of Academic Support Services. Please also visit the Rowan Seminar website at: https://sites.rowan.edu/student-success/first-year-programs/rowan-seminar/index.html.

Exploratory Studies

Exploratory Studies provides an academic home for students with fewer than 60 credits who have not yet selected a major. Students in the Exploratory Studies Program are housed within the College of Humanities and Social Sciences. Exploratory Studies students receive professional academic advising from the University Advising Center and many other offices on campus. First-year students in the Exploratory Studies Program, will be enrolled in a dedicated section of Rowan 101: College Success – RS in their first semester to familiarize them with Rowan's many resources and to begin the process of exploring majors, careers, and their own strengths and interests. Students may remain in Exploratory Studies until they have completed 60 credits (including all transfer credits). Students who have not selected a major at that time will be placed in the Liberal Studies/Humanities and Social Science major. However, most students select a major well before 60 credits. For more information, see https://sites.rowan.edu/student-success/first-year-programs/esp/index.html or email exploratorystudies@rowan.edu.

Rowan Students seeking a Second Bachelor's Degree

Students that have graduated from Rowan and would like to return to pursue a second bachelor's degree should follow the re-enrollment process. Students should visit the website https://sites.rowan.edu/student-success/leave-return-rowan/reenrollment/index.html and complete the re-enrollment inquiry form. Students will be notified of their re-enrollment status via email.

Contact Tiffany Delesandro at delesandro@rowan.edu with questions.

University Advising and Student Support Services

Amy Ruymann
Director
Savitz Hall 316
856.256.5563
ruymann@rowan.edu

University Advising Services, UAS, is an organization of professional academic advisors within the Student Success area of the Division of Student Affairs. The hallmarks of UAS advising are exceptional student-centeredness and responsiveness; excellence in advisor training and ongoing professional development; adherence to standard advising services and protocols; and collaboration with academic units and other campus personnel and services. UAS works to construct a collaborative, learning-centered environment committed to engaging students in the development and implementation of meaningful educational goals, informed academic planning, and major selection consistent with their personal values, interests, and abilities. We also provide our students guidance with regard to effective navigation of university systems and processes. UAS partners with Departments and Colleges to provide and coordinate advising services to Rowan students in specific majors. UAS offers a range of services, including individual appointments, walk-in hours, group advising sessions in or out of class sessions, and more.

University Advising Center (UAC)
Carol Eigenbrot
Associate Director
Savitz Hall, 3rd Floor
856.256.4459
eigenbrotc@rowan.edu

The University Advising Center (UAC) serves as the hub for advising related services and information. In addition, academic advisors in the UAC advise all Exploratory Studies and Pre-Business students and all students considering changing their major, as well as students in select majors.

College of Education Advising Center
Dorothy Abruzzo-Klumpp
Associate Director
Herman D. James Hall, 2nd Floor
856.256.4420
abruzzo-klumpp@rowan.edu

The College of Education Advising Center provides academic advising for students enrolled in College of Education programs. Additionally, informational meetings are available for students considering these programs.

UAS Services for CHSS, ECCCA, SEE, and CPA
Julia Beth Rey
Associate Director
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UAS Services for CSM and VHSNHP
John (Jay) Dukenski
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Tutoring Center
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Tutoring is available free of charge to all Rowan University undergraduate students. The Tutoring Center provides small-group or drop-in tutoring in most subject areas. Students may request academic assistance on a one time basis or may be scheduled for regular assistance on a weekly basis throughout the semester. The purpose of tutoring is to complement classroom instruction, not replace it. Workshops on learning strategies and effective study techniques are presented at various times throughout the academic year.

University Transfer Services
Mayra Arroyo
Coordinator
856.256.4452
arroyo@rowan.edu

University Transfer Services provides a variety of transfer student services including the Transfer Topics workshop series, New Transfer Information Sessions, the Transfer Mentor program, and the email hotline transferhelp@rowan.edu to which any transfer student can send questions which will be answered promptly by a Rowan administrator.

Academic Success Center & Accessibility Services
John Woodruff
Director
Savitz Hall, 3rd floor
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successcenter@rowan.edu

The Academic Success Center provides a myriad of comprehensive programs and services that assist students in enhancing and maximizing their academic potential from Orientation through Graduation. The Center provides services in the following areas: military services, accessibility services, testing, and an array of academic support workshops. Accessibility Services provides accommodations and assistance to students with various documented disabilities in accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. Students who meet University admissions requirements (i.e., otherwise qualified to attend the University) are required to submit appropriate documentation so that the University can determine whether they qualify for reasonable accommodations. Military services handles all military education benefits and provides support services for our student veterans and programming for the campus community to recognize and appreciate their contributions.

Military Services
Beth Sosnoski
Coordinator
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The Military Services Office at Rowan University is the liaison with the Regional Processing Office in Buffalo, New York, to assist veterans and dependents of veterans with their education benefits. The Military Services Office also provides programming and resources for the campus community.

To qualify for veterans' benefits, you must be enrolled in a degree-seeking program. If you are entering Rowan University for the first time and believe you are eligible for veterans' educational assistance, schedule an appointment with the Office of Military Services. The office has both day and evening hours to ensure access to all veteran students seeking information and assistance

In order to receive benefits every semester, students are required to fill out semester forms with the Military Services office. This should be done as soon as you register for classes to ensure you receive your benefits in a timely manner. The Military Services Office is going to be your point of contact on campus for any questions/concerns regarding your benefits.

Active Duty/Training Orders Please provide copies of any active duty or training orders to our office as soon as possible. We will send out an official letter via Rowan Success Network to your professors letting them know that you are on orders during this time frame. This official letter will also provide them with rights and responsibilities for both the student and professor.

Testing Services
Lara Roberts LeBeau
Coordinator
Savitz Hall, 3rd Floor
856.256.4263
testingservices@rowan.edu

Testing Services offers the following services: testing accommodations for students registered with Accessibility Services, placement testing, CLEP examinations, the Miller Analogies Test, and proctoring for long-distance learners.

Office of Career Advancement (OCA)
Bob Bullard
Assistant VP for Professional Services
Savitz Hall
856.256.4456
bullardr@rowan.edu

The mission of the Office of Career Advancement (OCA) is to engage students in the development and implementation of meaningful educational and career goals consistent with their personal values, interests, and abilities. The OCA helps students and alumni create an effective framework for a lifetime of active career management through one-on-one counseling, workshops, recruitment programs, career fairs, job posting databases and by promoting strong partnerships with employers, academic departments, and the university community.

Office of Pre-Health Programs
Grace Farber, Director
Keyona Renee Walker, Coordinator
healthadvising@rowan.edu

The Office of Pre-Health Programs strives to provide Rowan students, from all majors, with the appropriate information and resources to develop competitive, well-rounded applications to the various professional graduate programs. The Office will invite these graduate programs to campus to educate students on all aspects of the application process. In addition, the Office will introduce Rowan students to additional careers and provide workshops that cultivate an environment in which students are equipped to address current and emerging health issues in the community.

Student Life/Dean of Students

Kevin S. Koett
Vice President for Student Life and Dean of Students
Savitz Hall, Room 340
856.256.4283
koett@rowan.edu

Drew Tinnin
Associate Vice President for Student Life
Student Center, 3rd Floor
856.256.4909
tinnin@rowan.edu

The Division of Student Life/Dean of Students encompasses several key areas at Rowan University committed to attracting high caliber students and retaining them through graduation. In short, we are a division dedicated to our students' success. Student Life includes the departments of Community Standards, Greek Life, Orientation and Student Leadership Programs, Recreation Center, Residential Learning and University Housing, Student Activities, Student Center, Student Enrichment and Family Connections, Student Government Association, Student Organizations, Volunteerism, Community Engagement, & Commuter Services, and Off-Campus Housing resources. Our main office is in Savitz Hall; however, Student Life is literally all over Rowan. While you may not have realized it, we met you before you first stepped foot on campus, we'll advise you while you're here and, hopefully, our impression will stay with you long after you leave. The Division of Student Life provides support, engagement, experiential, and retention programs for students from their first semester through their graduation.

Campus Recreation
Kevin George
Director
856.256.4927
georgek@rowan.edu

Campus Recreation is committed to providing exceptional programs, services, and facilities that promote and encourage a balanced, healthy lifestyle. We are dedicated to creating a safe, welcoming, and inclusive environment that enhances student learning and skill development, fosters enjoyment and appreciation for recreational life, and enriches the quality of life for the Rowan Community.

The Recreation Center is a three-story, 76,000 square foot recreational activities facility. The building houses an eight-lane swimming pool, a three-lane indoor track, a three-court multi-sport gymnasium, five racquetball courts (one used for indoor cycling) and a group exercise room. The facility also has a 9,000 square foot fitness and weight room, conference room, locker/shower facilities, and a juice/smoothie bar and café. The main desk of the facility operates as ID access/control area, equipment checkout center, and as the program/membership registration area.

The Satellite Fitness Center is located on the corner of Mick Dr. and Victoria Ave. and encompasses over 17,000 square feet. The building offers a free weight room, spaces for functional training, connected cardiovascular equipment, non-motorized equipment, various multi-functional strength systems, and a men's, women's and inclusive locker/shower rooms.

The Recreation Center offers 18 hour days and the Satellite Fitness Center offers 16 hour days during the academic year, with modified hours during the weekends, holidays, and breaks over the course of the year.

Access to facilities, programs, and services is granted to full time students with a current and active Rowan ID card. Students taking 6 or fewer credits may purchase a membership.

Campus Recreation offers a broad range of programs and services; coordinating or co-sponsoring over 200 programs annually in the following programmatic areas: intramural sports, fitness and wellness, aquatics, sport clubs, informal recreation and special events. Although the foundation of our department rests on serving student recreational needs as a

priority, we are also committed to a broader constituency.

Community Standards
Joseph Mulligan
Assistant Vice President
Chamberlain Student Center, Suite 210
856.256.4242
mulligan@rowan.edu

The Office of Community Standards articulates and upholds the standards of behavior expected within the University community. The office addresses violations of the student code of conduct through the university disciplinary system to ensure respect for all members of the community and the maintenance of a collaborative and learning-centered environment.

Orientation and Student Leadership Programs
Katherine Kealey
Director
Laurel Hall 101
856.256.4041
oslp@rowan.edu

The Office of Orientation and Student Leadership Programs (OSLP) assists new students in their transition to Rowan University. Orientation and Student Leadership Programs directs programs such as freshman and transfer orientation and Leadership Rowan.

Orientation and Student Leadership Programs begins the integration process of new students into the intellectual, cultural, and social climate of the institution, and provides a capstone to students' co-curricular learning and development through leadership certification.

Leadership Rowan

Rowan University recognizes the value of preparing students for leadership roles. Through education, enrichment and empowerment, Leadership Rowan enables students to transform themselves, their communities, and the world through three levels of leadership experiences:

1. Leadership Training
2. Leadership Application and Organizational Effectiveness
3. Leadership Sustainability

Orientation

Through on-campus and online orientation programs, undergraduate students are introduced to the concepts of academic success, co-curricular enrichment, dual community membership, & holistic wellness and discover pathways to engagement through STEP UP. Orientation programs provide opportunities for parents & family members to support their student's transition. The Office of Orientation and Student Leadership Programs coordinates and implements these programs in collaboration with academic and student service units who share the responsibility for welcoming our new students and their parents and family members.

Greek Life
greeklife@rowan.edu

Fraternities and sororities are Greek-letter organizations that join together to offer fellowship, leadership opportunities, participation in campus activities, and service to both the University and surrounding communities. The Greek Life Office serves as the primary liaison to the recognized Inter/National fraternities and sororities at Rowan University. The mission of the Greek Community at Rowan University is to encourage and promote intellectual curiosity through academic achievement and to develop the personal and social skills of students by providing leadership opportunities through self-governance. In addition, the Greek Community strives to promote service through the University's co-curricular programs and through community involvement. The co-curriculum, established by Rowan University's Mission Statement on student development, promotes growth toward attitudinal and ethical development; and, responsibility to self and others through active participation in the betterment of the campus and larger community. The Greek Community is expected to plan its activities with academic and co-curricular mission of the University in mind.

Residential Learning and University Housing

Travis Douglas
Assistant Vice President for Residential Learning and Inclusion Programs
Savitz Hall, Room 103
856.256.4266
housingquestions@rowan.edu

The Office of Residential Learning and University Housing exists to support each individual resident student in all areas of their university experience. We expect that each resident student will play an active part in the development of a community that embraces diversity, personal growth, scholarship and respect of self, others, and the environment.

Residential Learning Programming: Residential Learning and University Housing coordinates programs designed to integrate high quality engagement with learning. The Residential Learning staff works with various members of the university community to provide a living/learning environment that is unique to the Rowan Experience.

Mandatory Housing: All unmarried undergraduate full-time students, under the age of 21, whether or not emancipated, who will not be living in the residence of their parents or legal guardian, must reside in the university residential facilities until completion of their **second academic year** (or four full-time semesters).

Residential Facilities: Rowan University offers two types of on-campus co-ed housing, residence halls and apartments. The Residence Halls are as follows:

Evergreen Hall, Laurel Hall, Mullica Hall, Magnolia Hall, Mimosa Hall, Oak Hall, Chestnut Hall, and Willow Hall

The Apartments are as follows:

Edgewood Park Apartments, Rowan Blvd. Apartments, Triad Apartments, and Rowan Townhouses

On-campus apartments are reserved for upperclassmen. Students with questions concerning housing facilities, arrangements or contract agreements should be directed to the Residential Learning and University Housing Office, Savitz (856) 256-4266.

Student Center & Campus Activities

Joe Lizza, Ed.D.
Director
856.256.4696
lizzaj@rowan.edu

The Chamberlain Student Center & Campus Activities (SCCA) team is committed to providing a safe, welcoming, and inclusive environment for all members of the Rowan University community. Through quality programs, services, and facilities, the SCCA creates opportunities for student engagement and learning, stimulates personal development, and contributes to building campus community in collaboration with university partners.

Everyone who walks through the doors of the Chamberlain Student Center will experience the best services, programs, and staff while developing a lifelong connection to the University.

Student Enrichment and Family Connections

Julie A. Peterson
Director
Laurel Hall 305
856.256.4596
peterson@rowan.edu

Rowan University's Parent and Family Program commits itself to establish and maintain a sound partnership with parents and guardians to enhance and support their student's university experience and promote student success.

We understand that you have a large personal and financial investment in your son's or daughter's education, and thus Rowan University. You want what we want: success for your son or daughter, and it is right and proper that you be a part of our community in a way that promotes the success of that student we all care so much about.

The Office of Student Enrichment and Family Connections achieves this collaborative partnership by being available to assist and guide parents and guardians in facilitating better communication with the University. The office works to nurture the relationship with parents and family members of Rowan University students by supporting student achievements and helping carry out the University carry out its mission. Parents and guardians are natural allies with the University as we seek to help students find success. Parents' hopes and goals are consistent with the Division of Student Affairs' mission to "cultivate the development of he whole person within a global society" by providing encouraging healthy life choices, multicultural competency, personal and professional growth, campus and community involvement, civic responsibility, and leadership development. The Parents and Family Program has a special interest in establishing cooperative relationships with academic departments and student services to establish parents ad a vital constituent of the University.

Parents' Orientation

Designed to complement Student Orientation, Parents' Orientation helps parents and family members get acquainted with the many different programs and services offered to students and addresses questions and concerns each may have.

Interactive programs are offered on:

- Academic Requirements
- Expectations
- Student Services
- College Success
- Coping with "empty-nest" syndrome

Welcome Weekend

"Aboard The Brown-Eyed Susan"

This is an opportunity to meet other parents and give yourself some much needed pampering after a long day of moving boxes into your student's room. Take advantage of services including reflexology, blood pressure screening, manicures, relaxation techniques, massages, games, healthy snacks and activities based on "STEP Up!" It's a wonderful way to send yourself off in style.

Family Weekend

Offered in the fall each year, Family Weekend celebrates the parents, siblings and other family members of our students. Rowan University families are invited to attend in this time-honored tradition and join their students for the traditional picnic, football game, and other exciting events.

Student Government Association
Chamberlain Student Center
856.256.4540

The Student Government Association (SGA), the official voice of students in University affairs, coordinates student activities on campus. All fulltime and part-time undergraduate students become members of the SGA upon payment of the student activity fee.

The SGA maintains meaningful student input in University affairs, serves as a funding source and coordinating group for student activities and provides services for the welfare of the students and the University. The SGA encourages the concept of diversity by involving students with as broad a variety of ideas and backgrounds as possible. To accomplish this, SGA opens many positions to students through appointment or election. These range from serving as class advisory board members to being president of SGA.

An elected executive board and senate consisting of student representatives of academic departments, classes and bureaus, administer the SGA. Students interested in running for or being appointed to a position in SGA may seek information in the SGA suite on the first floor of the Student Center or call 856-256-4540.

Student Organizations

At Rowan University, SGA charters and finances over 100 student clubs and organization. These organizations provide a wide variety of co-curricular and extra-curricular activities to meet the varying interests of Rowan University students.

Students can become members of organizations by contacting the organization's president or advisor directly. All organizations have a mailbox located in the SGA suite. Students interested in forming a new organization can request a new charter for it from SGA.

Student organizations are financed from fees charged to all matriculated undergraduate students. The Student Government Association assumes the responsibility for distributing all monies to the various organizations.

Volunteerism, Community Engagement & Commuter Services
Andrew Perrone
Assistant Director
Chamberlain Student Center, Suite 210
856.256.4597
perrone@rowan.edu

The Office of Volunteerism, Community Engagement & Commuter Services provides programming, resources, and support to promote a Rowan community of active citizens. We work collaboratively with university faculty and community partners to design a range of curricular and co-curricular service-learning opportunities. Students who engage with service learning, volunteerism and community engagement at Rowan will reflect on meaningful volunteer experiences as they develop a lifelong commitment to their communities. We also collaborate with Glassboro Administration and officials to assist with community concerns that may arise related to Rowan students sharing community life with residential neighbors. Furthermore, the VCECS office also provides programming and support resources geared towards Rowan University's commuter student population.

Student Health Services

Wellness Center at Winans Hall

856.256.4333
wellnesscenter@rowan.edu

Scott Woodside
Director, Wellness Center

Amy Hoch, Psy.D.
Associate Director of the Wellness Center

The Rowan University Wellness Center at Winans Hall on the main campus in Glassboro is a fully integrated health and wellness facility for Rowan University students. The clinical services integrated within the Wellness Center include: Student Health Services (SHS), Counseling and Psychological Services (CPS), Alcohol and Other Drugs Services (AOD) and Emergency Medical Services (EMS), and Healthy Campus Initiatives (HCI) and the newly added Shreiber Family Pet Therapy Program all of which provide comprehensive health and wellness care, education and programming to students.

The University's Stress Management and Response Team (SMART) is coordinated through the Wellness Center and each professional staff is a core member of the team. This university-wide group is available to meet with various divisions, departments, organizations, and groups on campus in order to assist with response to traumatic events that impact particular groups of students or the university community as a whole.

Counseling and Psychological Services

Counseling and Psychological Services (CPS) at the Wellness Center provides confidential mental health and substance abuse services to enrolled students. CPS counselors help students get connected with short term group, individual and brief drop in sessions called Let's Talk. Some common areas addressed in counseling for college students include academic stressors, coping with personal and family relationship issues, stress and anxiety management, coping with depression, eating and body image issues, dealing with grief and loss, trauma and substance use.

Emergency Medical Services

Emergency Medical Services (EMS) is a student-run organization chartered under the Student Government Association and supported by the Wellness Center, providing emergency medical response 24/7 to the Rowan University campus and surrounding community. Since its inception in 1978, EMS has been providing emergency services and is one of the longest serving collegiate EMS squads in New Jersey. Rowan University is recognized as a National Heart Safe Campus and in 2019 EMS was awarded the Gold Tier recognition from the National Collegiate Emergency Medical Services Foundation as an EMS Ready Campus. The only collegiate EMS organization in the country to receive this distinction. EMS operates with approximately 80 volunteered members with two NJ ambulances, a first responder vehicle, and two bicycle response teams.

Healthy Campus Initiatives

Healthy Campus Initiatives (HCI) at the Wellness Center educates students about making healthy decisions and choices regarding their personal wellness that will enhance their college experience. All members of the Rowan community are encouraged to attend workshops, programming, and campus events aimed at increasing knowledge and developing attitudes and beliefs that promote health and wellness in several areas. These areas include suicide prevention and sexual health.

Shreiber Family Pet Therapy Program

The Shreiber Family Pet Therapy Program at the Wellness Center provides a variety of Animal-Assisted Activities (including Animal-Assisted Therapy) to support student health and well-being. The program partners with the other departments in the Wellness Center and other offices on campus. These partnerships include: the Division of Diversity, Equity & Inclusion (DEI) [such as: the Social Justice, Inclusion & Conflict Resolution Center (SJICR)]; Academic Affairs (such as: Disability Services, and, the Autism PATH Program; Military Services; and, Admissions); and the Early Childhood Demonstration Center. Partnerships also include student clubs such as: the Pre-Vet Club, and the Animal Advocacy Club.

Student Health Services

Student Health Services (SHS) at the Wellness Center strives to remove health-related barriers to learning, to promote optimal wellness, to enable students to make informed decisions about health issues, and to empower students to be self-directed and well-informed health care consumers. Licensed physicians, nurse practitioners and registered nurses provide quality, professional healthcare, both in person and telehealth, to all students who are matriculated and currently enrolled at Rowan University.

All incoming matriculated students must complete Wellness Requirements by July 15th (December 15th for Spring admission). These requirements included online health forms, an immunization record, and online learning modules. Visit https:www.rowan.edu/healthforms.

All matriculated students are required to have health insurance as a condition of full time enrollment at Rowan University. To enroll in, or waive, the health insurance plan offered by Aetna, visit the Bursar's website at www.rowan.edu/bursar and follow the instructions. Failure to waive the plan will result in automatic enrollment into the plan.

Rowan University Libraries

Robert Hilliker
Interim Associate Provost for Library Information Services
Keith and Shirley Campbell Library
856.256.4800
hilliker@rowan.edu

Rowan University Libraries supports the University's educational and research mission through the judicious selection, management, promotion, and training in the use of information resources and services. Rowan University Libraries provides the Rowan community with access to an extensive range of resources and services, which are accessible through four physical libraries and through the Libraries' website. Reference librarians are available in all libraries for research consultation and to assist patrons in identifying, locating, accessing, and evaluating both print and online resources.

Keith and Shirley Campbell Library

The Keith and Shirley Campbell Library, the main library, is on the Glassboro campus. Opened in 1995, the 118,000 sq. ft. facility, houses nearly 350,000 print books, multimedia materials, periodicals, newspapers, and special collections in a variety of formats. Rowan University Libraries subscribes to 95,000 online journals and thousands of other e-resources that are available 24/7 through the Libraries' website. The collection includes nearly 800,000 e-books. Librarians are available to assist students virtually via "Ask a Librarian" chat, email, and text services. Rowan's Libraries participate in a number of local consortia groups to provide patrons with materials not available to them at Rowan University.

Campbell Library staff provide orientations, tours, and workshops throughout the academic year. A 30-workstation lab is available for student use, as well as library instruction, on the first floor. Additional computer workstations are also available on the second and third floors. And, 17 group study rooms are available throughout the building for use by students.

Digital Scholarship Center

Campbell Library also houses the Digital Scholarship Center, a collaborative environment to support Rowan community members in the exploration of emerging digital technologies. Students, faculty, and staff are welcome to bring projects to work on collaboratively. They can access technology resources available through the Rowan Cloud and brainstorm projects with trained library staff. And, they can engage in self-paced technology discovery.

The Performing Arts Collection

Located on the second floor, the Collection offers specialized information services and instruction for students and faculty. The Performing Arts Collection houses significant collections of scores, CDs, scripts, and recordings. Specialty databases are available through the Rowan University Libraries website.

University Archives and Special Collections

University Archives and Special Collections are housed on the third floor of the Campbell Library. Historic state documents and materials on the history of Rowan University are primary sources useful for study. The collection has grown to include a wide range of important source materials beginning with the Colonial and Revolutionary eras. Researchers and scholars from across the nation use these important collections. The University Archives include items from the historic summit in 1967 between President Lyndon Johnson and Soviet Premier Aleksei Kosygin, which took place at the Hollybush mansion on campus.

The CMSRU Library

The CMSRU Library, located inside Cooper Medical Center, serves the faculty, staff, and students of CMSRU; Cooper Medical Center; and members of the Rowan University community. The Library houses a small collection of print books and journals in the clinical and basic sciences. The bulk of the collection is comprised of electronic books, journals, databases, and related specialty collections. These are linked via the library website and are available to users 24/7. There is also a Learning Commons located inside the CMSRU building.

The Rowan SOM Health Sciences Library

The Health Sciences Library is located in the Academic Center building. It serves all students, faculty, and staff on the Stratford Campus, as well as members of the Rowan University community. The Library houses an extensive collection of print books and journals in the clinical and basic sciences. In addition, a collection of electronic journals, electronic books, and a wide variety of image databases and collections are available through the Libraries' web page.

The International Center

Gokhan Alkanat
Associate Provost for International Education
Hawthorn Hall, 313
856.256.4292
alkanat@rowan.edu & rowanic@rowan.edu www.rowan.edu/international

The International Center (IC) supports the internationalization and globalization of Rowan University by offering comprehensive services in the following areas:

- Creation and cultivation of partnerships with overseas institutions
- Cultural adjustment of international students
- English Language Program
- Immigration advising for international students and scholars
- International Travel Policy
- Study Abroad programs

The John H. Martinson Honors College

Lee Talley
Dean
The Whitney Center
856.256.4775
talleyl@rowan.edu

Rio Napoli Clements
Assistant Dean
The Whitney Center
856.256.4775
@rowan.edu

The John H. Martinson Honors College is the home of the Thomas N. Bantivoglio Honors Concentration. Open to academically-motivated students of every major, the Martinson Honors College fosters a diverse community of citizen scholars by cultivating curiosity and integrity both in and outside the classroom. The Honors' undergraduate experience is personified by our motto, "think, thrive, share." We develop socially and civic minded leaders active in participation and service within and beyond Honors, while our innovative and interdisciplinary curriculum alongside extra-curricular activities foster an understanding and appreciation of cultures and the arts. Students, faculty, staff, and administration collaborate to provide a holistic framework that supports wellness, leadership, and civic engagement.

Division of Diversity, Equity & Inclusion

go.rowan.edu/dei

Monika Williams Shealey
Senior Vice President
Savitz Hall, 2nd Floor
856.256.4751
shealey@rowan.edu

Penny McPherson-Myers
Vice President
Savitz Hall, 2nd Floor
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mcphersonp@rowan.edu

The Division of Diversity, Equity and Inclusion at Rowan University leads and supports initiatives that promote diversity, equity and inclusion by developing and sustaining meaningful partnerships with internal and external constituents that result in a more diverse and inclusive community; utilizing data to inform continuous improvement efforts and innovation; and implementing university-wide culturally responsive and relevant programming that result in equitable educational opportunities for students and an affirming culture and climate. The departments reporting to the Division are Social Justice, Inclusion and Conflict Resolution; Center for Neurodiversity; Office of Student Equity and Compliance; Center for Access, Persistence, and Achievement; Equity and Inclusion at Rowan SOM, and the Faculty Center for Excellence in Teaching and Learning is shared with the Division of Academic Affairs.

Diversity, Equity and Inclusion Council

The Division of Diversity, Equity and Inclusion Council is comprised of university administrators, faculty, staff from each Division, College and department, as well as undergraduate and graduate student representatives, responsible for leading in the development, implementation, and monitoring of the university's diversity strategic action plan. The DEI representatives are from the following groups: academic units (Diversity Committee Chairs/Associate Deans), Student Enrollment Management, Advising, Student Affairs, Admissions, International Center, Faculty Center, A, OSEC, CAPA, SJICR, Public Safety, Alumni Engagement, Advancement, Diversity Faculty Senate Committee, Office of Research, Library Services, Wellness Center, Facilities, and Human Resources, General Council, Library services, and student leaders.

Social Justice Inclusion and Conflict Resolution

Roxie J. Patton
Director
Hawthorn Hall, Room 203
856.256.5495
socialjustice@rowan.edu

The Office of Social Justice, Inclusion, and Conflict Resolution is committed to establishing transformative educational experiences. Through culturally sustaining practices, we aim to cultivate leadership, identity development, and global citizenship by empowering our community at Rowan and beyond. The office serves as an umbrella for the following programs and centers:

Harley E. Flack Student Mentoring Program

harleyflackmentoring@rowan.edu

The Harley E. Flack Student Mentoring Program was founded in 1992, and provides a comprehensive array of mentoring services. Services are designed and delivered using methods based on strong evidence, which indicates that these programs support retention and student success. Students participating in the program are matched with peer and professional mentors to guide them through the celebrations and challenges of their first and second year at Rowan.

Multicultural Center

Hawthorn Hall, Room 213
multicultural@rowan.edu

The Multicultural Center serves as a resource for students from diverse cultural and identity groups, backgrounds and promotes the celebration of diversity, development of cross cultural understanding and competency, and the inclusion of people from diverse cultural backgrounds in the Rowan community.

Interfaith and Spiritual Exploration Center

Evergreen Hall, Room 182
856.256.5447
interfaith@rowan.edu

The Spiritual Exploration Center aims to promote a campus environment that is inclusive of student's religious and spiritual identities and experiences by creating opportunities for the expression and exploration of spiritual and religious beliefs and values. Programs and initiatives of the center will advance understanding and appreciation of the contributions of communities of faith in the Rowan community.

LGBTQIA+ Center

Hawthorn Hall, Room 214
LGBTQ@rowan.edu

The LGBTQIA+ Center aims to create a safe space for students who identify as LGBTQIA+ and support students' exploration of their identity. Through programming and initiatives, the center advocates for student needs while serving as a hub for community and identity development.

Women's Center

Hawthorn Hall, Room 210A
women@rowan.edu

The Women's Center develops programming that addresses the needs of all self-identified women and empower s students to promote a campus community inclusive of all genders. Programs and initiatives of the center will support efforts to address inequity, promote understanding of women's and gender issues, and create a space for women to build bridges and a

strong sense of community

Center for Neurodiversity

Amy Accardo
Faculty Director
Laurel Hall, First Floor
856.256.3790
neurodiversity@rowan.edu

The Center for Neurodiversity is a cultural center within Rowan University's Division of DEI. The Center for Neurodiversity situates neurodiversity in DEI initiatives recognizing that all aspects of human diversity are natural and valuable (dis/ability, race, ethnicity, gender identity, sexuality, etc.). The mission of the center is to provide programming, research and community engagement that value and prioritize neurodiversity culture. The Center for Neurodiversity defines neurodiversity culture as group belonging and pride formed around shared lived experiences, personal disability identity, and social justice activism.

Office of Student Equity and Compliance

Monise Princilus,
Associate Vice President and Title IX Coordinator
Diversity, Equity and Inclusion
Savitz Hall, 2nd Floor
Glassboro, NJ 08028
856.256.5440
princilus@rowan.edu

https://sites.rowan.edu/diversity-equity-inclusion/titleix/index.html

Office of Student Equity and Compliance (OSEC) serves as the main contact for all Title IX and Title VI-related matters at Rowan University.

Title IX of the Education Amendments of 1972 is a federal law that prohibits sex discrimination in all educational settings for both students and employees. The law states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance."

To report a Title XI matter, CLICK HERE .

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color or national origin in any program or activity receiving Federal financial assistance. As such, the University is dedicated to providing an environment free from discrimination on the basis of disability, gender identity and expression, national origin, race or ethnicity, religion, sex, sexual orientation, age, color, veteran status, genetic information or any other protected classification.

To report a Title VI matter, CLICK HERE .

Center for Access, Persistence & Achievement

Dawn Singleton
Assistant Vice President, Student Success and Inclusion Programs
Savitz Hall, Suite 345,
Camden Academic Building, Room 218

Achieving Success through Collaboration, Engagement and Determination Program (ASCEND)

Dawn Singleton
Assistant Vice President
Student Success and Inclusion Programs
ASCEND
Glassboro, Savitz Hall, Suite 345
856.256.4080
ascend@rowan.edu

ASCEND Camden, Academic Building, Second Floor
856.361.2930

The ASCEND program is an educational pipeline scholarship program for first generation, underrepresented, and/or low income students which utilizes a series of intentional programming to support students in the program. Within the

ASCEND program there are a few components: the Educational Opportunity Fund Program (EOF), the RISE Scholarship Program.

The EOF program provides access, preparation, orientation, and academic support for students who are among the first in their family to attend college, and for those who otherwise may face unique challenges in college due to economic, cultural, or educational circumstance.

To be considered for the EOF program, students must complete the Common Application and select EOF. The four main requirements for EOF applicants are:

1. At least one year residency in New Jersey.
2. A background of historical poverty as indicated by the Free Application for Federal Student Aid (FAFSA) and supporting documentation.
3. Potential for college level success as demonstrated by an interview, letters of recommendation, etc.
4. A High School or General Equivalency Diploma.

The RISE Program is a scholarship program designed for highly motivated first-generation students who would benefit from additional academic support and resources. There is no financial eligibility criteria for the RISE program. However, students are required to complete the FAFSA.

To be considered for the RISE program, students must submit the Common Application. Admissions officers and the EOF team collaborate to identify potential candidates, review admission information and conduct student interviews to determine admittance. Selected students of the ASCEND program are conditionally admitted and required to participate in a six week summer bridge program. This program provides college survival skills, leadership skills, academic coursework and support, STEM enrichment activities, and orientation for transition into the University environment. During the summer program, the ASCEND staff evaluates the students' demonstrated ability to successfully transition into Rowan University and makes a recommendation regarding the appropriateness of fall admission.

ASCEND students are assigned an ASCEND counselor to provide a broad range of academic and personal support services, including counseling, tutoring, and leadership development from freshman year through graduation. ASCEND Counselors interact with students in individual and small group settings. Financial assistance is provided to qualified students.

Creating Higher Aspiration and Motivation Project (CHAMP)

Winona Wigfall
Director
Camden Bank Building, 2nd Floor
856.361.2920
wigfall@rowan.edu

The Creating Higher Aspiration and Motivation Project (CHAMP) serves approximately 300 6th through 12th grade Camden City middle and high school students annually, with college access activities. CHAMP provides participants with a solid foundation to aid them with support necessary to successfully complete secondary education and post-secondary programs leading to careers in fields in which persons from minority and/or disadvantaged backgrounds are underrepresented, such as engineering, computer science, medicine, environmental science, etc.

The program includes a six-week summer enrichment program, with a goal of increasing students' math, science, English, public speaking and computer science knowledge and skills. Emphasis is placed on self-esteem, social and cooperative skill building and career exploration. The academic year program includes after school tutoring, in and out of school counseling and mentoring, Saturday field trips and educational activities, as well as trips to colleges and universities. PSAT/SAT instruction is offered twice a week as well as assistance with college applications and financial aid forms.

The program is supported by funds from the U.S. Department of Education administered through New Jersey Higher Education, NJ College Bound Grant Program, Camden City Public Schools and Rowan University.

The Launch Pad at Camden

Dawn Singleton
Camden Academic Building
singletond@rowan.edu

The Launch Pad at Camden (TLP) is a comprehensive college access and pipeline program, which includes of dual credit and early college course work, student success resources, intentional recruitment and financial aid packages for high school students participating in dual credit and early college course work on the Camden campus. TLP provides support and resources to academically promising high school students, who demonstrate a financial need and/or no family history of college. TLP provides academic, social and financial support to scholars and their families to and through college.

Louis Stokes Alliance for Minority Participation

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The Louis Stokes Alliance for Minority Participation (LSAMP) is part of a national effort to increase the number of underrepresented minority students who successfully complete baccalaureate and advanced degrees in Science, Technology, Engineering and Mathematics (STEM) disciplines. Funding for the LSAMP program is provided by the National Science Foundation (NSF). Rowan University is one of nine institutions that comprise the consortium called the Greater Philadelphia Region Louis Stokes Alliance for Minority Participation. This consortium represents a diverse partnership of Historically Black Colleges and Universities (HBCUs), both public and private two- and four-year research and non-research institutions. The Louis Stokes Alliance for Minority Participation at Rowan University, partners with the ASCEND program, academic colleges, the Division of University Research, student groups, and other University stakeholders to broaden the participation of underrepresented students in STEM majors. The ultimate goal of this program is to diversify the STEM workforce. This is done by facilitating and identifying professional development opportunities including but not limited to seminars, conferences, internships, cooperative employment experiences, research or civic engagement. The program also encourages students to pursue advanced degrees in STEM.

Upward Bound Program

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The Upward Bound program is a federally funded program that provides opportunities for students from low-income families and/or first generation college bound students, to succeed in college. The Upward Bound program at Rowan Camden is serves English Language Learners-students from Camden high schools who participate in their school's bilingual or ESL program.

DEI at Rowan SOM

School of Osteopathic Medicine
Yvonne Torruella Ortiz
Director of Diversity, Equity and Inclusion
Stratford Campus, Academic Center, 308
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The Office of Diversity, Equity, and Inclusion (DEI) in the School of Osteopathic Medicine (SOM) supports the mission by preparing culturally proficient physicians and researchers who are equipped to serve diverse communities. The Office of DEI is responsible for collaborative efforts across SOM to recruit and retain diverse medical students as well as foster a holistic teaching and learning environment to produce more diverse physicians to serve New Jersey and the nation. Lead by the Inaugural Director of DEI, the DEI Committee guides evidence-based goals and actions to impact institutional climate for diverse students, residents, faculty, staff and clinicians to thrive. Collaborative efforts include pathway programs supporting underrepresented, minoritized high school students to innovative professional learning, programming, and instruction to prepare future and current physicians and researchers for culturally-responsive service to eradicate health disparities, racism, and all forms of bias in medicine.

Faculty Center for Excellence in Teaching and Learning

Rachael Shapiro
Fellow on Diversity, Equity and Inclusion to the Faculty Center
Henry D. James Hall, 3092
https://sites.rowan.edu/academic-affairs/facultycenter/

The Faculty Center for Excellence in Teaching and Learning creates valuable and appropriate connections across campus in order to facilitate individuals' growth as engaged university citizens; and serves faculty, pertinent supporting offices, and the institution in pursuit of teaching, scholarship and creative excellence. The Center's three areas of activity are 1) induction and ongoing support of faculty; 2) professional development focused on research-based and culturally responsive teaching practices, acquisition of skills to support diverse learners, and academic career progress; and 3) institutional change relevant to diversity, equity and inclusion in teaching, scholarship and creative activities. Programming is designed to encourage reflective pedagogy and assist in creating an equitable learning environment for all faculty and students. The Center encourages self-directed inquiry through various modes including programs, learning communities, affinity and discussion groups, and conference participation.

Our Goals:

- Promote a high standard of quality teaching and learning encompassing a commitment to diversity, equity and inclusion

- Support junior faculty throughout the tenure and recontracting process
- Support faculty in development of inclusive teaching principles
- Create an inclusive community with equitable opportunities for all faculty
- Represent the interests of teaching and learning at the university
- Build faculty leadership capability
- Maintain currency in the field

Division of Facilities, Planning & Operations

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Kevin Muldoon
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The Division of Facilities, Planning, and Operations' mission is to create and sustain a vibrant, safe and supportive living and learning environment across Rowan's multiple campuses. The Division oversees planning and operations on the Main Campus in Glassboro, in Camden at the Cooper Medical School at Rowan University and at Rowan University School of Osteopathic Medicine in Stratford.

In order to accommodate a growing university, the Division provides guidance in facilities development and management, campus master planning, and real estate management and operations. A team of experienced project managers, planners and architects lead capital projects including new construction, renovation, infrastructure and landscape architecture.

Facilities, Planning, and Operations contributes to a welcoming, attractive and sustainable environment, ensuring environmental health and safety in support of Rowan's mission and in service to the adjacent communities.

Division of Finance

Joseph F. Scully, Jr.
Senior Vice President for Finance and Chief Financial Officer
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The mission of the Division of Finance is to provide fiscal leadership in supporting the instruction, research, and public service missions of the University by providing reliable financial information; exemplary service and objective advice to both internal and external customers. The Division of Finance oversees a comprehensive financial management system for stewardship of University resources. It also ensures regulatory compliance and the achievement of shared goals and objectives for the University community through teamwork, professional expertise, developing practical procedures and processes, the promotion of efficient systems, maintaining sound financial records, and seeking continuous improvements.

The Division of Global Learning & Partnerships

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https://global.rowan.edu

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The Division of Global Learning & Partnerships is Rowan University's vehicle to identify and meet the specific needs of the adult student population. Our students include recent college graduates pursuing graduate or doctoral studies, returning college students pursuing the completion of a baccalaureate degree, employees/employers seeking professional development, and life-long learners seeking personal enrichment. The Division places foremost emphasis on making quality education accessible, convenient, and affordable through delivery modes that address the vast range of adult student learning needs and preferences. In partnership with Rowan University's academic colleges and schools, Rowan Global currently offers several doctoral/specialist level programs (including both Ph.D. and Ed.D. programs), over 50 master's level programs (including concentrations), more than 50 graduate-level and post-baccalaureate certificate programs and endorsements, and more than a dozen of undergraduate degree-completion programs.

Rowan Global course/program offerings and corresponding services are classified into four major categories:

- **Traditional-format graduate-level** (including post-baccalaureate, master's and doctoral) courses/programs for both part-time and full-time students. Courses are commonly face-to-face, 16 weeks, and held on one of Rowan's campuses.
- **Non-traditional format courses/programs at every level** (undergraduate, post-baccalaureate, master's and, doctoral). Courses are offered online, hybrid, off-site, at our partner college campuses, in an accelerated 7-week timeline, or some combination of these.
- All Rowan University **summer and intersession** courses.
- **Professional development and personal enrichment** non-credit courses, workshops, and seminars.

Locations and Campus Information

The Division of Global Learning & Partnerships is located on Rowan University's Main Campus in Glassboro, New Jersey, and in the University District in Camden, New Jersey. Additional offices are also located in our community college partners' campuses.

Rowan Global's Glassboro campus is housed inside the Enterprise Center, a mixed-use facility on the recently developed Rowan Boulevard next to the Barnes and Noble University Bookstore, and among several eateries, health services, and luxury apartments and condominiums.

The Camden campus is located in the historic First National Bank and Trust Company building and annex, on the corner of Cooper and Broadway. The Camden campus provides an array of services for students, faculty, and staff, including access to the Barnes and Noble University District Bookstore and Café and the Rutgers University Paul Robeson Library.

Rowan Global's Camden campus offers undergraduate degree-completion programs, including Law and Justice, Sociology, Human Services, and Disaster Preparedness and Emergency Management; graduate programs in Education; and several academic enrichment programs designed to advance access to higher education among diverse populations, including the

acclaimed Intensive English Language Program for English Language Learners (IELP) and the Achieving Success through Collaboration, Engagement, and Determination (ASCEND) program.

While parking privileges are available on both campuses, Rowan University also provides a daily courtesy shuttle that runs between the Glassboro and Camden campuses.

Office of Winter, Summer, and Special Sessions

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Web: https://global.rowan.edu/alternate-pathways/summer-winter/
Facebook: www.facebook.com/RowanOWSS
Twitter: twitter.com/RowanOWSS
Instagram: instagram.com/rowanowss

The Office of Winter, Summer, and Special Sessions celebrates a year-round college experience for students. Rowan University hosts a combination of its own graduate and undergraduate students, as well as visiting students from local, regional, national, and international universities. Through accelerated Winter and Summer courses, students earn credits to stay on track in a four-year program, graduate early, earn credits towards an additional program of study, and/or complete academic and professional programs for employment growth and opportunities. Winter and Summer sessions are offered online, hybrid, and face-to-face to accommodate a sizable and diverse population of learners.

Additionally, the Office of Winter, Summer, and Special Sessions coordinates special efforts to offer college credit-bearing courses to high achieving high school juniors and seniors at a reduced tuition rate through the Rowan University College Acceleration Program (CAP) and High School Online Dual Credit Initiative. Rowan University courses offered through CAP and the High School Online Dual Credit Initiative fulfill several of Rowan University's general education requirements and are designed to be transferable to other institutions of higher education.

Office of Advising & Student Information Services

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The Office of Advising & Student Information Services (OASIS) provides onboarding, registration support, academic advising, and related services to students enrolled in undergraduate, post-baccalaureate, graduate, and certificate programs administered by Rowan Global.

In collaboration with Rowan University faculty and staff, OASIS provides outstanding service and expedient access to higher education for a growing population of national and international students across a range of course delivery modes, including face-to-face, hybrid, and fully-online programs.

Academic Advising

OASIS assists students at all levels with registration and financial/tuition concerns; provides clarity on university processes and policies; supports students as they transition into the higher education environment, and identifies and resolves student matters regarding all aspects of academic engagement.

Undergraduate students enrolled in degree completion programs offered online, at the Camden campus, and through our community college partners (RCBC, RCSJ, and Camden CC) are advised by OASIS primary-role academic advisors.

Graduate, post-baccalaureate, and certificate students are assigned a faculty advisor through their program's academic department; in addition, OASIS advising generalists also assist graduate-level students with a variety of personal, academic, and administrative concerns throughout their enrollment at Rowan.

Credit for Prior Learning

Rowan Global Learning & Partnerships encourages undergraduate students to seek college credit for prior learning. Prior Learning Assessment, the evaluation of knowledge and competencies for the purpose of awarding college credit, validates the level of knowledge gained from other sources of experiential learning. Institutional credit for prior learning pathways offers adult, returning, and other non-traditional learners the opportunity to accelerate degree completion through the demonstration of college-level competencies and knowledge gained outside the university setting. College-level learning may result from various life experiences, including business ownership, civic leadership, workplace training, volunteer work, military training, nationally recognized licensure, and union-sponsored apprenticeships. Individualized assessments may include professional credentials, standardized tests, military transcripts, institutional credit by examination, and in certain cases, portfolio assessment. College credit is awarded based on the demonstration of college-level learning and not for experience alone.

Adult learners, returning to college or just beginning, may wish to explore available Credit for Prior Learning opportunities may contact Rowan Global Learning & Partnerships' office of Advising & Student Information Services (OASIS) at: globalstudent@rowan.edu .

Transfer Credit Processing

Graduate students seeking to transfer student to Rowan must submit a Graduate and Post-Bac Transfer Credit Evaluation form (Available for download at the Student Success and all required supporting materials (official transcripts, syllabi, course descriptions) at the time of application.

Most graduate programs at Rowan University allow incoming matriculated students to transfer up to 12 graduate-level credits (six (6) credits for certificate programs) provided that a grade of B or better was earned, the courses and credits are deemed equivalent to required courses, and credits in the program, and the coursework was taken within the past 10 years. For the transfer credit policy for a particular graduate program, please contact the program's Academic Advisor.

Rowan Global undergraduates with questions or concerns about transfer of credit should contact registrar-transfercredits@rowan.edu for assistance.

Registration

For matriculated Rowan Global students, registration plans vary according to program. Information regarding how and when to register will be included in student orientation and registration information provided post-matriculation. Any registration-related questions should be directed to OASIS staff at globalstudent@rowan.edu.

Senior Privilege

The Office of Advising & Student Information Services coordinates the Senior Privilege process at Rowan that allows qualified students to enroll in up to six (6) credits of graduate-level courses prior to completion of a Bachelor's degree and while paying the undergraduate tuition rate. Seniors (students with 90+ earned hours) at Rowan University who have at least a 3.00 cumulative undergraduate GPA may request permission to register for one graduate-level course per semester through the Senior Privilege process by submitting the proper forms (available at Student Success website to the office of Advising & Student Information Services before the close of registration for the term in questions. For more details about this policy and process, please consult: Senior Privilege Policy.

Division of Information Resources & Technology (IRT)

Mira Lalovic-Hand
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www.rowan.edu/irt

For help with a technology-related issue, please contact:
Technology Support Center
856.256.4400
support@rowan.edu

support.rowan.edu

The Division of Information Resources & Technology (IRT) provides university-wide support for all information resources governance processes, information technology infrastructure, information security, business applications, data governance,

and information management services.

IRT is committed to helping students, faculty and staff with computer, network, telephone/voicemail, username/password and other technology issues. IRT provides that support via phone, email, in-person consultations and on-site visits.

By providing the university with information and technology resources and services that support and enhance academic and administrative programs, IRT promotes student-centeredness, excellence in instructional practice, quality management, and efficiency and integrity of operations.

Division of Strategic Enrollment Management

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Admissions

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The Office of Admissions at Rowan University operates for the purpose of recruiting a diverse and academically talented group of students to attend the University as first-time freshman and transfer students, who will be retained until degree completion. Applicants are admitted to undergraduate study based on academic and personal qualifications. Recruitment and admission procedures are designed to enroll students who will benefit from and contribute to the University as it meets the challenges of the future.

NOTE:

Admission to all Rowan post-baccalaureate and graduate programs (both traditional-format and non-traditional-format) as well as admission to any Rowan non-traditional-format (online, off-site, hybrid, accelerated) *undergraduate* program are coordinated by Rowan Global Learning & Partnerships.

Rowan's admission process adheres to general policies established by the New Jersey Commission on Higher Education and the Rowan University Board of Trustees. Applicants are carefully considered in view of their total secondary school record, performance on the SAT I or ACT examination(if submitted), school and community activities, post-secondary school experiences, and the University's estimate of the applicants potential as students and members of society. Applicants for Art, Music, Theatre and Dance are also required to complete an on-campus portfolio review or audition and interview.

Deadlines for submitting freshman application and official records:

January - For merit scholarship consideration applicants should submit a completed application by January 31.

March - All freshman and transfer applicants must submit a completed application with supplemental materials by March 1.

Applications

Rowan University accepts The Common Application or an internal Rowan applicationfor freshman applicants and an internal Rowan application for transfer students. Applications are available at admissions.rowan.edu.

Eligibility for Admission

Applicants for admission to Rowan University must present certificates or transcripts proving graduation from an approved secondary school, or they must indicate that graduation is scheduled during the current scholastic year. GED equivalencies are considered in lieu of high school diplomas. Applicants should ensure that this information is forwarded to the Admissions Office.

Applicants must show they have completed or are in the process of completing a minimum of 16 college preparatory courses to be eligible for consideration for admission. The New Jersey Commission on Higher Education has set the following college preparatory guidelines for admission:

4 units - English
2 units - laboratory science*
3 units - college prep mathematics (Algebra I & II, geometry)*
2 units - social studies
5 units - Additional work in at least two of the following areas: English, history, languages (minimum of two units in one language), mathematics, social science and science.

*The College of Engineering seeks applicants with 3 units of laboratory science including chemistry and physics and 4 units of college preparatory mathematics including pre-calculus (calculus preferred).

Entrance Examinations

Applicants may submit either the SAT I or the ACT test scores in support of their application to Rowan University.

Scholastic Assessment Test SAT I tests are given in numerous centers, usually in high schools, throughout the United States. Applications should be sent to College Entrance Examination Board, P.O. Box 592 Princeton, NJ 08540, or online at www.collegeboard.com. Applicants should request that results be sent to Rowan University: C.E.E.B. Code 2515.

American College Testing Program Student registration manuals are available in most high schools. Materials can also be obtained from ACT, P.O. Box 168, Iowa City, Iowa 52240, or online at www.act.org.

Test-optional Admission

The test-optional admission policy is designed to provide access to students who are successful in the classroom, regardless of standardized test scores. Students who have excelled academically can take advantage of the Test-Optional Admissions path. Prospective students may choose not to submit their standardized test scores as part of the Admissions application process. There are some exceptions, including prospective 3+4 BS/MD and BS/DO applicants, GED diploma holders, and homeschooled students.

Rowan will use alternate indicators to evaluate college preparedness, including grade point averages, courses taken, evidence of leadership and motivation, and essays provided by the students. Students admitted to the University through test-optional admissions are required to take reading and math placement tests. Test scores will not be accepted for exemption.

Deferred Admission

Rowan University is aware and, in many cases, approves of the feeling of many high school seniors that a year's experience between high school and college would be beneficial. A year away from formal academic work frequently sharpens the student's sense of direction and purpose. Any student who is accepted, pays the admission deposit, and then chooses to defer registration in courses at Rowan, must request deferred admission status before August 1. Deferred admission is not an option for those admitted to special admission programs or the EOF program.

Out-Of-State Applicants

Rowan University welcomes applications from out-of-state students.

Advanced Placement

Rowan University awards credit for the College Entrance Examination Board Advanced Placement examinations for scores of 3, 4, or 5. Candidates must arrange to have official score results forwarded to the University Registrar. Upon written request, degree credit equivalent to one semester's work (3 s.h.) will be awarded in that particular subject or its equivalent. Advanced placement credit is recognized as fulfilling general education requirements where applicable and will be considered as un-graded, transfer credit. The College-Level Examination Program (CLEP) is a series of examinations that allow students to demonstrate their knowledge in a wide range of subjects and receive credit. (See additional information in Course Credit by Examination.)

Campus Visits

We encourage prospective students to visit our campuses. Campus tours are offered daily throughout most of the year. The University also holds numerous open house programs throughout the year. Specific dates are listed in admissions publications and on the Rowan University Admissions website www.admissions.rowan.edu/visit .

Transfer Admission

Students who have completed a minimum of 12 semester hours of transferable credit by the application deadline are classified as transfer applicants. The cumulative GPA for all college work is the primary consideration for Rowan University's admission decisions. Although most programs require a 2.0 minimum GPA, some majors may also require completion of specific courses prior to admission. For information on additional requirements for The Rohrer College of Business and The Henry M. Rowan College of Engineering, please consult the following links:

www.Business.rowan.edu/academic-advising/rohrer-college-business-change-major-requirements.html .

https://engineering.rowan.edu/prospective_students/ .

Transfer applicants should complete the following steps:

1. File an application for admission with all required documents by March 1 for September entrance or November 1 for January entrance. Arrange to have official transcripts of all previous academic work sent from each college attended to Rowan's Admissions Office.
2. Students seeking to transfer into the Art, Music or Theater and Dance programs must contact the appropriate department to arrange for a portfolio review or audition. These evaluations must be completed before the application deadline.
3. Payment of a non-refundable enrollment deposit after being offered admission and then enrollment in courses completes the admission process.

Transfer students are encouraged to take advantage of information available through their community college transfer counselor, the Rowan University transfer equivalent information available on our website, and the NJ Transfer initiative www.njtransfer.org . Students who have been dismissed by their previous college are not immediately eligible for admission to Rowan University. Students must wait at least one year and show appropriate interim activities to be eligible for consideration. Because transfer admission decisions usually are made on the basis of incomplete transcripts of credit, they are always subject to review on the basis of later information. Offers of admission may be withdrawn if students do not complete their semester in progress satisfactorily. The registrar's office and the faculty make specific evaluations of college transcripts for transfer of credit in the student's major department. Students will receive an evaluation of previous coursework at the time of acceptance. Although applicable credits transfer, grades earned at other colleges do not affect the Rowan GPA.

Mid-Year Admission

Rowan University generally has freshman and transfer openings mid-year. The application deadline for consideration for spring admission is November 1.

Application Fee & Enrollment Deposit

A $65 non-refundable application fee is required of all freshman applicants. There is no application fee for transfer applicants. After notification of admission to Rowan University, freshman applicants must send a $200 non-refundable enrollment deposit by May 1. Transfer applicants must send a $100 non-refundable deposit by the deadline given in the admission letter for transfer applicants. This deposit reserves a place for students in the formal enrollment process.

Fee Waiver: The $65 application fee may be waived by the University upon written certification by the applicant's school counselor or other school official that payment would constitute a financial burden to the applicant. Such requests must accompany the application.

Matriculation: The term matriculation means a student has been formally admitted to Rowan University. A student becomes matriculated by going through the admission process and paying the enrollment deposit. The last step in the matriculation process is enrollment in classes. Entering freshmen and transfer students must register for courses in the semester for which they were accepted to maintain matriculation status.

Educational Opportunity Fund (EOF) Program

This program provides access to college for students who are educationally and economically disadvantaged, and who are motivated and have the potential for success.

Students are admitted on the basis of their need for more appropriate educational opportunities, their leadership potential, academic promise and financial need rather than past academic achievement alone. Traditional admission criteria are not used to the same degree to evaluate EOF applicants. Emphasis is placed on personal recommendations, and assessment of potential rather than high school achievement and rank in class. GED equivalencies may be accepted in lieu of the high school diplomas.

EOF students are required to successfully complete a structured summer program prior to entering their first fall semester. In the summer session, students are evaluated in various academic areas and receive concentrated developmental and supplementary instruction and tutoring as necessary. These supportive services are extended throughout the academic year.

Students who successfully complete the Pre-College Institute are invited to return for the fall semester and are fully integrated into the University and enrolled as matriculated students. The program staff provides a comprehensive program of guidance and counseling for EOF students.

International Admissions

Rowan University welcomes international applicants. The application deadline for international applicants entering during the fall semester is June 1.

Applicants are considered an international student if they hold, or will need to obtain a non-immigrant visa such as a student visa (F-1) or an exchange visitor visa (J-1). Applicants who are U.S. citizens, U.S. permanent residents, pending permanent residency, NJ Dream Act/DACA, and undocumented are considered domestic applicants at Rowan University.

Placement/Basic Skills/Testing Requirements

Basic skills courses provide an appropriate curriculum for students with documented weaknesses in the areas of reading, mathematics, and writing. These courses also reinforce the general academic skills needed for a successful academic career. Transfer students with 30 or more transfer credits are exempt from basic skills courses and basic skills placement exams. Students must take any required basic skills course(s) beginning in their first semester at Rowan and each subsequent semester until the requirements have been fulfilled. Students do not receive graduation credit for passing basic skills courses. These courses do not count toward the minimum number of semester hours needed to complete the student's major and/or degree requirements. The credits do count toward part- or full-time status for enrollment and financial aid purposes. Students with outstanding basic skills requirements after their first semester at Rowan are subject to registration holds until verification of appropriate progress can be established. For more information, please email testingservices@rowan.edu

Re-Entrance/Re-Admission To The University

Rowan students who have lost their matriculated status due to inactivity, withdrawal, or dismissal before completing their major programs and/or being awarded their bachelor's degree must apply for reenrollment to the University.

Students seeking re-enrollment should visit the website www.rowan.edu/atp and click on the Re-enroll at Rowan link on the left hand side of the webpage. From there, students should complete the re-enrollment inquiry form. Students will be notified via email of their re-enrollment status. Contact Tiffany Fortunato at fortunato@rowan.edu in the Office of Academic Transition & Support Programs with questions.

Financial Aid

Heidi Kovalick
Director
Savitz Hall, First Floor
rowan.edu/financialaid

The financial aid office administers federal, state, institution, and private aid programs to assist students in affording a Rowan University education. Our office also provides one-on-one counseling on a variety of financial wellness topics. Visit our website for comprehensive information and the answers to many of your financial aid questions.

To apply for financial aid, all students must complete the Free Application for Federal Student Aid (FAFSA) online at http://www.studentaid.gov . Be sure to select Rowan University, Glassboro NJ from the school list. Our FAFSA code is 002609. If the student is a Rowan Choice student, their financial aid is administered by Rowan College of South Jersey (006901) and must be listed on the FAFSA.

The FAFSA is available on October 1 and must be filed each year that aid is requested. Be aware that summer is the end of the academic year and so if you are beginning your program during the summer sessions you will need to file both the current year FAFSA and the upcoming year's FAFSA at the same time. Applying early allows plenty of time to complete processing before the tuition bill is due.

Undocumented citizens who are NJ residents may apply for state aid using the NJ Alternative Application. Information is available on the NJ Higher Education Student Assistance Authority's website, www.hesaa.org. Rowan University is proud to be a national partner with TheDream Scholarship, available to undocumented students. Please visit thedream.us for details.

Scholarship Programs

Rowan University rewards academic success through our scholarship program. Scholarships are available to students who will attend Rowan University as a full-time, degree-seeking undergraduate student. Limited opportunities exist for international students and those enrolled in certificate programs.

Incoming first-year and transfer students are reviewed for merit scholarship eligibility as part of the Admissions process. Questions regarding these programs should be directed to your admissions counselor. The financial aid office does not administer these programs.

Continuing students may apply for Rowan Foundation and departmental scholarships using the online application process available during the Fall semester. Visit the financial aid website for details and deadlines.

Federal Financial Aid (Title IV) Programs

Federal Pell Grant Program

The Federal Pell Grant is the cornerstone of financial aid. It is the first fund provided to eligible students before any other aid is awarded. These grants are available to undergraduate students who demonstrate exceptional need and have not yet earned their bachelor's degree. The amount a student is awarded is based on the results of a formula established by the federal government. The grant amount is reduced if the student is not enrolled full-time. The maximum amount of the award is determined by Congress. For the 2022-23 academic year, the maximum amount is scheduled to be $6,895/year for full-time study. Additional Pell Grant funds are also available to eligible students who enroll in summer courses at least half-time.

Pell has a lifetime limit of 12 semesters of full-time study. Two semesters of half-time enrollment would equal 1 semester of full-time enrollment.

Iraq Afghanistan Service Grant

This federal grant is available to students whose parent or guardian was a member of the U.S. armed forces and died as a result of military service performed in Iraq or Afghanistan after the events of 9/11, and the student was under 33 years old or enrolled in college at least part-time at the time of the qualifying parent's or guardian's death. Eligible students may receive the maximum Federal Pell Grant amount (less adjustments required by Congress for Sequestration) even if their FAFSA results indicate that they are not financially eligible. The FAFSA performs a database match with the Department of Defense to determine if the student meets the qualifications. Once the student has earned a baccalaureate degree or first professional degree, or have used up all 12 semesters of lifetime eligibility, they are no longer eligible to receive an Iraq and Afghanistan Service Grant.

Children of Fallen Heroes Scholarship

Under this scholarship, a Pell-eligible student whose parent or guardian died in the line of duty while performing as a public safety officer is eligible to receive a maximum Pell Grant for the award year for which the determination of eligibility is made. To qualify for this scholarship, a student must be Pell-eligible and be less than 33 years of age or enrolled at an institution of higher education at the time of the qualifying parent's or guardian's death. In subsequent award years, the student continues to be eligible for the scholarship, as long as the student is Pell-eligible and continues to be an eligible student.

For purposes of the Children of Fallen Heroes Scholarship, a "public safety officer" is:

- As defined in section 1204 of title I of the Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. 3796b); or
- A fire police officer, defined as an individual who is serving in accordance with State or local law as an officially recognized or designated member of a legally organized public safety agency and provides scene security or directs traffic in response to any fire drill, fire call, or other fire, rescue, or police emergency, or at a planned special event.

Students who believe they meet the qualifications for this program must self-identify. Unfortunately there is not a federal database to provide schools this information proactively. Please contact our office or visit our website for further details, including how to document the student's eligibility.

Federal Supplemental Educational Opportunity Grants

Federal Supplemental Educational Opportunity Grants (FSEOG) are available to students who demonstrate exceptional financial need and who also receive Pell Grant funds. The federal government provides a limited amount of funding to be awarded to eligible students. Completing the FAFSA and any additional requirements ensures the best chance for funding as students are automatically considered during the financial aid packaging process.

TEACH Grants

These federal grants are offered to students pursuing a career in teaching in high need subject areas (i.e. math, reading specialist, sciences, etc), and who meet the minimum GPA. These grants require recipients to complete a period of qualifying employment after graduation. The length required is determined by the number of years the student received the grant funding. If the recipient does not complete the required service or changes their major and no longer pursues the required subject area, the grant will convert to an unsubsidized student loan and must be repaid.

Federal Work Study Program

With funds supplied by the Federal government, Rowan University provides jobs both on and off campus during the academic year for students who qualify. Students should indicate an interest for this program on the FAFSA. Many work-study positions provide skills and experience, which will assist students in their career development. Students can arrange their hours around their school and study schedule. Hours worked cannot exceed 20 per week while classes are in session or 30 per week during breaks. Students may find job postings through the Office for Career Advancement using the Prof Jobs online platform: https://sites.rowan.edu/oca/profsjobs1.html . This office can also assist students without FWS eligibility.

Federal Direct Student Loan

The Federal Direct Student Loan Program allows eligible students to borrow funds for their education expenses. These loans are based solely on the student's signature and promise to repay – there is no credit check, collateral, or cosigner necessary. The interest rate is fixed and no payments are required while in school at least half-time. Generous and flexible repayment terms exist along with options for cancelation or forgiveness for certain qualifying employment.

Annual loan limits for dependent students are up to $5,500 for the first-year student, $6,500 for sophomore year, and up to $7,500 for junior and senior years. Independent students, and those dependent students whose parent is unable to borrow a parent PLUS loan may receive an additional unsubsidized loan amount of $4,000 or $5,000 depending on their year in

school.

There are two types of loans:

- **Subsidized:** If the student demonstrates need based on the FAFSA, the interest is waived while the student is in-school at least half-time, and during the 6-month post-enrollment grace period, and any other authorized periods of deferment. The annual loan limit for a subsidized loan is up to $3,500 for first-year students, $4,500 for sophomore, and $5,500 for junior and senior years. The maximum amount a student may accrue is $23,000 in subsidized loans.
- **Unsubsidized:** The interest accrues on this loan and is the responsibility of the borrower from the date of disbursement. There is no interest-subsidy (hence the name, unsubsidized). Payments are not required while the student is enrolled. Unpaid accrued interest will be added to the principal balance when the loan converts to repayment status. Since this loan is not need-based, any eligible student may borrow this loan regardless of family income. For students who do not qualify for the subsidized loan, their annual loan limit will be unsubsidized. Students who do qualify the subsidized loan, may borrow up to an additional $2,000 in unsubsidized funds each year.

Depending on the student's financial aid package and need, most students are offered a combination of subsidized and unsubsidized loan amounts, up to the annual limits. Read more about the loan process on our website, including the steps necessary to complete the Master Promissory Note (your loan documents) and the online, interactive federal loan entrance counseling module.

Federal Parent Loan for Undergraduate Students (PLUS)

Parents of dependent undergraduate students enrolled at least half-time and making satisfactory academic progress towards a degree or eligible certificate may borrow up to the cost of education from the federal government. The borrower must be a US citizen or eligible non-citizen of the United States. The parent who borrows does not need to be the parent on the FAFSA (such as in the case of separated/divorced parents). Loan eligibility is based on the absence of adverse credit. There is no minimum income requirement and payments are not required while the student is enrolled at least half-time; although interest will accrue. This program provides generous repayment terms. Parents may read more about this loan program and may apply at https://www.studentaid.gov .

FINANCIAL AID PROGRAMS AVAILABLE TO RESIDENTS OF NEW JERSEY

The State of New Jersey offers some of the most generous grant programs in the country. The NJ Higher Education Student Assistance Authority (HESAA, https://www.HESAA.org) determines the student's eligibility for various grants and scholarships using both the FAFSA information and additional applications or documents. There are strict application deadlines with no appeals for missing them. A short description of each program is below. For full details and to complete any additional application steps, please visit their website.

HESAA receives the FAFSA processing results directly from the federal processing center if the student indicates NJ as the legal state of residence on the FAFSA. HESAA begins processing using that data and may request additional information or documents. The student will receive emails from HESAA regarding these requirements. Students may also create an account on the HESAA website to view their To-Do list and notifications of eligibility.

Undocumented citizens who are NJ residents may apply for state aid using the NJ Alternative Application. Information is available on the NJ Higher Education Student Assistance Authority's website, www.hesaa.org.

Tuition Aid Grants (TAG)

The New Jersey Tuition Aid Grant (TAG) program provides funding to full-time undergraduate students seeking their first bachelor degree. Students (and parents of dependent students) must be residents of NJ for at least 12 consecutive months prior to the semester beginning where the grant will be disbursed. Eligibility is determined by HESAA, as described above. Deadlines to apply and complete the application process are available on the HESAA website.

Educational Opportunity Fund

Established by the New Jersey State Legislature in early 1968, the Educational Opportunity Fund (EOF) helps disadvantaged students by providing financial, academic, social and advising supports. In addition to financial criteria, eligible students must demonstrate a strong motivation for future academic work. Students must live in New Jersey for twelve months before receiving this aid. To be considered for this program, students must submit the EOF Freshman application for admissions. These grants are renewable based upon continued eligibility. Rowan University's Educational Opportunity Fund Offices on the Glassboro and Camden campuses can provide more information.

Rowan Opportunity Program and Garden State Guarantee

The State of NJ recently implemented the Garden State Guarantee Program to assist juniors and seniors in completing their degrees. Rowan University expands this new program to first- and second-year students through the Rowan Opportunity Program. Both programs are designed to reduce tuition and fees after all other grants and scholarships so that the student pays a net cost of zero or a reduced amount. For students whose family's Adjusted Gross Income is between $0 and $65,000 annually, the net cost for tuition and fees will be $0. Where the eligible student's family adjusted gross income is between $65,001 to $80,000, students will be able to receive assistance such that their net cost for tuition and fees is no more than $7,500 total for the fall and spring semesters. Visit our financial aid website for full details, including eligibility criteria. There is no additional application required.

Satisfactory Academic Progress

In order to receive financial aid, students must meet the minimum Federal standards of Satisfactory Academic Progress (SAP). The standards for Satisfactory Academic Progress for financial aid purposes are different from the academic

requirements of the University. In some instances, students experiencing academic difficulty may find that, while they are permitted to remain in school, they may not receive financial aid until they achieve the minimum standards of Satisfactory Academic Progress. SAP standards apply to all terms you attended regardless of whether or not you received financial aid.

You must maintain SAP to remain eligible for financial aid

To ensure financial aid recipients are making Satisfactory Academic Progress (SAP), academic transcripts are reviewed at the end of each term to determine eligibility for the next term. All terms of attendance are reviewed, including periods in which the student did not receive financial aid. Each semester, your Rowan University academic record will be reviewed for the following three measures and you will be assigned a SAP Status.

1. **GPA (Quantitative Progress)**: Undergraduate students must maintain a cumulative grade point average of at least 2.0 (a C average). Graduate students must maintain a GPA of at least 3.0. Grades of A, B, C, D, and F affect your GPA (including +/- variations). Grades of W, WF, WP, I, U, P, or NP, and/or transfer credits do not affect your GPA. All grades are included in the calculation, including the original grade(s) from repeated coursework.
2. **PACE (Completion Rate):** Students must successfully complete a minimum of 67% of all course work (registered credit hours) attempted at Rowan University. Any course with a grade of withdrawal (W), Failure (F), incomplete (I), Not Reported (NR), or audit (AU) is not considered completed course work. A course is counted as completed only once, regardless of how many times attempted or the grade earned. Transfer credits are counted as both attempted and completed, thus increasing a student's completion rate.
3. MAX (Maximum Time Frame): Students must complete their program within 150% of the credit hours required to complete your degree program, including all transfer credits. Students who have reached their maximum allowable credit hours will be suspended from receiving financial aid. Developmental or remedial hours are excluded from this calculation. The MTF calculation counts all attempted hours including repeated courses, ineligible courses and transfer hours accepted by Rowan University. This also includes hours taken under a previous major and hours for which a student did not receive financial aid.

Visit our website to read more about this policy and options available if you do not maintain SAP, including how to submit an appeal.

Federal Return of Title IV Funds Policy

Federal financial aid is disbursed at the beginning of the semester with the expectation that the student will successfully complete the courses for which the aid was provided. When a student withdraws from all courses for any reason, including medical withdrawals, he/she may no longer be eligible for the full amount of Title IV funds that he/she was originally scheduled to receive.

These federal regulations are separate from the University's refund policy. In some cases, students who withdraw may owe a balance to the University.

Treatment of financial aid (Title IV) Aid When a Student Withdraws The law specifies how Rowan must determine the amount of Title IV program assistance that you earn if you withdraw from school. The Title IV programs that are covered by this law are Federal Pell Grants, Iraq and Afghanistan Service Grants, TEACH Grants, Direct Loans, Direct PLUS Loans, Federal Supplemental Educational Opportunity Grants (FSEOG), and Federal Perkins Loans.

Though your aid is posted to your account at the start of each period, you earn the funds as you complete the period. If you withdraw during the semester, the amount of Title IV program assistance that you have earned up to that point is determined by a specific formula. If the amount disbursed on your student account is less than the amount that you earned, you may be able to receive those additional funds. If you received more assistance than you earned, the excess funds must be returned to the U.S. Department of Education by Rowan and/or you.

The amount of assistance that you have earned is determined on a pro rata basis. For example, if you completed 30% of the enrollment term, you earn 30% of the assistance you were originally scheduled to receive. Once you have completed more than 60% of the payment period or period of enrollment, you earn all the assistance that you were scheduled to receive for that period.

If you did not receive all of the funds that you earned, you may be due a post-withdrawal disbursement. If your post-withdrawal disbursement includes loan funds, we must get your permission before we can disburse them. You may choose to decline some or all of the loan funds so that you don't incur additional debt. Rowan may automatically use all or a portion of your post-withdrawal disbursement of grant funds for tuition, fees, and room and board charges (as contracted with the school). The school needs your permission to use the post-withdrawal grant disbursement for all other institutional charges. If you did not give your permission, you will be offered the funds. However, it may be in your best interest to allow the school to keep the funds to reduce your account balance owed, if any.

There are some Title IV funds that you were scheduled to receive that cannot be disbursed to you once you withdraw because of other eligibility requirements. For example, if you are a first-time, first-year undergraduate student and you have not completed the first 30 days of your program before you withdraw, you will not receive any Direct Loan funds that you would have received had you remained enrolled past the 30th day.

If you receive (or your school or parent receive on your behalf) excess Title IV program funds that must be returned, your school must return a portion of the excess equal to the lesser of:

1. your institutional charges multiplied by the unearned percentage of your funds, or
2. the entire amount of excess funds.

The school must return this amount even if it didn't keep this amount of your Title IV program funds. If your school is not required to return all of the excess funds, you must return the remaining amount.

For any loan funds that you must return, you (or your parent for a Direct PLUS Loan) repay in accordance with the terms of the promissory note. That is, you make scheduled payments to the holder of the loan over a period of time.

Any amount of unearned grant funds that you must return is called an overpayment. The maximum amount of a grant overpayment that you must repay is half of the grant funds you received or were scheduled to receive. You do not have to repay a grant overpayment if the original amount of the overpayment is $50 or less. You must make arrangements with your school or the Department of Education to return the unearned grant funds.

The requirements for Title IV program funds when you withdraw are separate from any refund policy that your school may have. Therefore, you may still owe funds to the school to cover unpaid institutional charges. Your school may also charge you for any Title IV program funds that the school was required to return. Please review Rowan University's Refund Policy. You may also want to review the requirements and procedures for officially withdrawing from school.

If you have questions about your Title IV program funds, stop by our office, or call the Federal Student Aid Information Center at 1-800-4-FEDAID (1-800-433-3243). TTY users may call 1-800-730-8913. Information is also available on Student Aid on the Web at https://www.studentaid.gov .

Strategic Planning & Management

Rihab Saadeddine, Ed.D.
Assistant Vice President, Recruitment Operations
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The Office of Strategic Planning & Management is committed to providing innovative solutions and achieving exceptional customer experience through streamlined business systems, efficient processes, and proven digital strategies. The office also monitors the successful development and implementation of enterprise-level CRM platforms, programs, partnerships, and division-wide projects by aligning cross-departmental resources.

University Scheduling

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Senior Director, Administration & University Scheduling
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Comprised of two dozen faculty, staff, and administrators who represent a cross-section of the University, the University Scheduling Committee identifies ways to improve the University's master schedule. The goal is to better maximize University resources and to be more mindful of student and faculty time constraints.

The Office of University Scheduling oversees all academic and non-academic scheduling for the University, as recommended by the University Scheduling Committee, and is housed in the Enterprise Center. The office processes all on-campus room requests, including those for classrooms, meeting space and conference rooms, and rental requests from off-campus organizations. Please email scheduling@rowan.edu to contact the department.

Division of University Research

Tabbetha Dobbins
Vice President and Dean of the Graduate School
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Sarah Piddington
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The Office of the Vice President for Research is responsible for promoting, supporting and administering the research, scholarly and creative activity of Rowan faculty, staff and students. The Division of University Research oversees six departments, including the School of Graduate Studies.

Office of Sponsored Programs
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The mission of the Office of Sponsored Programs (OSP) is to provide Rowan faculty, staff, and students with information and guidance for the submission of proposals to federal, state, and other sponsors, and to provide effective stewardship of awarded funds.

Office of Research Compliance
Eric Gregory
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The Office of Research Compliance is responsible for overseeing the ethical conduct of research and compliance with all applicable federal, state, and institutional laws and regulations.

Office of Research Development
John Manuel
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The Office of Research Development (ORD) is responsible for increasing the overall number and quality of competitive, interdisciplinary, and collaborative proposals that support faculty research at Rowan University. ORD achieves this goal by partnering with faculty members to develop project ideas, identify funding sources, facilitate partnerships, form proposal teams, and prepare proposals for submission. In addition, ORD provides timely and targeted trainings to faculty members to develop their grantsmanship skills.

School of Graduate Studies
Stephanie Lezotte
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The School of Graduate Studies supports graduate students throughout their academic careers. In particular, it provides support to master's and doctoral degree programs with research and thesis/dissertation requirements across the academic

colleges and schools. The mission of the School of Graduate Studies is to provide excellent personalized support to graduate students in their pursuit of academic, research, creative, cultural, professional and social development.

Office of Technology Commercialization and Rowan Innovations
Yatin Karpe
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The Office of Technology Commercialization (OTC) is responsible for aligning innovations to respond to commercially unmet market needs, receiving invention disclosures, processing patent applications, and executing licensing agreements.

Rowan Innovations' role within the Division of Research is to help Rowan researchers spin out businesses and develop industry partnerships while supporting entrepreneurial faculty/staff who start new business ventures.

Division of University Advancement

Jesse R. Shafer
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The mission of the Division of University Advancement is to build strong, lasting relationships with the University among alumni, donors, and other important constituents to encourage investment in and support of the University.

The Division provides leadership and assistance to garner support for the institution and enhance its reputation and visibility among its internal and external constituencies through strategic relationship building, fundraising, and stewardship. Strong alumni programs and services help promote the interests of the University, its alumni, and the community.

The Division oversees the following functions: Development, Alumni Engagement, Advancement Services & Donor Relations, Advancement Communications, Corporate & Foundation Relations, Events, and the Rowan University Foundation. In conjunction with the academic colleges and other units of the University, the Division is responsible for leading the development efforts of the institution. Through the cultivation and establishment of new relationships, and the continuance of ongoing relationships, the Division works to promote and advance the overall mission of the University and expand its margin of excellence.

Medical Schools

Cooper Medical School of Rowan University

Annette C. Reboli, MD
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The Cooper Medical School of Rowan University (CMSRU), located in Camden, NJ, admitted its inaugural class in August 2012 and was the first new medical school to open in New Jersey in 39 years. CMSRU is committed to providing humanistic education in the art and science of medicine within a scientific and scholarly community in which inclusivity, excellence in patient-care, innovative teaching, research, and service to our community are valued. The focus of CMSRU is to graduate physician leaders through an innovative curricular model that emphasizes care of the underserved. CMSRU offers students a strong educational platform to prepare them for graduate medical education in any field of their choosing. It co-manages the 50 graduate medical education programs and 394 residency slots at Cooper University Health Care, its primary academic affiliate. CMSRU offers a three year program for students interested in primary care and an MD/PhD program in Biomedical Engineering. In 2019, CMSRU received the Spencer Foreman Award for outstanding community engagement. CMSRU received reaccreditation by the Liaison Committee on Medical Education (LCME) for the maximum term of eight years in 2021.

Rowan University School of Osteopathic Medicine

Thomas A. Cavalieri, DO, MACOI, FACP
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Rowan University School of Osteopathic Medicine (RowanSOM) joined Rowan in July 2013. Established in 1976, RowanSOM is New Jersey's only osteopathic medical school and is committed to excellence in medical education, research, and health care for New Jersey and the nation. RowanSOM includes three nationally recognized institutes for research and treatment: the NJ Institute for Successful Aging (NJISA), the Child Abuse Research Education and Service (CARES) Institute, and the NeuroMusculoskeletal Institute (NMI). In 2019, the Rowan Integrated Special Needs Center (RISN) was established to provide care for people with physical, intellectual, and developmental disabilities. RowanSOM's osteopathic philosophy emphasizes primary health care and community health services, and with our specialty care and centers of excellence, it demonstrates our commitment to innovation and quality. RowanSOM trains clinically skillful, compassionate and culturally competent physicians from diverse backgrounds who are prepared to become leaders in their communities. RowanSOM also continues to expand Graduate Medical Education programs to ensure the successful placement of our graduates. Rowan University School of Osteopathic Medicine is accredited by the Commission on Osteopathic College Accreditation (COCA). In July 2022, we will be welcoming students to our RowanSOM Sewell campus and extension of RowanSOM. In 2021, we received the highest level of accreditation from COCA, and will welcome an additional 72 students to our incoming class. The RowanSOM Sewell Campus will exclusively offer the immersive Problem-based Learning (PBL) Track of the curriculum, where students collaborate with colleagues and dedicated expert faculty to learn a holistic approach to healthcare.

Rowan University Graduate School of Biomedical Sciences

Rowan University Graduate School of Biomedical Sciences
Carl E. Hock, Ph.D.
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The Rowan University Graduate School of Biomedical Sciences (RowanGSBS) became part of Rowan in July 2013. RowanGSBS offers a Ph.D. in Molecular Cell Biology and Neuroscience; Master of Science in Molecular Cell Biology and Neuroscience; a Master of Science in Anatomical Sciences (non-thesis) and a Certificate in Anatomical Sciences; a Master of Biomedical Sciences (non-thesis) and a Certificate in the Biomedical Sciences; a Master of Science in Histopathology (non-thesis) and a Certificate in Histopathology; and a Master of Science in Molecular Pathology and Immunology. Dual degree programs include Dual D.O./Ph.D., and Accelerated B.S./M.S. dual programs in Biochemistry, Bioinformatics, Biophysics, Molecular and Cellular Biology or Translational Biomedical Science with the Rowan University College of Science & Mathematics and the RowanGSBS Master of Science in Molecular Cell Biology and Neuroscience.

Office of General Counsel

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The Office of the General Counsel provides legal representation for Rowan University. The Office of General Counsel provides legal services to all colleges, schools, departments, and units of the University. It provides legal support to the educational mission of Rowan University by providing legal counsel and advice in all areas of operation, research, and administration. This includes review and coordination of all contracting issues, litigation, human relations issues, student matters, construction & development, intellectual property, research matters and other areas. In special circumstances, the Office of General Counsel works in conjunction with the New Jersey Office of the Attorney General in providing advice and counsel to the Rowan University community.

Office of Government & External Relations

Sean Kennedy
Vice President for Government Relations and External Partnerships
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The Rowan University Office of Government & External Relations serves as the liaison between the University and federal, state and local government officials. It is responsible for the coordination of all official University contacts and interactions with all levels of government and other pertinent government agencies. The Office directs, facilitates and provides guidance on all such activities, including budget and grant requests, to ensure coordination and consistency of intent, purpose and accuracy, and approves materials, content of testimonies, and accuracy of positions to be presented in representation of the University.

The Office has developed a policy on lobbying activities and contacts with federal, state, and local officials to enhance the coordination of institutional advocacy and lobbying priorities and efforts. The Office strives to ensure that internal stakeholders receive critical information and strategic direction on State and federal issues important to the University.

This policy is not intended to limit the personal rights of those in the University community (faculty, staff, volunteers and students) to contact, and advocate with officials about their personal beliefs and issues. Nor is it directed toward those contacts made on behalf of their professional groups/organizations as long as that representation is expressively not on behalf of Rowan University or it is done with the approval of Rowan University if University titles will be used in such activities.

Undergraduate Program Requirements

At Rowan University, students must complete 120 semester hours of coursework for a four-year degree. Students must have a cumulative GPA of at least 2.0 in Rowan University coursework. (Trans-fer courses and credit do not count toward the Rowan GPA.) A minimum of 30 semester hours of coursework must be completed at or through Rowan University. Only those courses with grades of "D-" or above count toward degree requirements. (Some programs may have higher minimum grades.) Students must meet the Rowan Core and Rowan Experience Requirements described below. Students must also complete 18 semester hours of Non-Program courses. Non-Program courses can include all University courses except those offered by the major department. Students are encouraged to plan their program of study in consultation with an advisor to ensure they meet all the requirements of a specific major program.

General Education: Rowan Core

Through Rowan Core, students will strengthen their ability to be critical thinkers, intentional learners, and engaged citizens. Rowan University is an inclusive, agile, and responsive institution, and its graduates exhibit those same qualities.

Rowan Core is organized around six literacies: Artistic, Communicative, Global, Humanistic, Quantitative and Scientific. Instead of emphasizing content coverage, a literacy framework promotes trans-formative learning. Each literacy provides students with a greater capacity to participate in society—to access information, to analyze and reflect, and to express conclusions and opinions. Learning is not only cognitive, but affective and experiential as well. To be literate means having knowledge about a subject area and being able to apply that knowledge.

During their academic careers, students will take at least three Communicative Literacy courses (9 semester hours) and at least one course (3 semester hours) from each of the other five literacies. Specific academic programs may require additional courses in some literacies. As always, students should be sure to check with their academic advisor every semester before registering for courses to ensure that their selections meet the requirements of Rowan Core as well as their specific major.

Students are encouraged to visit the Program Guide Information webpage for information on recommended Rowan Core courses for their major. For a list of current Rowan Core courses in each literacy, please visit:

Rowan Core Listing . The literacies are described in more detail below.

Artistic Literacy

Artistic literacy is the knowledge and understanding of the centrality of the arts and aesthetics to human existence. Art reflects--and artists respond to and interact with—the communities in which we live. Artistic literacy requires learning about and engaging in the creative and performing arts. Visual, verbal, physical and auditory expression will be informed by a study of historical and cultural contexts. Active experimental engagement, including critical analysis and evaluation, will foster an aesthetic sensibility, which includes cognitive and emotional responses.

Communicative Literacy

Communicative literacy is the capacity to analyze, reflect on, and respond to diverse communication situations. This includes understanding the ways in which audience, context, and purpose shape acts of communication. Communicative literacy is demonstrated through fluency in various modes of communication and effective adaptation, invention, and choice of strategies for communication. Engagement in a range of communicative acts and experiences will cultivate critical awareness and ethical responsibility.

Global Literacy

Global literacy is the ability to understand the complexities of one's own society as well as the global community. This requires knowledge of the diversity of world cultures and recognition of the interdependence of the contemporary world. The extensive globalization of the world's economies and societies reveals the limits of human and natural resources in a global context. Knowledge of the reciprocal nature of local and global conditions will produce an international perspective.

Humanistic Literacy

Humanistic literacy is the ability to understand how human experience is shaped by economic, political, literary, sociocultural, historical and other contexts. Humanistic literacy includes critical awareness of how dominant paradigms are created and shape human thinking and feeling. It also encompasses the ability to empathize with other times, places, cultures, and mindsets and to grasp the complexity of change and perspective. Active engagement involves the interpretation of significant texts and artifacts to develop awareness and to use this awareness to make decisions and to initiate and react to change.

Quantitative Literacy

Quantitative literacy is the ability to reason logically and to communicate mathematical ideas verbally, symbolically, and graphically. It involves knowing fundamental concepts and techniques of mathematical principles and processes in order to see mathematical functions as quantitative relation-ships, to understand the concept of probability, and to estimate or approximate answers to questions. This knowledge provides a foundation for understanding how to construct logical arguments and how to make use of mathematical thinking. Quantitative literacy encourages appreciation of mathematics as a practical tool as well as a philosophical and humanistic endeavor which helps make sense of the world. Engagement in quantitative literacy includes analysis of the use of mathematics and the application of mathematical thinking and modeling to real-world problems.

Scientific Literacy

Scientific literacy is the understanding that science is a systematic, evidence-based process of observation, modeling, and testing, to formulate and refine theories which not only explain but predict. Scientific literacy encompasses an appreciation of the role of science in society, technology, engineering, and mathematics. It includes recognition of the scientific knowledge, skills, and values that pro-mote informed evaluation of the validity of claims and proposed solutions to current problems. Scientific literacy does not necessarily involve the production of new science but rather it enables one to make informed decisions and cooperatively engage in the protection and improvement of the world through scientific processes.

General Education for Students Prior to Fall 2018

The Rowan Core general education model began in Fall 2018. Students who started at Rowan prior to this date continue to follow the previous general education model, rather than Rowan Core. The requirements for the previous general education model are as follows:

- At least 6 semester hours of Communication (COMM) courses: College Composition I or Intensive College Composition I, as well as College Composition II.
- The 3 semester hour Public Speaking course.
- At least 7 semester hours of Science and Mathematics (SM) courses. (All students must take at least one course from the list of mathematics courses listed under Science and Mathematics. All students must take at least one approved course that includes an in-class laboratory experience (LAB). Students may not test out of the lab experience.)
- At least 6 semester hours of Social and Behavioral Sciences (SBS) courses.
- At least 6 semester hours of History, Humanities and Language (HHL) courses.
- At least 3 semester hours of Artistic and Creative Experience (ACE) courses.
- At least 3 semester hours of Multicultural / Global (M/G or MCUL) courses.

In addition to meeting the minimum credit hours in each bank, students must earn at least 42 semester hours of general education courses and Rowan Experience courses. These are minimum requirements for each area of study or discipline group. Specific major programs may expand the requirements within any of these categories in order to meet program and

learning outcome objectives. Specific general education courses may be required for individual majors if they serve as prerequisites for required courses within that major.

Students following this general education model can find courses that fulfill the requirements by going to Section Tally: Section Tally. In Section Tally, use the Attribute dropdown to select the relevant course attribute (e.g., SM, LAB, SBS, HHL, ACE).

Students Transferring from a New Jersey Community College to Rowan University

Students who have completed an Associate of Arts or Associate of Science degree at a New Jersey community college will receive at least 60 semester hours of transferrable credit towards the appropriate Bachelor of Arts or Bachelor of Science Program. With regard to general education, it is assumed that transfer students will have met all lower division general education requirements expected of students having completed the first two years of a four-year program. In most situations, students will receive transfer credit for a combination of general education courses, Rowan Experience courses, free electives, and major courses totaling at least 60 semester hours of credit or approximately one-half of a basic four-year degree. Exceptions to this assumption will occur when students have failed to complete required course work at the community college that is required for entrance into a required Rowan University course. Coordination between the student and advisor at the community college is necessary in planning for the transfer to Rowan University. Specific program requirements are available on the Rowan University home page.

For students transferring to the University without completing an Associate of Arts or Associate of Science degree, it is expected that credits taken at a New Jersey community college that are applicable to an Associate of Arts or Associate of Science degree will be transferable to the basic four-year degree program at Rowan University. Transfer students must meet the specific graduation requirements of the Rowan University degree program to which they seek to transfer. It is expected that through careful planning, the transfer student will be able to meet these requirements within their two years of study at the community college and the following two years of study at Rowan University.

At this time, transfer students will continue to follow the previous general education requirements and not the new Rowan Core requirements. Individual transfer students can switch to the Rowan Core curriculum if they will benefit from doing so. On a case-by-case basis, Rowan University may authorize substitutions for individual transfer students when warranted by extenuating circumstances.

Rowan Experience

In addition to the Rowan Core general education requirements, all students must complete the following Rowan Experience requirements:

- One Rowan Seminar (RS) Designated Course
- One Broad-Based Literature (LIT) Designated Course
- One Writing-Intensive (WI) Designated Course

Courses that fulfill the Rowan Experience requirements compliment the six Rowan Core literacies. These courses can also fulfill General Education, Program, or Non-Program requirements. Students can see a list of the available Rowan Experience courses for a given term by using the Attribute dropdown in Section Tally Section Tally. The attributes are coded as follows: Rowan Seminar, RSEM; Broad-Based Literature, LIT; Writing-Intensive, WRIT.

Rowan Seminar (RS)

College is very different from high school; all Rowan first-year students are supported through this transition in their Rowan Seminar course. Students build skills for success in college-level work and will engage with the Rowan community. Students who transfer in as sophomores, juniors, or seniors do not take Rowan Seminar courses.

Broad-Based Literature (LIT)

In Literature courses, students engage with great works, whether modern or classic, American or from around the globe. Students build life-long skills and enjoyment for the literary world by taking at least one course from among selections in the English Department, Philosophy and World Religions, and more.

Writing Intensive (WI)

The ability to write effectively is vital for any well-educated person, no matter the career field. Stu-dents' writing skills will be bolstered by these special courses emphasizing learning, and expressing one's learning, through the writing process.

Non-Traditional-Format Undergraduate Offerings

Rowan also offers a few of its undergraduate degree programs in non-traditional modes of delivery (online, off-site, hybrid, accelerated, etc.) through the Global Learning & Partnerships (Rowan Global). For a list of available programs and related details, please visit www.rowanu.com/programs.

Note: Admission to all traditional-format undergraduate programs at Rowan University is coordinated by the main Admissions Office (admissions@rowan.edu).

Admission to the non-traditional-format undergraduate programs at Rowan University is coordinated by the Rowan Global Admissions Office globaladmissions@rowan.edu or www.rowanu.com.

Students transferring from a New Jersey community college to Rowan

Students who have completed an Associate of Arts or Associate of Science degree at a New Jersey community college will receive at least 60 hours of transferrable credit towards the appropriate Bachelor of Arts or Bachelor of Science Program. With regard to General Education, it is assumed that transfer students will have met all lower division General Education requirements expected of students having completed the first two years of a four-year program. In most situations, students will receive transfer credit for a combination of General Education Courses, Rowan Experience Courses, Non-Program Requirements, Free Electives, and Major Requirements totaling at least 60 semester hours of credit or approximately one-half of a basic four-year degree. Exceptions to this assumption will occur when students have failed to complete course work at the community college that is required for entrance into a required Rowan University course.

Coordination between the student and advisor at the community college is necessary in planning for the transfer to Rowan University. Specific program requirements are available on the Rowan University website.

For students transferring to the university without completing an Associate of Arts or Associate of Science degree, it is expected that credits taken at a New Jersey community college that are applicable to an Associate of Arts or Associate of Science degree will be transferable to the basic four-year degree program at Rowan University.

Transfer students must meet the specific graduation requirements of the Rowan University degree program into which they transfer. It is expected that through careful planning, transfer students will be able to meet these requirements within a total of four years of full-time enrollment at the community college and Rowan University.

Tuition & Fees

The following is a summary of fees charged at Rowan University. Tuition and other charges are subject to change at any time in accordance with policies established by the Board of Trustees of Rowan University. The fees do not include the cost of textbooks and personal expenses. Fees at Rowan for academic year 2022-23 are as follows:

Admissions Application	
(Graduate and Undergraduate):	$65
Meal Plans (per semester):	
30 Block Meal Plan with $150 Dining Dollars + $200 Rowan Bucks	$475
60 Block Meal Plan with $150 Dining Dollars + $200 Rowan Bucks	$775
14 Meal Plan with $200 Dining Dollars + $400 Rowan Bucks	$2,306
10 Meal Plan with $200 Dining Dollars + $400 Rowan Bucks	$2,050
7 Meal Plan with $200 Dining Dollars + $400 Rowan Bucks	$1,629
All Access Meal Plan $200 Dining Dollars + $200 Rowan Bucks	$2,465
Freshman Enrollment Deposit	
(non-refundable)	$200
Housing Rates (per semester)	
Housing in	
Residence Hall	$4,542-$5,696
Housing in	
Edgewood Park Apartments	$4,754
Townhouse	$6,193
Rowan Boulevard	$6,193
Whitney Center	$6,193
Identification Card	$10
ID Card Replacement	$25
Deferred Payment Plan Fee	$50/semester
Late Payment Fee	$65
Late Registration Fee	$100
Returned Check Fee	$35
Educational Field Experience	$50/semester
Transcript	$10/20
Parking Fee	$140/commuter $215-340/resident
Student Health Insurance Undergraduate and Graduate	$2,450
SOM, GSBS, CMSRU	$5,850

University Related Fees

Full-time fees, per semester 2022-23

General Service Fee	$1,627.75
Student Life Fee	$369.00
Student Government Fee	$91.50

Wellness Fee	$30.00

Part-time fees, per credit, per semester 2022-23

General Service Fee	$141.90
Student Life Fee	$30.40
Student Government Fee	$6.10
Wellness Fee	$2.50

Tuition

Tuition for each semester will be charged on a per credit hour basis for part-time students and a flat rate for full-time students. The following rates are per semester:

Undergraduate tuition rates (2022-23) are:

In-State Tuition Rates Per Semester 2022-23	
Part-time, per credit	$411.40
Full-time, Flat Rate	$5,357.25
Out-of-State Tuition Rates Per Semester 2022-23	
Part-time, per credit	$774.00
Full-time, flat rate	$10,054.00
Graduate tuition rates (2022-23) are:	
New Jersey resident	$760.85/credit
Non-resident	$760.85/credit

Expenses

The Office of the Bursar is responsible for all billing of students and for the collection of payments. A statement of expenses for the fall semester will be e-mailed to student Rowan e-mail accounts by August 5. A similar statement will be sent via e-mail by August 1 for the spring semester.

All charges must be paid in full each semester on or before the date stipulated in the statement of expenses sent to each student. Students who do not pay their bills may be withdrawn from classes in accordance with the University policy on outstanding financial obligations. Credit may be extended to students engaged in negotiations concerning State scholarships, loans or grants. Tuition and fees, regulated by Rowan University, are subject to change without notice to individual students. Questions regarding student expenses should be directed to the Office of the Bursar at bursar@rowan.edu or 856-256-4150.

Rowan University strives to make paying for college convenient and affordable for you. The Office of the Bursar offers several ways for our students to pay, from secure online payment with e-Check to a convenient Deferred Tuition Payment Plan.

Online Payments - Online payments are the quickest, most convenient way to pay your bill. We accept all major credit cards (Visa, American Express, Discover, and MasterCard), debit cards and e-Checks. Payments made by credit or debit cards are subject to a convenience fee of 2.85% or a minimum of $3.00, whichever is greater. There is no fee when paying by eCheck. Information on accepted forms of payment as well as other payment information can be found at rowan.edu/bursar.

In-person Payments - You may also pay your bill in person at the Office of the Bursar, which is located in the lower level of Savitz Hall. We accept cash, check, money order, and credit and debit card payments. Checks must be made payable to Rowan University.

Deferred Tuition Payment Plan - The Office of the Bursar offers a convenient Deferred Tuition Payment Plan to students who are unable to pay their balance in full by the indicated payment due date for a given semester. Information on the Deferred Tuition Payment Plan and instructions on how to enroll are available at rowan.edu/bursar .

Summary of Expenses

Estimated fees and expenses for New Jersey residents living on-campus or commuting are summarized below.

	Yearly	Residents	Commuters
Tuition (30 credits per year is average load)		$10,714.50	$10,714.50
University-Related Fees		$4,236.50	$4,236.50
Room and Board		$13,696	
Total expenses		**$28,647 (on campus)**	**$14,951 (commuter)**
Based on the following:			
	Residence Room (double)	$9,084	
	14 Meal Plan	$4,612	

Tuition and fees for full-time out-of-state students is $24,344.50/year based on an average of 30 credit hours a year. Tuition and other charges are subject to change at any time in accordance with policies established by Rowan University.

Food Services

Students living in a residence hall must purchase an All-Access, 14, 10 or 7 Meal per week Plan. First-time, first-semester freshmen must select an All-Access or 14 Meal per week plan. Students living in apartments or off-campus may also purchase a meal plan, but it is not required.

Residence Hall

Residence halls and apartments are available to Rowan University students. Please visit rowan.edu/housing for more information.

University Fees

University Fees are broken out into four categories (Student Life, General Service, Student Government, and Wellness) and are subject to change, consistent with University policy, pending Board approval, and without notice to individual students. Information on University fees can be found in the prior section of this booklet labeled "University-Related Fees" as well as at rowan.edu/bursar .

Late Payment Fee

Students on a Deferred Tuition Payment Plan who fail to pay bills by the date due will be charged a non-refundable late payment fee of $65.00 per late installment.

Late Registration Fee

Students who fail to register at the time designated will be charged a non-refundable $100.00 fee.

Parking

All students, faculty and staff, contract workers, visitors and guests who park a vehicle on any authorized campus lot or garage must have a properly displayed valid parking permit or a temporary/visitor parking pass. All parking information may be viewed online at rowan.edu/public safety.

For any parking related questions, contact the Parking Office at 856-256-4575 or parking@rowan.edu.

Returned Check Charge

A charge of $35.00 will be made for each check that is given to the University if it is returned by the bank for any reason.

Identification Cards

The University requires that all matriculated students carry an official identification card at all times. This card is needed for library use, student activities, registration, cashing checks, recreation center, and security purposes. The initial charge for an ID card is part of the initial tuition bill, and a $25.00 charge is made for each replacement of a lost card.

Required Pre-matriculation Immunization and Medical Records

As a condition of admission and continued enrollment, each student is required to provide evidence of immunization against measles, mumps, and rubella (N.J.S.A. 18A:61D-1). Students are also required to have vaccination against Hepatitis B (series of three [3] vaccines). Any student living in campus housing is required to first have vaccination against meningitis (Menactra®). Students are also required to submit a complete health record to the Wellness Center. Failure to submit these requirements will result in an immunization hold that will prevent the student from living in campus housing or registering for courses. Additional information on these requirements is available from the Wellness Center website at rowan.edu/health.

Student Insurance

Rowan University requires that all matriculated, full-time students as well as part-time students enrolled in specific programs (go to rowan.edu/bursar. for more information) have health insurance coverage. To that end, all eligible students will be automatically charged a Student Health Insurance fee ($2,450.00/undergraduate and graduate; $5,850.00/SOM, GSBS, CMSRU). To waive this fee, students must complete a waiver online prior to the start of the student's first semester and every fall semester thereafter, identifying their current insurance coverage.

More information can be obtained about Student Health Insurance from the Office of the Bursar website at rowan.edu/bursar. It is important to note that this insurance coverage is a limited plan, and it is recommended that students and parents review the coverage offered in the plan.

All students who compete in intercollegiate sports programs are covered while participating by a separate policy purchased by the University. Premiums for insurance are subject to change.

Educational Field Experience

All teacher preparation students pay an Educational Field Experience fee of $50/semester which covers the normal expenses incurred in the program, including a payment to the cooperating teacher. Students will be billed for this fee as part of their normal University term invoice.

Transcript Fee

A transcript is provided to each student upon graduation. Additional transcripts are available through the Office of the Registrar for $10/20 each.

Refund Policy

Refunds will be prepared for all students who officially withdrawal in accordance with the University's refund policy. Requests for official withdrawal must be made through the Division of Academic Affairs. This procedure assures that students will receive the proper refund for tuition, fees, room and board charges.

Approved Refund Schedule

Tuition and University fees only.

Part-Time students: Refunds will be processed only for drops occurring on or before the last day of Drop/Add Registration. No refunds will be processed for withdrawals beyond that date.

Full-Time students: Refunds will be processed only for students who officially drop from all courses on or before the last day of Drop/Add Registration.

Financial Aid students: Refunds of Federal Financial Aid are processed in accordance with federal guidelines:

Withdrawal before end of Add/Drop	100% Registration
Withdrawal after Add/Drop	None

Room and Board Refunds for residence halls and for meal plans will be calculated immediately following the date of the student's official withdrawal. Refunds for rooms shall be pro-rated on a weekly basis until the end of the fifth week of the semester, at which point there will be no refund for the remaining weeks of the term. Refunds for board shall be pro-rated on a weekly basis until the end of the third week of the semester, at which point there will be no refund for the remaining weeks of the term.

For the "Approved Refund Schedule" policy go to confluence.rowan.edu/display/POLICY/Approved+Refund+Schedule.

Outstanding Financial Obligations

The University may deny a student graduation, readmission, registration, or access to records because of outstanding financial obligations to the University. This action may be taken in cases where reasonable notice of a debt and the consequences of non-payment have been given to the student. If a student does not meet his/her outstanding obligations by the established deadlines under the policy, the student will automatically be denied registration for the following semester, in addition to losing all other University services. Denial for future semesters will also be continued until such time as the obligation is met.

The student will have the right to a hearing in cases of dispute concerning an obligation. The request for a hearing must be submitted in writing by the student to the appropriate department or office head in which the obligation exists. If it becomes necessary, any appeal of a decision resulting from such a hearing must be arranged through the Division of Academic Affairs.

The University will have the right to withhold the degree and all records, including certification, transcripts, placement services, etc., pending satisfactory financial arrangements.

Policies and Procedures

All Rowan University policies are posted on a central web portal.

https://confluence.rowan.edu/display/POLICY/Administrative+Policies

Special Programs and Certificates

Rowan University offers a variety of interdisciplinary studies, in addition to the various majors within academic departments and minors, concentrations, and Certificates of Undergraduate Study (CUGS) that relate specifically to these majors. These interdisciplinary studies include courses that transcend the discipline of a single academic department, minors and CUGS. Interdisciplinary studies are generally co-sponsored by at least two academic departments or are taught by faculty from a number of departments and colleges.

BANTIVOGLIO HONORS CONCENTRATION, JOHN H. MARTINSON HONORS COLLEGE

The Whitney Center
856.256.4775

The Thomas N. Bantivoglio Honors Concentration in the John H. Martinson Honors College is typically an eight (8) course program open to Rowan students in all academic majors, yet classes are pro-rated for transfer students and other students who join the program after the first semester of their first year at Rowan. Students take their disciplinary major's Honors classes as well as Honors courses that fulfill general education, Rowan Core, Rowan Experience, and free elective requirements. The Honors Concentration with Distinction is typically a twelve (12) course program that culminates in a capstone experience and reflective portfolio. Honors with Distinction encourages students to amplify the work in their major as well as the breadth a university degree affords. Participation in the Martinson Honors College provides students with a rich educational experience as well as co- and extra-curricular activities designed to cultivate citizen scholars. At graduation, Martinson Honors College graduates receive special recognition, and their accomplishments are highlighted in the Commencement Program and on their diplomas.

Honors emphasizes interdisciplinary learning, enhanced classroom experiences, civic engagement, the importance of diversity, and active participation in a thriving community of intellectually curious students. Classes are small so students can engage in active learning with professors committed to collaborative work. Students study topics such as climate change, marketing, medicine, time, and identity that are more effectively considered using perspectives from more than one discipline, and they are encouraged to supplement their major with concepts from other fields. Trips, special speakers, independent studies and research assistantships with faculty, participation at academic and professional conferences, and Honors special interest clubs enrich the curriculum as well.

Other program benefits include the Honors First Year Experience, Peer Mentoring Program, Living Learning Communities, as well as extra-curricular activities. Honors students also have priority registration, financial assistance to study abroad, free printing, and can compete for paid research assistantships.

Applications for admission to the Martinson Honors College are reviewed by the Dean, Assistant Dean, and the Honors Faculty Advisory Board. First year student admissions are based on significant achievement in high school, participation in extra-curricular activities, a 3.9 unweighted high school GPA, a letter of recommendation, and an essay. Applicants transferring from another college or university are eligible to apply having earned a 3.5 GPA or better from their transfer institution and can actively participate in our program for a minimum of four (4) semesters (fall and spring terms) and incorporate four (4) Honors courses/alternative course experiences. Rowan University students may apply in the fall semester if they have a GPA of 3.5 or higher and can complete at least four (4) semesters in the program before they graduate.

Graduation with Honors requires the successful completion of Honors course work, an overall GPA of 3.5, and participation in Honors activities and service projects each semester.

AIR FORCE RESERVE OFFICERS TRAINING CORPS (ROTC)

Professor of Aerospace Studies
AFROTC, Detachment 750
Saint Joseph's University
Philadelphia, PA 19131-1399
610.660.3190

Rowan University students are eligible to participate in the Air Force Reserve Officer Training Corps (AFROTC) through a cross-enrollment agreement with St. Joseph's University in Philadelphia. All aerospace studies courses will be held on the St. Joseph's campus. The AFROTC program enables a college student to earn a commission as an active-duty Air Force officer while concurrently satisfying requirements for his or her baccalaureate degree.

The program of aerospace studies at St. Joseph's University offers a four-year curriculum leading to a commission as a second lieutenant in the active-duty Air Force. Shorter-duration options are available for qualified candidates. In the four-year curriculum, a student takes the General Military Course (GMC) during the freshman and sophomore years, attends a four-week summer training program, and then takes the Professional Officer Course (POC) in the junior and senior years. A student is under no contractual obligation to the Air Force until entering the POC or accepting an Air Force scholarship.

The subject matter of the freshman and sophomore years is developed from a historical perspective and focuses on the scope, structure, and history of military power, with an emphasis on the development of air power. During the junior and senior years, the curriculum concentrates on the concepts and practices of leadership and management, and the role of national security forces in contemporary American society.

In addition to the academic portion of the curricula, each student participates in physical training, plus a leadership laboratory for two hours each week, during which the day-to-day skills and working environment of the Air Force are discussed and explained. The leadership lab utilizes a student organization designed for the practice of leadership and management techniques.

While selection for a scholarship is not necessary to participate, Air Force ROTC offers two-, three- and four-year scholarships on a competitive basis to qualified applicants. There are several levels of scholarships, which apply toward tuition, lab fees, and books. All scholarships are accompanied by a tax-free monthly stipend. All members of the POC, regardless of scholarship status, receive the tax-free monthly stipend. Students may apply for a scholarship before December 1 of the senior year of high school, or as a cadet in the program.

For further information on the cross-enrollment program, scholarships, and career opportunities, contact: Air Force ROTC at 610-660-3190 or https://sites.sju.edu/afrotc/.

ARMY RESERVE OFFICERS TRAINING CORPS (ROTC)

ROTC House, 401 Mullica Hill Road
Rowan University
856.256.5590
armyrotc@princeton.edu
msi@princeton.edu

Students enrolled in ROTC participate in a unique interactive program focused on leadership development with emphasis on self-discipline, integrity, confidence, and responsibility. Our intent is to help students improve themselves whether they decide to pursue a career as an officer in our Army or as a leader in the private sector. Students join the program without any obligation to the Army. Students only sign a contract to serve in the Army when they begin their junior year or when they receive an ROTC scholarship.

Our main objective is to commission the future officer leadership of the U. S. Army and motivate young people to be better citizens. Our second objective is to teach leadership and management skills which will enhance a student's future success in either a military or civilian career.

The Army ROTC scholarship program provides financial assistance for the education and training of highly qualified and motivated students who desire to be commissioned as officers in the Army after graduation from college. Scholarships pay full tuition and fees at Rowan University. Students also receive a book allowance and a monthly stipend. Army scholarships offer an excellent incentive to join the ROTC program. For more information, see Army R.O.T.C. under the scholarship section.

Leadership Training and ROTC Activities Include: **Leadership Labs; Field Training,** i.e., rappelling, obstacle course, weapons familiarization, land navigation and battle drills; **Physical Fitness Training; Ranger Challenge,** a team specializing in military skills and physical fitness in competition against university ROTC programs in the tristate area; **Color Guard,** an Army tradition supporting parades, football homecomings and commencement.

Rowan Army ROTC is located at the ROTC House at 401 Mullica Hill Road (intersection of Route 322 and Bowe Boulevard). **Contact information is at the top this section or visit:** http://www.goarmy.com.

Note: All Military Science Courses (MILS) are listed under the Interdisciplinary heading in the Courses Description section of this catalog.

Bachelors Programs

Bachelor of General Studies
Dr. Danielle Gougon
Coordinator
317B Robinson Hall
856.256.4061
gougon@rowan.edu

Tiffany Fortunato
Program Advisor
3069 Herman D. James Hall
856.256.4937
fortunato@rowan.edu

The Bachelor of General Studies (BGS) degree completion program provides a high-quality, interdisciplinary liberal arts education with an individualized academic focus area and attention to career preparation. It is intended for students

without a feasible pathway to completion of a traditional degree program and as such is a program with restricted enrollment. BGS students:

- Achieve a well-rounded and rigorous liberal arts education in a degree program that is tailored to individual needs;
- Concentrate on a disciplinary or interdisciplinary academic focus area more flexible than a traditional major;
- Collaborate with the program coordinator and advisor to ensure achievement of program and individual goals;
- Actively prepare for a future career as part of the degree requirements.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All General Studies majors must complete the Rowan Experience requirements as described on page 4

Program Requirements

To graduate from the BGS program, students must: Attain a 2.0 GPA; meet admission requirements for specific minors if chosen as their focus area; complete 120 semester hours (30 s.h. must be at Rowan); complete the following degree requirements:

General Education & Rowan Experience courses	42 s.h.
Focus area courses (9 s.h. must be at the 300-400 level)	18 s.h.
Elective courses (9 s.h. must be at the 300-400 level)	57 s.h.
BGS Portfolio requirement	1 s.h.
BGS Career Development course	2 s.h.
TOTAL	120 s.h.

How to Apply

Admission Criteria : Admission to the Bachelor of General Studies program is available to matriculated students who have earned a minimum of 75 credits, who require a degree completion program.

Procedure for Admission : Upon advisor or self-referral to the program, students will meet with the program advisor, Ms. Tiffany Fortunato (fortunato@rowan.edu; 856.256.4937, to evaluate their candidacy for the BGS program and to identify the academic focus area. Students deemed to be suitable candidates will complete the BGS application and Learning Contract.

Minors

LEADERSHIP STUDIES MINOR

James Coaxum, III
Education Leadership Department
3087 Herman D. James Hall
856.256.4779
coaxum@rowan.edu

The undergraduate Minor in Leadership Studies is an interdisciplinary effort, designed to address the needs of students, from various academic backgrounds, who wish to gain knowledge and experience in developing and practicing leadership skills. The minor allows students to explore leadership inside and outside the classroom in addition to providing them with the opportunity to practice leadership within an organizational setting. The program focuses on the nature of leadership in a variety of settings and will help students prepare for leadership responsibility on campus, in the community, and in their professions. The minor consists of 18 credit hours.

Students must complete 18 credits hours to satisfy the Minor in Leadership Studies. There are 9 credit hours in the Leadership Core; 3 credit hours in the Communication Core; and, 6 credit hours in the Interdisciplinary Core. Any student wishing to pursue a Minor in Leadership Studies should contact the coordinator for further information and advisement.

Minor Requirements

Leadership Core:	9 credit hours
Communication Core:	3 credit hours
Interdisciplinary Core:	6 credit hours

Required Courses

Leadership Core		9 s.h.
EDSU28.100	Leadership Theory	
EDSU28.205	Leadership Seminar I	
EDSU28.305	Leadership Seminar II (capstone)	

Leadership Communication Core		3 s.h.
CMS04.220	Interpersonal Communication	
Interdisciplinary Core		6 s.h.
(Choose any two)		
MGT06.300	Organizational Behavior	
MGT06.304	Organizational Change and Development	
SOC08.353	The Sociology of Complex Organizations	
SOC08.230	Self and Society	
EDPA02.320	Public Administration	
PSY08.310	Industrial/Organizational Psychology	
PSY05.206	Social Psychology	
HLTH37.170	Stress Management	

MINOR IN MEDICAL SOCIAL SCIENCE

Seran Schug
Advisor
Campbell Library, 5th floor
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There are many health professions other than physician or nurse that require a strong background in medical social science. These include but are not limited to public health, epidemiology, medical research, allied health, community health organizer. At present students interested in the health field can have a pre-med concentration, which relies heavily on math and science. They may take a special program in humanities, which concentrates on ethics. But they do not have an organized way to learn about the social factors influencing health behavior and delivery, gain experience through internships or field placement in health organizations, and explore the vast field of health beyond medical school. This minor offers an opportunity to explore medical social science and provide an experiential component for the student to determine if one of these is the career of interest. It can prepare students for health-related jobs at graduation or for graduate school in public health, urban health, allied health, and the like.

Required Courses: (15 hours, 3 courses of 3 credits each and 1 6 s.h. course):

SOC08.120	Introduction to Sociology (preferably pre-med section)	3 s.h.
or SOC08.422	Social Determinants of Health	3 s.h
ANTH02.215	Medical Anthropology	3 s.h.
SOC08.494	Field Experience Seminar (in a medical setting)	6 s.h.

Medical Social Science Bank (9 hours or 3 courses, 3 credits each):

ANTH02.221	Human Variation
ANTH02.225	Arts and Medicine
ANTH02.312	Anthropological Perspectives on Physical Growth and Development
ANTH02.322	Sex and Sex Roles in a Cross-Cultural Perspective or SOC08.281 Sexuality and Society
ANTH02.355	Global Health and Anthropological Pespectives
PSY01.108	Essentials of Psychology for Pre-Health Students
SOC15.322	Sociology of Population (preparatory for epidemiology)
SOC08.362	Sociology of Disability
SOC08.401	Human Service Organizations or 08.353 Sociology of Complex Organizations or SOC08.430 Case Management (recommended for careers in health organization)
SOC08.403	Death, Dying and Bereavement
SOC08.420	Sociology of Trauma and Mental Illness
SOC08.422	Social Determinants of Health
SOC08.436	Sociology of Medicine

Certificates of Undergraduate Studies

CERTIFICATE OF UNDERGRADUATE STUDY IN BLOCKCHAIN APPLICATIONS IN BUSINESS AND SOCIAL SCIENCES

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The Certificate of Undergraduate Study (CUGS) in Blockchain Applications in Business and Social Sciences provides a sequence of courses that combines Blockchain Technology topics and its applications in business, economics, finance, government, and many other social sciences. This CUGS will entail taking an interdisciplinary core courses as well as courses in Economics, Accounting & Finance, and computer sciences, and will improve the employment and career opportunities of undergraduate students entering the job market upon graduation.

Certificate of Undergraduate Study in Blockchain Applications in Business and Social Sciences 12 s.h.

The requirements include the following five courses:

Required Courses: 6 s.h.

INTR01.301	Blockchain Applications
CS10.250	Cryptography and Blockchain Essentials

Elective Courses: 6 s.h.

FIN04.444	Bitcoin, Cryptocurrency, and Blockchain Applications
MIS02.320	Business Applications of Blockchain
ECON04.335	Socio-Economic Applications of Blockchain

To be awarded the CUGS in Blockchain Applications in Business and Social Sciences, students must complete all courses required for the CUGS in Blockchain Applications in Business and Social Sciences with at least a 2.0 average. This CUGS is relevant for any major, but it is especially well suited for students majoring in Business, Economics, Accounting, Finance, Healthcare, Political Science, International Studies, Public Policy, and many other social sciences and business-related majors.

CERTIFICATE OF UNDERGRADUATE STUDY IN DIVERSITY AND INCLUSION IN PROFESSIONAL SETTINGS

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The CUGS in Diversity and Inclusion in Professional Settings deepens understanding about the causes and effects of diversity in the workplace and the potential for subtle bias affecting visible and non-visible minority groups. Valuable skills will be imparted for relating to diverse colleagues and collaborating on intercultural teams. A field placement in one of a variety of career areas provides practical experience observing and applying the principles learned.

Certificate of Undergraduate Study in Diversity and Inclusion in Professional Settings 15 s.h.

The requirements include the following five (5) courses:

Three core courses are required for all:

	SOC08.488	Critical Race Theory (Prereq Intro to Soc SOC08.120 or SOC08.121)
or	SOC08.146	Identity, Culture and Democracy: Being an American
	INTR01.130	Women and Gender in Perspective
	CMS04.360	Intercultural Communication (Prereq College Comp II COMP01.112 or Sophomore Engineering Clinic ENGR01.201).

One discipline-specific course from the following is required:

AFST11.104	Introduction to Africana Studies
ANTH02.275	Anthropology of Race and Ethnicity
CMS04.310	Images of Gender in Popular Culture
CMS04.320	Communicating Gender
ENGR01.217	Engineering in a Global Context
ENT06.240	Management of Human Resources
PHIL09.326/09.327	Philosophy and Race-(WI)
PHIL09.531	Applied Ethics (advanced undergraduates may enroll)

One practical application (field experience/internship) from the following is required (approved topics only):

AFST11.310	Service Learning Seminar in Africana Studies

ANTH02.295	Introduction to Qualitative Research
CMS04.355	Communictaion Studies Internship
ENGR01.303, 01.403	Engineering Clinic (junior or senior level)
INTR20.399	Internship in Applied Liberal Arts
HSRV01.311	Field Experience for Human Services
SOC08.494	Field Experience for Sociology (Prereq: SOC08.120 or SOC08.121 Intro to Sociology)

To be awarded the CUGS in Health Physics, students must complete all required coursework in accordance with University requirements for good standing. Students may not double-count more than 2 courses for both their major and the CUGS.

CERTIFICATE OF UNDERGRADUATE STUDY IN FORENSIC STUDIES

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The CUGS in Forensic Studies is an interdisciplinary program that provides a sequence of courses that combines forensic topics (such as forensic Anthropology, forensic law, forensic science, and computer forensics) with law-justice topics (such as criminal procedures, criminal investigation, criminal justice) enabling students to pursue post graduate certification or higher degree training in the area of forensics (forensic studies, forensic science, or related fields). The CUGS in Forensic Studies may also fulfill interest for personal enrichment and satisfaction of intellectual curiosity among those students with a non-professional interest in forensic studies and forensic science.

Certificate of Undergraduate Study Forensic Studies 12 s.h.

The CUGS in Forensic Studies requires at least 3 Forensic courses for 9-10 s.h. from the following:

ANTH02.315	Forensic Anthropology (lab course)
LAWJ05.290	Forensic Law
CS07.210	Foundations of Computer Forensics
CHEM05.249	Introduction to Forensic Science

Students will take an additional Forensic course, or take a course from the Electives Bank, to fulfill the minimum 12 sh.
To be awarded the CUGS in Forensic Studies, students must complete all courses required with at least a 1.7 average. For students pursuing post graduate certification or higher degree training in the area of Forensics it is recommended to take additional courses from the Electives Bank.

CERTIFICATE OF UNDERGRADUATE STUDY IN GLOBAL HEALTH STUDIES

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The Certificate of Undergraduate Study (CUGS) in Global Health Studies is an interdisciplinary program designed to provide students with the opportunity to study the global and local forces (sociocultural, political, economic, biological, and environmental) that affect patterns of health and disease throughout the world. Knowledge gained in completing this CUGS will help prepare students to work in fields related to international health, including the government sector, international development, the non-profit/humanitarian sector, and international healthcare. The CUGS also offers a course of study and credential for students who wish to pursue graduate education.

Certificate of Undergraduate Study in Global Health Studies 12 s.h.

Two required courses:

ANTH02.355	Global Health in Anthropological Perspective	3 s.h.
PHRE11.350	Spirituality and Healing	3 s.h.
or PHIL09.341	Biomedical Ethics	3 s.h.

Two of the following elective courses:

ANTH02.221	Human Variation	3 s.h.
ANTH02.215	Medical Anthropology	3 s.h.
ANTH02.312	Anthropological Perspectives on Physical Growth and Development	3 s.h.
ANTH02.420	Psychological Anthropology	3 s.h.
CMS04.385	Constructing Health	3 s.h.
ECON04.351	Health Economics	3 s.h.
HIST05.447	History of Medicine in Africa	3 s.h.
HLT00.302	Global Health	3 s.h.
IS25.100	Global Challenges	3 s.h.
PHIL09.376	Philosophy of Medicine	3 s.h.

PHIL09.341	Biomedical Ethics if not used as a required course	3 s.h.
REL10.350	Spirituality and Healing if not used as a required course	3 s.h.
POSC07.321	Contemporary World Problems	3 s.h.
SOC08.422	Social Determinants of Health: Theory, Method and Intervention	3 s.h.

Courses may be taken in any sequence. It should be noted that some elective courses do have prerequisites as established by the departments or programs that oversee them. According to University policy, students may only double count two courses from another single major, minor, or CUGS in fulfilling the requirements for this CUGS. Students in the CUGS should work with their academic advisor and with the coordinator of International Studies to determine the selection and sequence of coursework for the CUGS that best meets their needs.

CERTIFICATE OF UNDERGRADUATE STUDY IN GLOBAL SECURITY

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The Certificate of Undergraduate Study (CUGS) in Global Security is designed to provide students with a strong introduction to this crucially important interdisciplinary field. Students take 1) two required courses that cover the range of issues and approaches in international security and 2) two electives drawn from theme-based banks relating to environmental security, health security, disaster response, and conflict and terrorism. This CUGS will enrich the academic experience of students who are interested in international issues and who want to pursue specialized graduate training or to work in the government sector (counterintelligence, national security, or diplomacy, for example), the military, intergovernmental agencies, the private sector, academic institutions, and the non-profit/humanitarian sector.

Certificate of Undergraduate Study in Global Security 12 s.h.

Two required courses:

IS25.310	Global Security Clinic	3 s.h.
POSC07.319	International Security	3 s.h.
or IS25.100	Global Challenges	3 s.h.

Choose 2 courses from 2 of the following banks (6 s.h.). To ensure breadth, elective courses must be listed in different banks and offered by different departments. At least one course must be at the 300- or 400- level.

Global Security and the Environment Bank:

ENST94.101	Planet in Peril: Environmental Science in the 21st Century	3 s.h.
GEOL01.133	Climate, Catastrophes, Civilizations and Collapses	3 s.h.
SOC08.400	Environment, Policy, and Society	3 s.h.
IS25.350	Special Topics in International Studies (if related to environmental security)	3 s.h.

Global Security and Health Bank:

HLT00.302	Global Health	3 s.h.
ANTH02.355	Global Health in Anthropological Perspective	3 s.h.
POSC07.370	Special Topics in Political Science: Politics, Pathogens, and Pandemics in the World	3 s.h.
DPEM00.444	Emerging Health Threats: Risks and Surveillance	3 s.h.
IS25.350	Special Topics in International Studies (if health-related)	3 s.h.

Disaster Response Bank:

DPEM00.280	Global Catastrophes	3 s.h.
DPEM00.300	Bioterrorism and Weapons of Mass Destruction	3 s.h
SOC08.328	Sociology of Disasters and Crisis	3 s.h.
GEOG16.334	The Geography of Natural Disasters	3 s.h.
IS25.350	Special Topics in International Studies (if related to disaster response)	3 s.h.

War, Conflict, and Terrorism Bank:

HIST05.444	Islamist Movements	3 s.h.
LAWJ05.329	Intelligence, Policing, and Counterterrorism	3 s.h.
IS25.350	Special Topics in International Studies (if global security-related)	3 s.h.

Courses may be taken in any sequence. It should be noted that some elective courses do have prerequisites as established by the departments or programs that oversee them. According to University policy, students may only double count two courses from another single major, minor, or CUGS in fulfilling the requirements for this CUGS. Students in the CUGS should work with their academic advisor and with the coordinator of International Studies to determine the selection and sequence of coursework for the CUGS that best meets their needs.

CERTIFICATE OF UNDERGRADUATE STUDY IN MEDICAL SOCIAL SCIENCES

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The Certificate of Undergraduate Study (CUGS) in Medical Social Sciences provides students with greater depth in understanding the social factors affecting health behavior, attitudes, and organizations. The Association of American Medical Colleges recognizes the importance of such understanding for medical school students, covering related topics on its Medical College Admission Test (MCAT) entrance exam. There are many health-related careers that do not require medical school. Such careers include (but are not limited to) allied health, public health and policy, community health organization. The proposed CUGS adds to preparation in such careers.

Certificate of Undergraduate Study in Medical Social Science 12 s.h.

The requirements include the following:

The CUGS will consist of a minimum of 4 courses or 12 credits, distributed between the 2 required courses (6 s.h.) and 2 courses from the Medical Social Science bank (6 s.h.).

The required courses include (All are 3-credit courses):

SOC08.436	Sociology of Medicine
*or*SOC08.422	Social Determinants of Health
ANTH02.215	Medical Anthropology

The medical social science bank includes:

ANTH02.225	Arts and Medicine
ANTH02.312	Anthropological Perspectives on Physical Growth and Development
ANTH02.355	Global Health in Anthropological Perspectives
ANTH02.322	Sex and Sex Roles in a Cross-Cultural Perspective
or SOC08.281	Sexuality and Society
PSY01.108	Essentials of Psych for Pre-Health Students
SOC08.121	Intro to Sociology for pre-med students
SOC08.403	Sociology of Death, Dying and Bereavement
SOC08.362	Sociology of Disability
SOC08.420	Sociology of Trauma and Mental Illness
SOC15.322	Sociology of Population

And one of the following three courses (All are 3-credit courses):

SOC08.401	Human Service Organizations
or SOC08.353	Sociology of Complex Organizations
or SOC08.430	Case Management Intervention in Sociological Practice

The CUGS in Medical Social Sciences will be awarded when the minimum of 4 courses or 12 credits, distributed between the 2 required courses (6 s.h.) and 2 courses from the Medical Social Science bank (6 s.h.) are completed. Completion of all required coursework must be in accordance with University requirements for good standing.

CERTIFICATE OF UNDERGRADUATE STUDY IN MIDDLE EAST STUDIES (CUGS)

Katrinka Somdahl
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The CUGS in Middle East Studies aims to develop students' understanding of the history of the Middle East from the rise of Islam in the 7th century C.E. and the complexity of contemporary issues and problems; it also aims to develop skills that will help students professionally after they graduate.

The Middle East Studies CUGS requires 12 s.h. or four courses taken from at least two departments:

HIST05.383	Islamic Civilizations*
or HIST05.439	Ottoman Empire *

*Note: HIST05.306 Historical Methods is a prerequisite for both courses; students enrolled in this CUGS can receive a prerequisite waiver after completing COMP01.112 College Composition II; contact Ms. Christine Larsen-Britt, Larsen-britt@rowan.edu, for a waiver.

POSC07.345	Government and Politics of the Middle East
or HIST05.308	Modern Middle East*

*Note: HIST05.306 Historical Methods is a prerequisite; non-History majors can receive a waiver completing COMP01.112 College Composition II.

Two electives at any level from courses listed below. Students enrolled in this CUGS may get a prerequisite waiver for any of the history courses listed.

HIST05.383	Islamic Civilizations (if not taken as a core course)
HIST05.439	Ottoman History (if not taken as a core course)
HIST05.308	Modern Middle East (if not taken as a core course)
POSC07.345	Government and Politics of the Middle East (if not taken as a core course)
HIST05.404	Arab-Israeli Conflict (HIST05.306 Historical Methods is a prerequisite)
HIST05.417	Women in Islam (HIST05.306 Historical Methods is a prerequisite)
HIST05.444	Islamist Movements (HIST05.306 Historical Methods is a prerequisite)
GEOG16.347	Geography of the Middle East
LAWJ05.415	International Terrorism
POSC07.489	Seminar in Political Science*

*Note: POSC07.360 Methods and Statistics in Political Science Research is a prerequisite) with approval of Dr. Somdahl, coordinator of the Middle East Studies CUGS, and a final paper written about the Middle East.

ARAB12.101	Elementary Arabic I
or ARAB12.102	Elementary Arabic II
or ARAB12.201	Intermediate Arabic I
or ARAB12.211	Intermediate Arabic II

(i.e. only one language course may count towards the CUGS).

CERTIFICATE OF UNDERGRADUATE STUDY IN MULTIETHNIC LITERATURES OF THE UNITED STATES

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The Certificate of Undergraduate Study (CUGS) in Multiethnic Literatures of the United States offers students the opportunity to study in-depth, key texts and contexts of ethnic American literatures. Students will cultivate a critical awareness of the ways in which mutually constitutive categories of ethnicity, race, indigeneity, class, gender, and sexuality inform the evolution of African American, Asian American, Latino/a/x, and Native American literary canons.

Certificate of Undergraduate Study in Multiethnic Literatures of the United States 12 s.h.

Students are required to complete one of the following courses first:

ENGL02.101	Critical Methods I for English Majors
ENGL02.218	Multiethnic Literatures of the United States

Students then will complete three courses from the list below. To ensure students have the opportunity to engage as many of the four major areas of study within Multiethnic Literatures of the United States—Asian American, Native American, Latino/a/x, and African American Literatures—students who choose to study African American literature may take only one of the two course offerings in this area (either ENGL02.354 or ENGL02.355, not both).

ENGL02.362 Native American Literature
Prerequisites: College Composition I (COMP01.111) or Intensive College Composition I (COMP01.105)

ENGL02.354 African American Literature I
Prerequisites: College Composition II (COMP01.112) and Multiethnic Literatures of the United States (ENGL02.218) or College Composition II (COMP01.112) and Critical Methods I for English Majors (ENGL02.101)

ENGL02.355 African American Literature II
Prerequisites: College Composition II (COMP01.112) and Multiethnic Literatures of the United States (ENGL02.218) or College Composition II (COMP01.112) and Critical Methods I for English Majors (ENGL02.101)

ENGL02.360 Asian American Literature
Prerequisites: College Composition II (COMP01.112) and Multiethnic Literatures of the United States (ENGL02.218) or College Composition II (COMP01.112) and Critical Methods I for English Majors (ENGL02.101)

ENGL02.365 U.S. Latino/a Literature
Prerequisites College Composition II (COMP01.112) and Multiethnic Literatures of the United States (ENGL02.218) or College Composition II (COMP01.112) and Critical Methods I for English Majors (ENGL02.101) To earn this CUGS, students must complete all courses in Multiethnic Literatures of the United States with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN QUALITATIVE RESEARCH

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The CUGS in Qualitative Research is an interdisciplinary program primarily designed to prepare students to learn how to collect, analyze, and present qualitative data from a variety of sources including individual interviews, focus groups, participatory and ethnographic research. Qualitative research is increasingly used in a wide range of fields for the purpose of developing health and social policies, public relations strategies, consumer products, computer programs, educational programs, and governmental policies. The CUGS in Qualitative Research brings together courses from a variety of fields including sociology and anthropology, history, public relations, marketing, and radio, television and film. This CUGS will enhance opportunities for students from the various colleges to integrate knowledge and methods from a variety of disciplines, and thus, will allow students to create an integrative and innovative curriculum. A CUGS in qualitative research that engages students in experiential learning will enhance job accessibility and work performance.

Certificate of Undergraduate Study in Qualitative Research 12 s.h.

The requirements include the following:

The required courses are:

ANTH02.295	Introduction to Qualitative Research	3 s.h.

Courses in the electives bank are:

ANTH02.420	Psychological Anthropology	3 s.h.
PR06.310	Introduction to Public Relations and Advertising Research	3 s.h.
PR99.362	Public Opinion (prereq: PR06.310)	3 s.h.
SOC08.370	Sociology of Women (prereq: SOC08.120 or SOC08.220)	3 s.h.
ANTH02.290	Museum Studies	3 s.h.
ANTH02.371	Anthropological Approaches to Culture Change (prereq: ANTH02.202 or SOC08.120)	3 s.h.
SOC08.375	Sociological Research Methods (prereq SOC08.120)	3 s.h.
RTF01.402	Experiencing Documentary 3 s.h.	
SPAN05.250\ANTH02.250	Introduction to Anthropological Linguistics and CHSS Match Internship (if related to qualitative research)	3 s.h.

The CUGS will be awarded when 3 semester credits of the required courses have been completed, and when 9 semester credits from the electives bank have been completed, for a total of 12 semester credits. Completion of all required coursework must be in accordance with University requirements for good standing.

CERTIFICATE OF UNDERGRADUATE STUDY IN THE SOCIAL-BEHAVIORAL IMPACT OF CANNABIS LEGISLATION

Kimberly Houser, Ph.D.
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The Certificate of Undergraduate Studies (CUGS) in the Social-Behavioral Impact of Cannabis Legislation will provide students with a multidisciplinary perspective of cannabis legislation, history, policy and process. Social institutions will be examined, as well as addressing the differential impacts of cannabis legislation on the issue of social inequality. The course selections are designed to address a growing demand by people interested in entering the competitive and rapidly expanding cannabis industry or as individuals involved with business, service, and/or legal aspects of the industry.

Certificate of Undergraduate Study in the Social-Behavioral Impact of Cannabis Legislation 12 s.h.

The requirements include the following four courses:

Three of the four courses will serve as the foundation of the CUGS. They will operate without prerequisites. These courses are:

CANN03.101	Cannabis: History, Culture, and Social Institutions
CANN03.201	Cannabis Legislation and Society
CANN03.301	Cannabis Industry

To complete the requirements of the CUGS, students may choose from one of the four courses offered below to meet their specific areas of interest. These courses are:

CAS01.425	The Study of Family and Alcoholism/Drug Abuse
LAWJ05.322	Drugs and Crime in America
PSY10.375	Drugs, the Brain, and Behavior (prerequisites: PSY10.315 or PSY10.326)
CAS01.250	Psychopharmacology/Physiology of Addiction

To be awarded the CUGS in the Social-Behavioral Impact of Cannabis Legislation, students must complete all courses required as outlined with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN SOCIAL STUDIES FOR MIDDLE SCHOOL EDUCATORS

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The Certificate of Undergraduate Study (CUGS) in Social Studies for Middle School Educators is a sequence of courses designed to prepare students for the Middle School Social Studies PRAXIS and to teach social studies content for Middle School curriculum. The curriculum has four core courses in history, government and American Studies, and then allows students to expand their knowledge to one other elective social studies course.

Certificate of Undergraduate Study in Social Studies for Middle School Educators 15 s.h.

The requirements include the following five courses:

Core Courses 12 s.h.

Students must take these four courses.

HIST05.150	US History to 1865
HIST05.120	World History since 1500
POSC07.110	American Government
AMST13.320	American Studies for the Classroom

Elective Course 3 s.h.

Students may elect one of the following courses

GEOG16.110	Cultural Geography
ECON04.101	Macro-Economics
HIST05.151	US History since 1865
HIST05.100	Western Civilization to 1660
HIST05.101	Western Civilization since 1660

William G. Rohrer College of Business

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Mission

We empower a diverse population of students to achieve sustainable careers with a focus on real-world immersion, entrepreneurial thinking, and responsible leadership, supported by relevant faculty research and excellence in teaching.

We achieve our mission through a commitment to –

A Diverse Population - We seek to grow and nurture a diverse community of students and faculty, promoting equity and inclusion and preparing students for the global, multicultural environment in which they will live and do business.

Sustainable Careers - We graduate students with the solid disciplinary expertise, poise, and professionalism necessary to excel in their first positions and the skills to tackle new opportunities as technologies and business models evolve.

Real-world Immersion - We provide multiple real-world immersion experiences for our students that set them apart in a crowded job market. Combined with our commitment to the region's economic development, we actively engage with the business and nonprofit communities in ways that benefit all.

Entrepreneurial Thinking - We offer entrepreneurially focused curricular and co-curricular programs to help students develop the creativity, agility, initiative, and persistence that characterize the entrepreneurial mindset.

Responsible Leadership/Societal Impact - As a PRME founding signatory, we are committed to developing students' abilities to act ethically and generate sustainable value for their employers and society.

Relevant Faculty Research - We align with the University's applied research focus, including activities that positively impact the educational experience, the scholarly community, and the region's economic vitality.

Teaching Excellence - We are committed to student-centric teaching and flexible delivery modes designed to facilitate and motivate learner passion, engagement, and self-responsibility. We seek to foster the knowledge, skills, and lifelong learning mindset necessary for success in a rapidly changing world.

Vision

To be a first-choice business school for enterprising students and discerning employers, a research hub, and an economic catalyst for the region and beyond.

Accreditation

Rowan University's business programs are accredited by AACSB International (The Association to Advance Collegiate Schools of Business). To achieve this prestigious accreditation, the business programs successfully demonstrated a wide range of quality standards relating to faculty qualification, strategic management of resources, interactions of faculty and students, as well as a commitment to continuous improvement and achievement of learning goals in degree programs.

In addition, the College is just one of a few AACSB International schools in the nation to have the Management Information Systems Program also accredited by ABET, the Accreditation Board for Engineering and Technology, Inc.

Programs Offered

The William G. Rohrer College of Business offers the following degree programs to serve its undergraduate students:

Major Programs

Bachelor of Science in Accounting

Bachelor of Science in Entrepreneurship

Bachelor of Science in Finance

Bachelor of Science in Human Resource Management

Bachelor of Science in Management

Bachelor of Science in Management Information Systems

Bachelor of Science in Marketing
Bachelor of Science in Supply Chain and Logistics

The William G. Rohrer College of Business offers the following minors:

- Business Administration
- Business Analytics
- Entrepreneurship
- Human Resource Management
- Management Information Systems
- Marketing

The William G. Rohrer College of Business also offers Certificates of Undergraduate Studies.

The Certificates of Undergraduate Studies are a valuable addition to any major. The William G. Rohrer College of Business offers the following Certificates of Undergraduate Studies:

- Business Analytics
- Elements of Business
- Forensics and Fraud Investigations
- Global Business
- Information Systems
- Management and Leadership
- Management Information Systems
- Training and Development

Departments

The William G. Rohrer College of Business houses the departments of Accounting and Finance, Management, Marketing and Business Information Systems, and the School of Innovation and Entrepreneurship.

MINOR IN BUSINESS ADMINISTRATION

The Minor in Business Administration requires students to complete 12 credit hours in general education requirements. A student must achieve a minimum 2.5 GPA in these courses:

Required Prerequisite Courses 9-12 s.h.

ECON04.101	Intro to Economics-A Macroeconomic Perspective
and ECON04.102	Intro to Economics-A Microeconomic Perspective
or ECON04.303	Principles of Economics: A Survey
STAT02.260	Statistics I
MATH03.125	Calculus Techniques & Applications
or MATH01.130	Calculus I

Business Courses 24 s.h.

The Minor in Business requires students to take 24 credit hours in business courses, all of which must be taken from the Rohrer College of Business core. Students must achieve a 2.5 GPA in all business courses. The lower division courses must be completed before upper division courses may be taken.

Required courses

Lower Division

MGT98.242	Legal Environment of Business
ACC03.210	Principles of Accounting I
ACC03.211	Principles of Accounting II
MKT09.200	Principles of Marketing
MIS02.234	Management Information Systems

Upper Division

MGT06.300	Organizational Behavior
FIN04.300	Principles of Finance
MGT06.305	Operations Management

CERTIFICATE OF UNDERGRADUATE STUDY IN ELEMENTS OF BUSINESS

RCB Minors/CUGS Advising Team
Business Hall
RCBMinors@rowan.edu

The Certificate of Undergraduate Study (CUGS) in Elements of Business is offered to students in the Pre-Business Track within the Exploratory Studies Program. Students who choose not to pursue a major or minor in Business, may receive this

CUGS for completion of the required business coursework. This CUGS is not available to students with majors or minors offered by the Rohrer College of Business

Certificate of Undergraduate Study in Elements of Business 12 s.h.

The requirements include the following four courses:

BUS01.105	Business Perspectives
MKT09.200	Principles of Marketing
MIS02.234	Management Information Systems
ACC03.210	Principles of Accounting

School of Innovation and Entrepreneurship

Eric Liguori, PhD
Founding Head & William G. Rohrer Chair of Entrepreneurship
Busines Hall 209
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The School of Innovation and Entrepreneurship (SIE) embraces a collaborative and interdisciplinary approach to leading Rowan University's curricular and co-curricular entrepreneurship offerings. On the curricular end, the SIE oversees the Bachelor of Science in Entrepreneurship, the Entrepreneurship Minor, and entrepreneurship certificate programs. It also works in partnership with the Rowan College of Engineering on the Bachelor of Science in Engineering Entrepreneurship, the Edelman College of Communication and Creative Arts on the Certificate of Undergraduate Studies in Entrepreneurial and Independent Media, the College of Performing Arts on the entrepreneurial aspects of the Bachelor of Science in Music Industry, and with a growing list of other Rowan schools and colleges on collaborative course offerings where entrepreneurship content is embedded. In addition to this curricular effort, the SIE oversees the Rowan Center for Innovation and Entrepreneurship as well as serves as the conduit through which the students from all disciplines who have entrepreneurial interests interact with the Rowan Innovation Venture Fund and South Jersey Technology Park.

BACHELOR OF SCIENCE IN ENTREPRENEURSHIP

The theory and practice of entrepreneurship is becoming increasingly important for solving economic and social challenges. We develop the ability of our students to identify, determine feasibility and act upon entrepreneurial opportunities. Student learning is infused with an emphasis on innovation, entrepreneurial thinking and venture effectiveness using entrepreneurial problems, cases, and project-based learning. These exposures provide students with the foundation to initiate new enterprises, create socially responsible non-profit entities, extend family ventures or craft corporate extensions.

Students working toward a Bachelor of Science in Entrepreneurship must maintain a 2.00 grade point average overall and a 2.50 grade point average in all business courses taken.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirement as described on page 4

Required Courses

(may be included in General Education)

MATH01.130	Calculus I
or MATH03.125	Calculus Techniques and Applications
STAT02.260	Statistics I
CS0x.xxx	**

**One course from the list of approved General Education computing courses having a course identification number of CS0x.xxx

ECON04.101	Introduction to Economics: Macroeconomic Perspective
ECON04.102	Introduction to Economics: Microeconomic Perspective
BUS/INTR01.488	Career Planning & Development
MKT09.200	Principles of Marketing
ACC03.210	Principles of Accounting I
ACC03.211	Principles of Accounting II
MGT98.242	Legal Environment of Business

MGT06.305	Operations Management
FIN04.300	Principles of Finance
MGT06.300	Organizational Behavior
or MGT06.309	Organizational Behavior (WI)
MGT06.402	Business Policy
ENT06.240	Entrepreneurship and Innovation
ENT06.426	New Venture Development
ENT06.344	Global Entrepreneurship Growth Strategies
ENT06.415	Entrepreneurship Capstone
ENT06.342	Financing and Legal Aspect of Entrepreneurship
or ENT06.346	Social Entrepreneurship
or ENT06.450	Technology Entrepreneurship

Select 6 s.h. from the following list:

ENT06.326	Entrepreneurship and Small Business Management
ENT06.327	Strategic Issues in Family Business
ENT06.328	Evaluating Franchising Opportunities
ENT06.346	Social Entrepreneurship
ENT06.342	Financing and Legal Aspect of Entrepreneurship
MGT06.361	Supervised Internship
ENT06.344	Entrepreneurial Growth Strategies
ENT06.450	Technology Entrepreneurship
ACC03.328	Entrepreneurial Accounting

Select 9 s.h. from the following list:

	Any Entrepreneurship courses
	Any non-required upper-level Business courses
JRN02.365	Introduction to Entrepreneurial Media
JRN02.366	Media Metrics and Analytics
MUS40.111	Business of Music I
MUS40.113	Business of Music II
MUS40.315	Entrepreneurship in the Music Industry
PHIL09.222	Business Ethics

Free Electives 6-8 s.h.
Total Credits for Program 120 s.h.

MINOR IN ENTREPRENEURSHIP

Susana Santos
Minor Coordinator
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Entrepreneurship is an inherently interdisciplinary field of study, with students from all majors and minors benefitting in cultivating entrepreneurial mindsets and strengthening their entrepreneurial skillsets. Thus, the Entrepreneurship Minor was built to accommodate students from majors all across the Rowan campus as they learn entrepreneurial knowledge and skills by enrolling and completing entrepreneurship courses. To earn the minor students must hold a minimum GPA of 2.5 and complete a total of 18 s.h. consistent with the requirements and electives listed below.

Requirements 9 s.h.

MKT09.200	Principles of Marketing
ENT06.240	Entrepreneurship and Innovation
ENT06.426	New Venture Development
ENT06.342	Financing and Legal Aspects of Entrepreneurship

Electives: Select three (9 s.h.) courses from the list below:

ENT00.000	Any Entrepreneurship Course
MKT09.200	Principles of Marketing
MKT09.378	Product, Price, and New Venture Development
MKT09.315	Personal Selling
JRN02.366	Media Metrics and Analytics
JRN02.365	Introduction to Entrepreneurial Media
MUS40.111	Business of Music I
MUS40.113	Business of Music II
MUS40.315	Entrepreneurship in the Music Industry
INTR01.138	Issues in Sustainable Development
ME10.443	Design for X
CS07.210	Foundations of Computer Science

ENGR01.496	New Product Development
ECE09.405	Product Engineering
PHIL09.222	Business Ethics
or PHIL09.150	Introduction to Ethics
or PHIL09.218	Environmental Ethics
or PHIL09.341	Biomedical Ethics
or JRN02.319	Media Ethics

CERTIFICATE OF UNDERGRADUATE STUDY IN CANNABIS ENTREPRENEURSHIP

The Certificate of Undergraduate Study (CUGS) in Cannabis Entrepreneurship provides a sequence of courses that combines entrepreneurship courses focusing on entrepreneurial skillset and mindset development with cannabis industry-specific courses. The structure allows students to focus their interests on whatever aspect of the cannabis industry is of most interest to them (retail, medicinal, chemical, product, etc.).

Certificate of Undergraduate Study in Cannabis Entrepreneurship 12 s.h.

The requirements include the following four courses:

ENT06.240	Entrepreneurship & Innovation
ENT06.351	Entrepreneurship in the Cannabis Industry
ENT06.352	Business Models in Cannabis
ENT06.346	Social Entrepreneurship
or ENT06.404	Independent Study in Entrepreneurship (cannabis-themed)
or CANN00.000	Any Cannabis-prefixed course

To be awarded the CUGS in Cannabis Entrepreneurship, students must complete all courses with at least a 2.5 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN ENTREPRENEURSHIP, INNOVATION, AND TECHNOLOGY

The Certificate of Undergraduate Study (CUGS) in Entrepreneurship, Innovation, and Technology provides a sequence of courses that combines entrepreneurship courses focusing on entrepreneurial skillset and mindset development with courses relevant for aspiring technologists and innovators.

Certificate of Undergraduate Study in Entrepreneurship, Innovation, and Technology 12 s.h.

The requirements include the following two courses:

ENT06.240	Entrepreneurship & Innovation
ENT06.450	Technology Entrepreneurship

In addition, students must also complete any two courses from the following list:

ENT06.344	Global Entrepreneurship Growth Strategies
MIS02.301	Emerging Technologies I
MIS02.302	Emerging Technologies II
MIS02.337	Applied Database Technologies
ECE09.311	Electronics I
ECE09.351	Digital Signal Processing

To be awarded the CUGS in Entrepreneurship, Innovation, and Technology, students must complete all courses with at least a 2.5 GPA.

Department of Accounting and Finance

Robert Scarpa
Department Chair
Business Hall
scarpar@rowan.edu

The Accounting and Finance Department awards a Bachelor of Science in Accounting, a Bachelor of Science in Finance, and a Certificate of Undergraduate Studies in Forensics and Fraud Investigations. At the graduate level, the Department offers a Master of Science in Finance, a Certificate of Graduate Studies in Accounting, a Certificate of Graduate Studies in Finance, and concentrations in both Accounting and Finance in the MBA Program. Foundation courses offer students, regardless of their majors, a solid basis in accounting and financial theory. At the upper levels, courses are designed to qualify students for a wide range of careers in the accounting and the financial environment.

BACHELOR OF SCIENCE IN ACCOUNTING

The Bachelor of Science in Accounting requires the common core of the College of Business courses. Courses within the accounting major provide students with a broad understanding of accounting theory and practice, incorporating and infusing data analytics, information technology, and ethical issues. The program prepares students for a diversified range of career opportunities and meets the requirements to sit for the Certified Public Accountant (CPA) Examination, as well as the Certified Management Accountant (CMA) Examination and the Certified Internal Auditor (CIA) Examination.

Students working toward a Bachelor of Science in Accounting must achieve a 2.00 grade point average overall as well as a 2.50 grade point average in the Business core and accounting concentration to graduate.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirement as described on page 4

Required Courses

(may be included in General Education)

MATH01.130	Calculus I
or MATH03.125	Calculus Techniques and Applications
STAT02.260	Statistics I
	Approved General Education Computing Course
ECON04.101	Introduction to Economics: Macroeconomic Perspective
ECON04.102	Introduction to Economics: Microeconomic Perspective
STAT02.261	Statistics II
BUS/INTR01.488	Career Planning & Development
ACC03.210	Principles of Accounting I
ACC03.211	Principles of Accounting II
MGT98.242	Legal Environment of Business
MKT09.200	Principles of Marketing
MGT06.305	Operations Management
FIN04.300	Principles of Finance
MGT06.300	Organizational Behavior
MIS02.234	Management Information Systems
MGT06.402	Business Policy
ACC03.301	Accounting Analytics
ACC03.310	Intermediate Accounting I
ACC03.311	Intermediate Accounting II
ACC03.320	Accounting Information Systems
ACC03.326	Strategic Cost Analysis
ACC03.410	Auditing
ACC03.416	Advanced Accounting
ACC03.428	Integrative Accounting Seminar
ACC03.432	Federal Taxation

Accounting Electives 6 s.h.

Students select any of the following courses for a total of six (6) semester hours.

ACC03.150	Introduction to Business and Analytics for Financial Information
ACC03.300	Supervised Internship in Accounting
ACC03.330	Selected Topics in Accounting
ACC03.411	Advanced Auditing and Analytics
ACC03.419	Forensic Accounting and Fraud Investigation
ACC03.425	International Accounting
ACC03.431	Taxation of Business Entities
ACC98.300	Law for Accountants
FIN04.327	Selected Topics in Finance
FIN04.328	Selected Topics in Finance II
FIN04.444	Bitcoin, Cryptocurrency, and Blockchain Applications
PHIL09.222	Business Ethics

Free Electives 7-9 s.h.

Total Credits for the Program 120 s.h.

BACHELOR OF SCIENCE IN FINANCE

The Bachelor of Science in Finance requires the common core of College of Business courses. Courses within the finance major provide students with a broad understanding of financial theory and institutions. The program prepares students for a variety of career opportunities within financial institutions, governmental agencies and private industry. These include financial analysis, cash management, credit analysis, pension and investment fund management, capital budgeting analysis, investment and commercial banking, and securities management.

Students working toward a Bachelor of Science in Finance must maintain a 2.00 grade point average overall as well as a 2.50 grade point average overall in the Business core and finance concentration to graduate.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All Students must complete the Rowan Experience requirements as described on page 4

Changes to the Bachelor of Science in Finance Program will apply to all students entering the major in Fall 2022 or later.

Required Courses

(may be included in General Education)

MATH01.130	Calculus I
or MATH03.125	Calculus Techniques and Applications
STAT02.260	Statistics I
	Approved General Education Computing Course

**Take one course from the list of approved General Education computing courses having a course identification number of CS0x.xxx

ECON04.101	Introduction to Economics: Macroeconomic Perspective
ECON04.102	Introduction to Economics: Microeconomic Perspective
STAT02.261	Statistics II
BUS/INTR01.488	Career Planning & Development
MKT09.200	Principles of Marketing
ACC03.210	Principles of Accounting I
ACC03.211	Principles of Accounting II
MGT98.242	Legal Environment of Business
MGT06.300	Organizational Behavior
MGT06.305	Operations Management
FIN04.300	Principles of Finance
MIS02.234	Management Information Systems
MGT06.402	Business Policy
ACC03.310	Intermediate Accounting I
FIN04.310	Financial Analytics
FIN04.422	Financial Management I
FIN04.423	Financial Management II
FIN04.431	Investments
FIN04.433	Financial Institutions and Markets
FIN04.435	International Financial Management

Electives 12 s.h.

Elective courses are generally offered only once an academic year. Select any of the following courses for a total of twelve (12) semester hours:

ACC03.311	Intermediate Accounting II
ACC03.432	Federal Taxation
FIN04.327	Selected Topics in Finance
FIN04.328	Selected Topics in Finance II
FIN04.330	Supervised Internship in Finance
FIN04.350	Personal Financial Planning
FIN04.358	Bank Management
FIN04.424	Seminar in Finance
FIN04.425	Financial Derivatives
FIN04.436	Insurance and Risk Management
FIN04.438	Portfolio Management

FIN04.439	Foundations of FinTech
FIN04.444	Bitcoin, Cryptocurrency, and Blockchain Applications

Business Elective 3 s.h.
Choice of any level College of Business course or Business Ethics (PHIL09.222), and excluding any internship other than Supervised Internship in Finance (FIN04.330)

Free Electives 4-5 s.h.

Total Credits for the Program 120 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN FORENSIC AND FRAUD INVESTIGATIONS

Robert Scarpa
Department Chair, Department of Accounting & Finance
Business Hall
scarpar@rowan.edu

The CUGS in Forensic Studies is an interdisciplinary program that provides a sequence of courses that combines forensic topics with law-justice topics, enabling students to pursue post graduate certification or higher degree training in the area of forensics (forensic studies, forensic science, or related fields). It will provide students with considerable knowledge in forensics, assisting them in further achievement of professional designations in forensics. Please note that this CUGS is **primarily intended** for business and accounting majors, due to the prerequisites for ACC 03419 Forensic Accounting and Fraud Investigation. Consult the Banner system for a full list of course prerequisites for this and all courses included in the CUGS.

Certificate of Undergraduate Study in Forensic and Fraud Investigations 12 s.h.

The required courses:

ACC03.419	Forensics Accounting and Fraud Investigation
LAWJ05.290	Forensic Law
LAWJ05.305	Law and Evidence

Choose One

CS01.395	Special Topics in Computer Science: Computer Forensics
CS01.211	Principles of Information Security
MIS02.315	Principles of Information Security

Department of Management

Dilip Mirchandani
Chair
Business Hall 341
856.256.4048
mirchandani@rowan.edu

The Management Department awards Bachelor of Science degrees in Management and Human Resource Management. These business programs provide students with a solid grounding in management theory and practice and with a strong professional foundation for a wide variety of organizational functions.

Students benefit from a curriculum that combines liberal arts requirements with intensive business theory and fundamentals, and hands-on learning opportunities.

BACHELOR OF SCIENCE IN MANAGEMENT

The Bachelor of Science in Management prepares students for meaningful entry level positions in management, and a foundation for future career growth. The program is designed to provide a strong foundation in both traditional and innovative management techniques, blending theory and practice by requiring classroom instruction, internships, and interaction with management practitioners. Students enrolled in the management program are expected to:

1. Learn important management concepts, skills and techniques focused on managing and supervising other workers
2. Think critically
3. Analyze and solve organizational problems
4. Improve their oral and written communication skills, and
5. Build their team skills

The program emphasizes the management of the new, diverse workforce; a concern for the increasing level of legal, and ethical and social responsibilities for workplace organizations; the importance of information technology in business decision making; understanding and being able to utilize essential quantitative tools for managerial decision-making in order to maintain a competitive advantage; and the globalization of the business environment.

Students working toward a Bachelor of Science in Management must maintain a 2.00 cumulative grade point average and a 2.50 grade point average in all business courses completed at Rowan.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirement as described on page 4

Required Courses for Management Degree *(may be included in General Education)* 27 s.h.

MATH01.130	Calculus 1
or MATH03.125	Calculus Techniques and Applications
STAT02.260	Statistics 1
CS0x.xxx	**

**One course from the list of approved General Education computing courses having a course identification number of CS0x.xxx

ECON04.101	Introduction to Economics: Macroeconomic Perspective
ECON04.102	Introduction to Economics: Microeconomic Perspective
BUS/INTR01.488	Career Planning & Development
ACC03.210	Principles of Accounting I
ACC03.211	Principles of Accounting II
MGT98.242	Legal Environment of Business
MKT09.200	Principles of Marketing
MGT06.305	Operations Management
FIN04.300	Principles of Finance
MGT06.300	Organizational Behavior
or MGT06.309	Organizational Behavior(WI)
MIS02.234	Management Information Systems
MGT06.402	Business Policy
WA01.408	Writing as Managers (WI)
MGT06.310	Leadership and Supervision for Management
MGT06.311	Decision-Making Tools for Managers
MGT06.330	Managing International Business
MGT06.405	Business Management Simulation
MGT06.361	Supervised Internship
or MGT06.430	Business Field Experience

Choose 5 courses from the list below with at least one being from each of the three banks below: 15 s.h.

Quantitative Skills Bank

MGT06.350	Continuous Quality Improvement
MGT06.404	Quality Management
MGT06.354	Managerial Data Analysis
MGT06.406	Improving Business Processes
MGT06.407	Business Analytics
ENT06.426	New Venture Development
ACC03.326	Cost Accounting
FIN04.422	Financial Management I
MKT09.384	Research Methods in Marketing-WI
ECON04.302	Intermediate Microeconomics
CS07.370	Introduction to Information Visualization

Qualitative People Skills Bank

MGT06.321	Managing Teams in Organizations
MGT06.304	Organizational Change and Development
HRM06.302	Management of Human Resources
HRM06.420	Principles of Training and Training Management
HRM06.315	Recruitment and Selection
ENT06.327	Strategic Issues in Family Business
MKT09.382	Sales Force Management
MKT09.376	Consumer Behavior
PHIL09.222	Business Ethics
MGT06.361	Supervised Internship (additional 3.0 s.h.)

Organizational Task Skills Bank

MKT09.378	Product, Price and New Venture Development
ENT06.240	Entrepreneurship and Innovation

ENT06.326	Entrepreneurship and Small Business Management	
MKT09.360	Services Marketing	
MGT06.312	Special Topics in Management I	
MGT06.313	Special Topics in Management II	
MGT06.381	Sustainable Business	
MKT09.350	Management of Advertising and Promotion	
ENT06.342	Financing and Legal Aspects of Entrepreneurship	
HRM98.337	Legal Aspects of Human Resource Management (WI)	
MKT09.372	Retailing	
MIS02.332	E-Business: IS Perspectives	
HRM16.401	Labor/Employee Relations	
Free Electives		6-8 s.h.
Total Credits for Program		120 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN MANAGEMENT AND LEADERSHIP

Dilip Mirchandani
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The Certificate of Undergraduate Study (CUGS) in Management and Leadership is open to students in any major other than Management and is designed to give students a working knowledge of the softer, qualitative, and behavioral aspects of management and will help their preparedness for entry into the workplace. The four courses below will enable students to: 1) understand how to communicate effectively in organizational / business settings; 2) understand theories about motivation and team building; 3) understand theories underlying the different types of leadership and 4) understand theories of organizational change and development.

Certificate of Undergraduate Study in Management and Leadership 12 s.h.

The requirements include the following four courses:

WA01.408	Writing as Managers	3 s.h.
MGT06.300	Organizational Behavior	3 s.h.
MGT06.310	Leadership and Supervision for Managers	3 s.h.
MGT06.304	Organizational Change and Development	3 s.h.

To be awarded the CUGS in Management and Leadership, students must complete all four courses required for the CUGS in Management and Leadership with at least a 2.0 GPA average. The above mentioned pre-requisites make this CUGS best suited for students who are sophomores, and have completed the writing / composition course sequence, and would like to develop an understanding of organizational management and leadership skills in their junior year and beyond.

CERTIFICATE OF UNDERGRADUATE STUDY IN BUSINESS ANALYTICS

James Roh
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The Certificate of Undergraduate Study (CUGS) in Business Analytics provides a sequence of courses that combines Computer Science topics (such as information visualization and data mining) with Business topics (such as decision-making tools for managers and visual business intelligence), enabling students to harness the power of information technology to solve today's complex business problems.

Certificate of Undergraduate Study in Business Analytics 12 s.h.

The requirements include the following four courses:

MGT06.407	Business Analytics
CS07.370	Introduction to Information Visualization
or MGT06.408	Visual Business Intelligence
CS04.430	Database Systems: Theory and Programming
or MIS02.338	Design of Database Systems
ACC03.320	Accounting Information Systems
or CS07.480	Introduction to Data Mining
or MGT06.311	Decision-Making Tools for Managers

To be awarded the CUGS in Business Analytics, students must complete all courses required for the CUGS in Business Analytics with at least a 2.5 average. The pre-requisites for MGT 06407 Business Analytics make this CUGS best suited for students majoring or minoring in Business.

BACHELOR OF SCIENCE IN HUMAN RESOURCE MANAGEMENT

Human Resource Management consists of planned organizational activities designed to improve employee efficiency and equity, such as staffing, compensation, and training. This major should be of interest to students pursuing careers as human resource managers, as well as to those who anticipate that they will someday be responsible for making hiring, performance appraisal, and pay decisions. Students working toward a Bachelor of Science in Human Resource Management must maintain a 2.00 grade point average overall and a 2.50 grade point average in all business courses taken.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirement as described on page 4

Required Courses

(may be included in General Education)

MATH01.130	Calculus I
or MATH03.125	Calculus Techniques and Applications
STAT02.260	Statistics I
CS0x.xxx	**

**Take one course from the list of approved General Education computing courses having a course identification number of CS0x.xxx.

ECON04.101	Introduction to Economics: Macroeconomic Perspective
ECON04.102	Introduction to Economics: Microeconomic Perspective
BUS\INTR01.488	Career Planning & Development
MKT09.200	Principles of Marketing
ACC03.210	Principles of Accounting I
ACC03.211	Principles of Accounting II
MGT98.242	Legal Environment of Business
MGT06.305	Operations Management
FIN04.300	Principles of Finance
MGT06.300	Organizational Behavior
or MGT06.309	Organizational Behavior (WI)
MGT06.402	Business Policy
MIS02.234	Management Information Systems
HRM06.302	Management of Human Resources

MGT06.330	Managing International Business
HRM06.315	Recruitment and Selection
HRM16.401	Labor/Employee Relations
HRM06.425	Management of Compensation
HRM98.337	Legal Aspects of Human Resource Management-WI
MGT06.361	Supervised Internship

Select 12 s.h. from the following list:

Any upper-level non-required courses offered by Rowan University's College of Business, or

ECON04.345	Labor Economics
ECON04.351	Health Economics
ENT06.240	Entrepreneurship and Innovation
MGT06.123	Introductory Management Perspectives for the 21st Century
PHIL09.222	Business Ethics
PSY05.402	Psychology of Conflict Resolution
SPAN05.201	Spanish III
SPAN05.211	Spanish Reading and Conversation
SPAN05.212	Spanish Reading and Composition
SPAN05.312	Spanish for Business
STAT02.261	Statistics II

Or any upper-level non-required courses offered by Rowan University's College of Business

Free Electives 6-8 s.h.

Total Credits for Program 120 s.h.

MINOR IN HUMAN RESOURCES (HR)

The goal of the minor program is to provide non-Business majors with the opportunity to qualify for entry-level human resource management positions. The objective of the program is to understand the legal and regulatory environment of human resource management, to develop the capability of using state-of-the-art hiring and recruiting techniques, and to learn how to harmonize an organization's compensation systems with its strategic goals. The program is based on the required human resource management coursework of the major in human resource management except that it has fewer required courses and fewer elective courses.

Requirements 15 s.h.

HRM06.302	Human Resource Management
or PSY08.220	Personnel Psychology
MGT98.242	Legal Environment of Business
HRM06.315	Recruitment and Selection
HRM06.425	Management of Compensation
HRM98.337	Legal Aspects of Human Resource Management

Electives: Select one (3 s.h.) courses from the list below

MGT06.361	Supervised Internship*
PSY01.422	Field Experience in Psychology*
HRM06.420	Principles of Training
HRM16.401	Labor/Employee Relations
MGT06.304	Organizational Change and Development
PSY05.402	Psychology of Conflict and Conflict Resolution
HRM06.318	Human Resource Information Systems
PSY01.329	Health Psychology
PSY01.331	Occupational Health Psychology

* The internship or field experience must involve human resource management duties in order to count towards the minor.

To Apply

Students must complete at least twelve (letter graded) credit hours at Rowan and hold at least a 2.5 GPA. Students must have completed or be currently enrolled in either HRM06.302 Human Resource Management or PSY08.220 Personnel Psychology. Application for the minor can be made by sending an email to Dr. Joel Rudin, rudin@rowan.edu

CERTIFICATE OF UNDERGRADUATE STUDY IN TRAINING AND DEVELOPMENT

Joel Rudin
Advisor
Business Hall 343
856.256.5429
rudin@rowan.edu

The Certificate of Undergraduate Study (CUGS) in Training and Development prepares students for entry-level positions as training and development specialists. Students will develop sensitivity to the needs of diverse audiences of learners, ability to apply best practices in organizational communication, competency to evaluate training and development programs, and

capability to design effective organizational interventions.

Certificate of Undergraduate Study in Training and Development 12 s.h.

The requirements include the following four courses:

CMS04.260	Organizational Communication Theory and Research
FNDS21.230	Characteristics of Knowledge Acquisition
HRM06.420	Principles of Training and Training Management
MGT06.304	Organizational Change and Development

To be awarded the CUGS in Training and Development, students must complete all courses required with at least a 2.5 average. The CUGS is suitable for students in all majors.

Department of Marketing and Business Information Systems

Berrin Guner
Chair
Business Hall 363
856.256.4013
guner@rowan.edu

The Marketing Department awards Bachelor of Science Degrees in Marketing (MKT), Management Information Systems (MIS), and Supply Chain and Logistics.

The marketing program focuses on strategic, as well as tactical, marketing concepts; it integrates the classical "Four P's" approach throughout its courses (product, price, promotion and place). Offerings stress the use of modern techniques to analyze and develop solutions to a wide variety of marketing opportunities and constraints.

The Management Information Systems Program prepares students for careers in a rapidly changing technological world by training them to analyze business problems, challenges, and opportunities and to subsequently design, develop, implement and maintain business solutions through the use of information and information technology. MIS majors have the opportunity to focus on a specific area within the MIS discipline by selecting from **three tracks - Data Analytics, Information Security, and Software Development.** While pursuing a track is optional, it is highly recommended that students select one or more tracks.

The Supply Chain and Logistics is an interdisciplinary program that incorporates components of accounting, management, management information systems, and marketing in order to prepare students for this rapidly expanding field by training them to understand the systems, costs, and tools used to manage domestic and international supply chains.

Students majoring in Marketing, MIS, or Supply Chain and Logistics must maintain a 2.00 grade point average overall and a 2.50 grade point average in all business courses taken at Rowan University.

Students are encouraged to utilize their non-program courses and free electives to pursue minors and concentrations in other fields of study to increase their knowledge and enhance their employability in a dynamic job market.

BACHELOR OF SCIENCE IN MARKETING

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirement as described on page 4

Required Courses

(may be included in General Education)

MATH01.130	Calculus I
or MATH03.125	Calculus Techniques and Applications
STAT02.260	Statistics I (Equivalent of College Algebra)
ECON04.101	Introduction to Economics: Macroeconomic Perspective
ECON04.102	Introduction to Economics: Microeconomic Perspective
BUS/INTR01.488	Career Planning & Development
ACC03.210	Principles of Accounting I
ACC03.211	Principles of Accounting II
MGT98.242	Legal Environment of Business
MKT09.200	Principles of Marketing
MGT06.305	Operations Management
FIN04.300	Principles of Finance
MGT06.300	Organizational Behavior

MIS02.234	Management Information Systems	
MGT06.402	Business Policy	
Major Requirements		15 s.h.
MKT09.376	Consumer Behavior	
MKT09.384	Marketing Research Methods (WI)	
MKT09.388	Advanced Marketing Research Methods	
MKT09.379	International Marketing (M/G)	
MKT09.403	Strategic Marketing Management	

***Must register each semester.**

Marketing Electives 15 s.h.

Electives courses are generally offered only once an academic year. Select 15 s.h. from the following list of any 300- or 400-level MKT course:

MKT09.305	Digital Marketing
MKT09.315	Personal Selling
MKT09.330	Marketing Channels
MKT09.350	Management of Advertising and Promotion
MKT09.360	Services Marketing
MKT09.372	Retailing
MKT09.378	Product, Price & New Venture
MKT09.375	Business Logistics
MKT09.387	Supply Chain Management and Logistics
MKT09.382	Sales Force Management
MKT09.386	The Marketing Plan
MKT09.390	Selected Topics in Marketing
MKT09.391	Business to Business Marketing
MKT09.402	Marketing Consultancy
MKT09.411	Supervised Internship in Marketing

Marketing or Business Elective: 3 s.h.

The Business elective can be any course (3 s.h.) from the following list:

- Any non-required 300 or 400 level course offered by the Marketing Department
- Any Non-Required 300 or 400 level College of Business course except the Supervised Internships offered by the Management and Entrepreneurship or Accounting and Finance Departments
- MKT09.101 Marketing and the Business Environment (Rowan Seminar for incoming freshmen)

Free Electives 9 s.h.

Total Credits for Program 120-123 s.h.

MINOR IN MARKETING

Required 18 s.h.

STAT02.260	Statistics I*(may be included in General Education)*
MKT09.200	Principles of Marketing
MKT09.376	Consumer Behavior
MKT09.379	International Marketing
MKT09.384	Marketing Research Methods
MKT09.386	Marketing Plan

Electives 3 s.h.

Select one (3.s.h.) course from the list below or any 300- or 400-level MKT course:

MKT09.375	Business Logistics
MKT09.391	Business to Business Marketing
MKT09.305	Digital Marketing
MKT09.330	Marketing Channels
MKT09.350	Management of Advertising and Promotion
MKT09.360	Services Marketing
MKT09.315	Personal Selling
MKT09.378	Product, Price, and New Venture
MKT09.372	Retailing
MKT09.382	Sales Force Management
MKT09.390	Selected Topics in Marketing
MKT09.411	Supervised Internship in Marketing

Total Credits for the Program 21 s.h.

BACHELOR OF SCIENCE IN MANAGEMENT INFORMATION SYSTEMS (MIS)

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirement as described on 4

Required Courses

(may be included in General Education)

MATH01.130	Calculus I
or MATH03.125	Calculus Techniques and Applications
STAT02.260	Statistics I (Equivalent of College Algebra)
ECON04.101	Intro to Economics-A Macroeconomic Perspective
ECON04.102	Intro to Economics-A Microeconomic Perspective
CS01.104	Intro to Scientific Programming
BUS/INTR01.488	Career Planning & Development
MKT09.200	Principles of Marketing
ACC03.210	Principles of Accounting I
ACC03.211	Principles of Accounting II
MGT98.242	Legal Environment of Business
MGT06.305	Operations Management
FIN04.300	Principles of Finance
MGT06.300	Organizational Behavior
MIS02.234	Management Information Systems
MGT06.402	Business Policy

Major Requirements 27 s.h.

MKT09.112-413*	MKBI Engagement and Career Exploration	0 s.h.
MIS02.322	Principles of Systems Design	
MIS02.338	Design of Database Systems	
MIS02.339	Business Intelligence	
MIS02.327	Network Management	
MIS02.428	Business Web Applications	
MIS02.325	Project Management	
MGT06.330	Managing International Business	
or MKT09.379	International Marketing (M/G)	
MIS02.315	Principles of Information Security	
or CS01.211	Principles of Information Security	
MIS02.450	MIS Capstone Experience	

***Must register each semester.**

MIS Elective Select 3 Courses 9 s.h.

Select three 300 or 400 level non-required courses that are offered by the College of Business, excluding any internship other than the MIS Supervised Internship (MIS02.344), or any course that is part of the Computer Science Major that is 200 level or higher or permission of the academic advisor.

Free Electives 7-9 s.h.

Total Credits for the Program 120 s.h.

MINOR IN MANAGEMENT INFORMATION SYSTEMS

Information systems are an integral part of all organizations. In today's digital era, technology is no longer just the purview of the IT function in an organization. Technology has cross-functional importance, and students in all business majors need to have knowledge of information systems and how they are used to support business operations and achieve organizational strategy. Students in the minor will take four required courses and choose two courses from a variety of electives depending on their area of interest.

Required 12 s.h.

MIS02.234	Management Information Systems
or MIS02.233	Principles of Management Information Systems
CS01.104	Intro to Scientific Programming
MIS02.338	Design of Database Systems
MIS02.322	Principles of Systems Design

Electives: Select two (6 s.h.) courses from the list below:

MIS02.325	Project Management
MIS02.327	Network Management
MIS02.315 *or* CS01.211	Principles of Information Security
MIS02.339	Business Intelligence
MIS02.428	Business Web Applications
MIS02.331	Data Mining for Business
MIS02.301	Emerging Technologies I
MIS02.302	Emerging Technologies II
MIS02.332	E-Business: I.S. Perspective
or MIS02.333	E-Business: I.S. Perspective (WI)
ACC03.320	Accounting Information Systems

Total Credits for the Program 18 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN MANAGEMENT INFORMATION SYSTEMS

To declare the MIS CUGS for non-business majors, email rcbminors@rowan.edu

Faculty Coordinator:

Michael Milovich
Business Hall 316
856.256.5424
milovich@rowan.edu

The Certificate of Undergraduate Study (CUGS) in Management Information Systems is for non-business majors who are interested in learning how information systems can be used to support business operations and achieve organizational strategy. The two required courses in the CUGS introduce students to the basic business functions and address the key components of information systems - organizations, people, software, hardware, data, and telecommunications - and how these components can be integrated and managed to play an essential role in creating competitive advantage. Students will then be able to choose two electives depending on what area of information systems they would like to further explore.

Certificate of Undergraduate Study in Management Information Systems 12 s.h.

The requirements include the following two courses:

BUS01.105	Business Perspectives
MIS02.234	Management Information Systems

Plus two electives from the following list of courses:

MIS02.337 or CS10.337	Applied Database Technologies
MIS02.315 or CS01.211	Principles of Information Security
MIS02.322	Principles of Systems Design
MIS02.301	Emerging Technologies I
MIS02.302	Emerging Technologies II

To be awarded the CUGS in Management Information Systems, students must complete all courses required for the CUGS in Management Information Systems with at least a 2.0 GPA average. The above-mentioned pre-requisites make this CUGS best suited for sophomores who would like to develop a greater understanding of the integral role information systems play in an organization.

CERTIFICATE OF UNDERGRADUATE STUDY IN INFORMATION SYSTEMS

To declare the CUGS in IS for business majors, contact your assigned advisor.

Faculty Coordinator:

Jennifer Nicholson
Business Hall 361
856-256-5427
nicholsonj@rowan.edu

The Certificate of Undergraduate Study (CUGS) in Information Systems is for College of Business majors who are interested in learning how information systems can be leveraged to provide value to the firm. In today's digital era, students in all business majors should have knowledge of information systems and how they are used to support business processes and achieve organizational strategy. The three required courses for the CUGS in IS are considered foundation courses in any Management Information Systems program. Students may then choose one elective from a variety of courses depending on their area of interest.

Certificate of Undergraduate Study in Information Systems 12 s.h.

The requirements include the following three courses:

MIS02.234	Management Information Systems

MIS02.338	Design of Database Systems
MIS02.322	Principles of System Design

Plus one elective from the following list of courses:

MIS02.327	Network Management
MIS02.333	E-Business
MIS02.315 or CS01.211	Principles of Information Security
MIS02.325	Project Management
MIS02.339	Business Intelligence
MIS02.301	Emerging Technologies I
MIS02.302	Emerging Technologies II

To be awarded the CUGS in Information Systems, students must complete all courses required for the CUGS in Information Systems with at least a 2.0 GPA average. The above-mentioned pre-requisites make this CUGS best suited for juniors who would like to develop a greater understanding of the integral role information systems play in an organization.

BACHELOR OF SCIENCE IN SUPPLY CHAIN AND LOGISTICS

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirement as described on page 4

Required Courses

(may be included in General Education)

MATH01.130	Calculus I
or MATH03.125	Calculus Techniques and Applications
STAT02.260	Statistics I (Equivalent of College Algebra)
ECON04.101	Introduction to Economics: Macroeconomic Perspective
ECON04.102	Introduction to Economics: Microeconomic Perspective
BUS/INTR01.488	Career Planning & Development
ACC03.210	Principles of Accounting I
ACC03.211	Principles of Accounting II
MGT98.242	Legal Environment of Business
MKT09.200	Principles of Marketing
MGT06.305	Operations Management
FIN04.300	Principles of Finance
MGT06.300	Organizational Behavior
MIS02.234	Management Information Systems
MGT06.402	Business Policy

Major Requirements 21 s.h.

MKT09.112-413*	MKBI Engagement and Career Exploration	0 s.h.
MKT09.375	Business Logistics	
SCL01.350	Procurement	
SCL01.320	Principles of Transportation	
SCL01.382	Supply Chain Analytics	
MKT09.406	Strategic Supply Chain Management	
SCL01.410	Supervised Internship in Supply Chain	

***Must register each semester.**

Three courses from the following 9 s.h.

MKT09.360	Services Marketing
MKT09.391	Business to Business Marketing
MKT09.330	Marketing Channels
MKT09.384	Marketing Research Methods
MGT06.407	Business Analytics
MIS02.322	Principles of Systems Design
SCL01.380	Global Supply Chain
SCL01.382	Supply Chain Analytics
SCL01.390	Selected Topics in Supply Chain Management

One Business or SCL Elective 3 s.h.

Free Electives	9 s.h.
Total Credits for Program	120-122 s.h.

Ric Edelman College of Communication & Creative Arts

Sanford Tweedie
Dean
6 East High Street
856.256.4340
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History

The College of Communication was established July 1, 1996, after unanimous final approval by the Rowan University Board of Trustees at their June 1996 meeting. In 2012, the Department of Art joined the college, and the college was renamed the College of Communication & Creative Arts to reflect the full range of programs and courses. On February 12, 2020, the Rowan University Board of Trustees unanimously renamed CCCA the Ric Edelman College of Communication & Creative Arts.

Programs Offered

Degree Programs

B.A. in Advertising
- 4+1 B.A. in Advertising/M.A. in Strategic Communication

B.A. in Applied Professional Communication (RCBC and RCSJ Only)

B.A. in Art

B.A. in Art Education

B.F.A. in Biomedical Art and Visualization

B.A. in Communication Studies

B.A. in Health and Science Communication

B.A. in Journalism

B.A. in Public Relations
- 4+1 B.A. in Public Relations/M.A. in Strategic Communication

B.A. in Radio, Television and Film
- 4+1 B.A. in Radio, Television and Film/Diana King M.A. in Television Studies

B.A. in Sports Communication and Media

B.F.A. in Studio Art

B.A. in Writing Arts
- 4+1 B.A. in Writing Arts/M.A. in Writing

Minors

Art

Art History

Audio Recording

Communication Studies
Creative Writing
Film and Television Studies
Journalism
New Media
Photography
Publishing & Writing for the Public
Sports Communication and Media
Strategic Communication
Technical and Professional Writing
Writing Arts

Certificates of Undergraduate Studies
Advertising and Graphic Design
Creative Writing
Entrepreneurial and Independent Media
Esports Industry and Entertainment
Film and Television Studies
Game Media Design
Health & Science Communication
Professional Communication
Public Relations and the News
Publishing & Writing for the Public
Sports Media
Technical and Professional Writing
Writing for the Environment
Writing Studies for Educators

Additionally, the Department of Communication Studies houses the Rowan Experience requirement of Public Speaking and the Writing Arts Department oversees the First-Year Writing Program. At the Graduate level, the College offers three degree programs: the M.A. in Strategic Communication, the Diana King M.A. in Television Studies and the M.A. in Writing.

Introduction
The Ric Edelman College of Communication & Creative Arts at Rowan University blends the theoretical, the creative, and the practical, building upon an expansive base of general education courses that serve to develop a liberal arts perspective in all areas. Experiential learning is a strong component of the programs and internships are encouraged or required in all majors.

Departments
The Ric Edelman College of Communication & Creative Arts houses six departments: Art; Communication Studies; Journalism; Public Relations and Advertising; Radio, Television and Film; and Writing Arts.

Services
In addition to regular classrooms, the Ric Edelman College of Communication & Creative Arts makes extensive use of specialized laboratories. Students learn in new digital production facilities that include two full video/film production studios, two audio production labs, digital video/film editing suites, and a 130-seat screening theatre. Students can learn layout, desktop publishing, and numerous other skills in the journalism laboratory. Courses in fine art and graphic design are held in a variety of studio spaces, providing equipment and facilities for a wide range of creative experiences. The college also provides students with nine computer classrooms and a full-service Writing Center, providing support for students across the university.

Core Requirements
All of the Ric Edelman College of Communication & Creative Arts B.A. programs require 34-45 semester hours of major courses. The B.F.A. in Studio Art and the B.F.A. in Biomedical Art and Visualization, highly intensive studio experiences, require 78 credit hours of art courses.

General Education

All students starting ***before*** Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Department of Art

Westby Hall
856.256.4010

The Department of Art offers a continuing tradition of inspiring education in the fine arts, design, art education, and art history. The department offers both majors and elective students the opportunities to experience and explore the visual arts as an important facet of a broader university education.

The Art Department offers the following programs: The Bachelor of Fine Arts in Studio Art (BFA), Bachelor of Fine arts with a Concentration in Graphic Design, Bachelor of Fine Arts with a Concentration in Photography, Bachelor of Fine Arts in Biomedical Art and Visualization's interdisciplinary curriculum is cross-listed in both the Department of Art and the Radio, Television, & Film Department, The Bachelor of Arts in Art (BA), Dual major of Bachelor of Art in Art and Bachelor of Arts in Education/Endorsement in the Teaching of Art (P-12), Minor in Art, Minor in Photography, and a Minor in Art History.

Each candidate applying for admission as a studio art major or minor is required to present a portfolio containing twelve examples (including a minimum of six original representational drawings) of their best work for review by the art faculty. Images may be substituted for large or three-dimensional work if reviewed in person. A 250-word essay discussing why the applicant wishes to pursue studies in the visual arts is also required. Applicants may upload their portfolio to SlideRoom or bring their portfolio to an in-person review session once their admissions to the university is completed. These admission standards apply to all students: freshmen, transfers from other institutions and Rowan University students changing their majors. More information about portfolio reviews is available at rowan.edu/art

Note: In addition to tuition, fees and normal book costs, art majors should anticipate additional fees for materials and equipment used in studio courses.

Accreditation

National arts accreditation has been granted by The National Association of Schools of Art & Design (NASAD).

BACHELOR OF FINE ARTS IN STUDIO ART

Advisor
advise@rowan.edu

A professional studio-intensive degree program for students who wish to prepare for a career in visual arts. The Bachelor of Fine Arts students experience a thorough grounding in fundamental principles and techniques, continuing into an emphasis in one or more specific art and design areas: ceramics, graphic design, illustration, metals & jewelry, painting, photography, printmaking, and sculpture. The students discover personal aesthetics and develop technical expertise and creative artistic strengths through a range of artistic problems that prepare them as practicing artists and/or provide the credentials for continued studies at the graduate level.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements

Foundation Core - 15 s.h.

ART02.100	Drawing I: Representational Drawing
ART02.200	Expressive Drawing
ART02.105	Color & Design - 2D
ART02.240	Intro to Sculpture - 3D
ART09.301	Digital Media & Techniques

Review/Exhibition - 0 s.h.

ART02.222	Studio Core Portfolio Review
ART09.390	Work in Progress Review
ART09.490	BFA Senior Thesis/Exhibition

Primary Studio and support courses are determined with academic and studio advisors. Studios include Ceramics, Graphic Design, Illustration, Metals/Jewelry, Painting, Photography, Printmaking, and Sculpture.

Primary Studio - 12 s.h

Choose 4 classes in one area

Support Studio - 9 s.h.

Choose 3 classes in a supportive area

Additional Studio - 30 s.h.

The 30 credits must include the following three courses.

ART02.110	Figure Drawing
ART09.303	Professional Practices in Art 1
ART09.308	Color Theory
	Additional 21 s.h. from the Art Studio Electives

Art History 12 s.h.

ARHS03.103	Art History Survey I: Prehistoric to Midieval
ARHS03.104	Art History Survey II: Renaissance to Modern
	Additional 6 s.h. from the Art History electives

Program Total **120 s.h.**

BACHELOR OF FINE ARTS IN STUDIO ART WITH CONCENTRATION IN GRAPHIC DESIGN

advise@rowan.edu

A professional, studio-intensive Bachelor of Fine Arts concentration for students who intend to pursue a career in design. This concentration allows Rowan University students to follow a sequential course of study with seven studios in graphic design, plus additional electives by advisement, for a comprehensive education. The curriculum allows students to explore a range of experimental and applied design problems and diverse design applications in traditional and digital realms. The students are prepared for exciting career possibilities within the diverse and highly competitive design profession.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the University General Education requirements as described on page 4

Major Requirements

Foundation Core

ART02.100	Drawing I: Representational Drawing
ART02.200	Expressive Drawing
ART02.105	Color & Design - 2D
ART02.240	Intro to Sculpture - 3D
ART09.301	Digital Media & Techniques

Review/Exhibition - 0 s.h.

ART02.222	Studio Core Portfolio Review
ART09.390	Work in Progress Review
ART09.490	BFA Senior Thesis/Exhibition

Primary Studio - 21 s.h.

Note: Not all course are offered each semester.

ART09.343	Introduction to Graphic Design I
ART09.344	Intermediate Graphic Design II (Typography)
ART09.349	Intermediate Graphic Design III (Visual Identity)
ART09.350	Intermediate Graphic Design IV (Packaging)
ART09.363	Advanced Graphic Design V (Publication)
ART09.364	Adv Graphic Design VI (Infographics & Professional Practice)
ART09.464	Adv Graphic Design VIII (Identity Systems & Portfolio)

Additional Studio - 30 s.h.

The 30 credits must include the following two courses. Distributive studio electives include Biomedical Art and Visualization, Ceramics, Illustration, Metals/Jewelry, Painting, Photography, Printmaking, and Sculpture. Support courses determined with academic and studio advisors.

ART02.110	Figure Drawing
ART09.308	Color Theory
	Additional 24 s.h. from the Art Studio Electives

Art Studio Electives

Art History - 12s.h.

Take listed courses and two other art history choices.

ARHS03.103	Art History Survey I: Prehistory to Medieval
ARHS03.104	Art History Survey II: Renaissance to Modern
	Additional 6 s.h. from the Art History electives

Program Total **120 s.h.**

BACHELOR OF FINE ARTS IN STUDIO ART WITH A CONCENTRATION IN PHOTOGRAPHY

Advisor

advise@rowan.edu

The BFA Concentration in Photography is designed to offer an aesthetic, technical, critical, and practical understanding of photography and its myriad applications, including marketable production knowledge and techniques. The curriculum emphasizes individual artistic development while integrating theory, experimentation, critique and professional preparedness.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements

Foundation Core - 15 s.h.

ART02.100	Drawing I: Representational Drawing
ART02.200	Expressive Drawing
ART02.105	Color & Design - 2D
ART02.240	Intro to Sculpture - 3D
ART09.301	Digital Media & Techniques
ART02.222	Studio Core Portfolio Review

Review/Exhibition - 0 s.h.

ART09.390	Work in Progress Review
ART09.490	BFA Senior Thesis/Exhibition

Primary Studio - 18 s.h.

ART11.250	Intro to Film Photography
ART11.380	Digital Photography
ART11.350	Intermediate Digital Photography
ART11.406	Advanced Photography
ART11.388	Contemporary Issues in Photography
or ARHS03.241	History of Photography
ART11.407	Capstone in Photography

Photography Elective - 3 s.h.

Students must also select one studio course from the list below in consultation with your advisor and with faculty.

ART11.275	Intermediate Film Photography
ART11.375	Non-Silver Imagery
ART11.385	Large Format Photography
ART11.386	Photographic Lighting
ART11.387	Editorial Photography
ART11.390	Special Topics in Photography
ART11.405	Expanded Photography (formerly "Advanced Photo Techniques")
ART09.375	Video Art
ARHS03.425	Special Problems in Art History, (if content is photography related)

Additional Studio - 30 s.h.
The 30 credits must include the following three courses.

ART02.110	Figure Drawing
ART09.303	Professional Practices in Art 1
ART09.308	Color Theory
	Additional 21 s.h. from the Art Studio Electives

Art History - 12 s.h.
Take first two listed then two additional art history classes

ARHS03.103	Art History Survey I: Prehistory to Medieval
ARHS03.104	Art History Survey II: Renaissance to Modern
	Additional 6 s.h. from the Art History electives

Program Total **120 s.h.**

BACHELOR OF FINE ARTS IN BIOMEDICAL ART AND VISUALIZATION

Accreditation National arts accreditation has been granted by The National Association of Schools of Art & Design (NASAD)

Rachel E. Budmen
Advisor
Wilson Hall
856.256.4537
budmen@rowan.edu

Amanda Almon
Faculty, Program Coordinator
Westby Hall
856.256.4518
almon@rowan.edu

The Bachelor of Fine Arts in Biomedical Art and Visualization (BMAV) program combines art, design, science and medical based content using a variety of digital media and computer graphic technologies. The major allows the student to focus on future career possibilities in the areas of medical and scientific: visualization, information design, animation and interactive educational games and applications. The major is based on the traditional field of scientific and medical illustration with the curriculum for this program incorporates leading-edge, innovative concepts and digital media techniques, which include: digital painting, drawing, and graphics; 3D modeling, 2D/3D animation, interactive design and visualizations. This program is designed to prepare students for a professional career in the field(s) of scientific and medical illustration, animation, information design, interactive simulation, and visualization. The degree is designed to have a comprehensive and interdisciplinary focus on applied arts and sciences. The Biomedical Art and Visualization major is at the forefront of newly emerging digital media markets, whereby scientific and medical visualization are in demand in these areas: consumer health and pharmaceutical markets, medical device and biotechnology media markets, veterinary medicine markets, television & film, publishers (magazines, journals, news, textbooks) medical & scientific advertising, hospitals & healthcare agencies, university service bureaus, research institutes, government agencies, medical legal firms and forensic reconstruction / criminal investigation visuals, museums and cultural institution exhibitions, serious gaming and simulation, and instructional design and e-learning. Please note, this is an interdisciplinary curriculum cross listed in both the Department of Art and the Department of Radio, TV and Film.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements

Foundation Core - 12 s.h.

ART02.100	Drawing I: Representational Drawing
ART02.105	Color & Design - 2D
ART02.240	Intro to Sculpture - 3D
ART09.301	Digital Media & Techniques

Primary Studio - 30 s.h.

BMV/ART09.251	Introduction to Figure Anatomy for the Artist
BMV/ART09.252	Intro to Natural Science & Zoological Illustration
BMV/ART09.356	Introduction to Digital Rendering and Illustration Methods
BMV/ART09.253	Introduction to Digital 3D Modeling
BMV/ART09.360	Storyboarding & Animation
BMV/ART09.453	Introduction to Game Media Design
BMV/ART09.454	Surgical Illustration and Media
BMV/ART09.373	Advanced Problems in Biomedical Art & Visualization
BMV/ART09.361	Scientific and Medical Sculpture
BMV/ART09.456	Biomedical Art BFA Thesis & Portfolio Capstone

Support Studio - 12 s.h.

ART09.343	Introduction to Graphic Design I
ART09.344	Intermed Graphic Des II: Typography
ART09.364	Adv Graphic Design VI (Visual Communication)
ART11.380	Digital Photography

Art History - 6 s.h.

ARHS03.103	Art History Survey I: Prehistory to Medieval
ARHS03.104	Art History Survey II: Renaissance to Modern

Science Courses - 24 s.h.

BIOL01.104	Biology 1: Introduction to Evolution and Scientific Inquiry
BIOL01.106	Biology 2: Concepts In Genetics
BIOL01.203	Biology 3: Introduction To Cell Biology
BIOL10.210	Human Anatomy and Physiology I
BIOL10.212	Human Anatomy and Physiology II
BIOL07.301	Comparative Vertebrate Anatomy
or BIOL01.428	Developmental Biology

Review and Exhibition Requirements - 0 s.h.

ART02.222	Review: Foundation Core Review
ART09.390	Work in Progress Review
ART09.490	Senior Thesis Exhibition

Program Total Requirements **120 s.h.**

BACHELOR OF ARTS IN ART

Advisor
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A liberal arts degree program for students who desire a broad academically-oriented education with an emphasis in art, or those who intend to become art teachers. With the Bachelor of Arts degree, students take studio and art history courses focused on the creation and study of visual arts along with a greater number of liberal arts courses for a well-rounded education that offers diverse career options in arts-related fields

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements
Foundation Core

ART02.100	Drawing I: Representational Drawing
ART02.200	Expressive Drawing
ART02.105	Color & Design - 2D
ART02.240	Intro to Sculpture - 3D

Review/Exhibition 0 s.h.

ART02.222	Studio Core Portfolio Review
ART09.401	Senior Project Art

Art History - 9 s.h.

ARHS03.103	Art History Survey I: Prehistory to Medieval
ARHS03.104	Art History Survey II: Renaissance to Modern
	Additional 3 s.h. from the Art History electives

Primary Studio 18 s.h.
Primary Studio and support courses are determined with academic and studio advisors. Studios include Biomedical Art and Visualization, Ceramics, Graphic Design, Illustration, Metals/Jewelry, Painting, Photography, Printmaking, and Sculpture.

Program Total **120 s.h.**

BACHELOR OF ARTS IN ART - ART EDUCATION

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Students enrolled in this dual degree program satisfy the requirements for a Bachelor of Arts in Art; and a Bachelor of Arts in Education with New Jersey Teacher Certification K-12 in Art. Coursework prepares students to become Visual Art teachers by building a strong foundation in art knowledge, artistic skills, educational theory and best practices for teaching art to students of all ages. For more in-depth studio opportunities students enrolled in this program may choose to apply for the Bachelor of Fine Arts degree program at the end of their sophomore year.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Art Major Requirements
Foundation Core - 12 s.h.

ART02.100	Drawing I: Representational
ART02.200	Expressive Drawing
ART02.105	Color & Design - 2D
ART02.240	Intro to Sculpture - 3D

Review/Exhibition 0 s.h.

ART02.222	Studio Core Portfolio Review
ART09.401	Senior Project Art

Primary Studio 18 s.h.
The 18 credits must include the following two courses.

ART02.220	Introduction to Painting
ART09.301	Digital Media and Techniques
	Additional 9 s.h. from the Intermediate/Advanced Art Studio Electives

Art History 9 s.h.

ARHS03.103	Art History Survey I: Prehistory to Medieval
ARHS03.104	Art History Survey II: Art History Survey II: Renaissance to Modern
	Additional 3 s.h. from the Art History electives

Education Requirements - 37 s.h.

INCL02.210	Principles and Pedagogies in the Inclusive Classroom
ELEM02.210	Seminar: Principles and Pedagogies in the Inclusive Classroom
SMED01.282	Introduction to Instruction and Assessment Art
ART09.200	Theory & Analysis of Art Education
READ30.319	Teaching Reading/Writing in the Content Area
SMED33.220	Educational Technology
SMED31.350	Teaching & Learning A Art / Elem Art Methods
SECD03.330	Clinical Experiences/T&L A Art
ART09.201	Community Art Education for Elementary through Middle Grades
SMED31.360	Teaching & Learning B Art / Secondary Art Methods
SECD03.332	Clinical Experiences/T&L A Art
ART09.202	Community Art Education for Secondary Grades
SMED31.351	Clinical Practice I: Elem and Sec Art
SMED31.450	Clinical Practice II: Elem and Sec Art
SMED31.451	Clinical Practice II: Seminar for Art Education
SECD03.350	Teaching Students of Linguistic/Cultural Diversity

Program Total **120 s.h.**

MINOR IN ART

Advisor
advise@rowan.edu

Eligibility

The Minor in Art is an option for Rowan students whose major lies in another discipline, but they would like to advance their knowledge of art/design by experiencing some studio art courses. An interview/portfolio review is required. Transfer students are required to take a minimum of fifteen credit hours in art at Rowan University to earn this Minor.

Program

The Minor in Art consists of 24 semester hours made up of five core courses and three studio electives, as follows:

Foundation Core - 15 s.h.

ART02.100	Drawing I: Representational
ART02.105	Color and Design-2D
ART02.200	Expressive Drawing
ART02.240	Intro to Sculpture - 3D
ARHS03.130	Art Appreciation

Studio Electives - 9 s.h. (Choose three)
Note: If intermediate courses are selected, prerequisites listed in the catalog descriptions of these courses must be met.
See full list of Studio Electives at the end of Art.

ART11.250	Intro to Film Photography
ART11.275	Intermediate Film Photography
ART02.220	Intro to Painting

ART02.240	Intro to Sculpture
ART02.260	Intro to Printmaking
ART09.210	Intro to Metals/Jewelry
ART09.240	Intro to Ceramics
ART09.228	Intro to Illustration
ART09.343	Intro to Graphic Design I
ART02.110	Figure Drawing
ART02.315	Intermed. Painting
ART02.301	Intermed. Sculpture
ART02.317	Intermed. Printmaking
ART09.226	Intermed. Puppetry
ART09.311	Intermed. Metals/Jewelry
ART09.344	Graphic Design II Typography
ART09.352	Intermed. Ceramics
ART09.336	Intermed. Illustration
ART11.405	Advanced Photo Techniques

MINOR IN PHOTOGRAPHY

Advisor
advise@rowan.edu

Eligibility

The Photography Minor is designed to offer an aesthetic, technical, critical, and practical understanding of photography and its myriad applications, including marketable production knowledge and techniques. The curriculum emphasizes individual artistic development while integrating theory, experimentation, critique and professional preparedness.

Program Requirements

The Minor in Art consists of 21 semester hours made up of six foundation core courses and one photography elective, as follows:

Primary Studio - 18 s.h.

ART11.250	Intro to Film Photography
ART11.380	Digital Photography
ART11.350	Intermediate Digital Photography
ART11.406	Advanced Photography
ART11.388	Contemporary Issues in Photography
or ARHS03.241	History of Photography
ART11.407	Capstone in Photography

Photography Elective - 3 s.h.

Select one studio course from the list below in consultation with your advisor and with faculty. *Note:* If intermediate courses are selected, prerequisites listed in the catalog descriptions of these courses must be met.

ART11.275	Intermediate Film Photography
ART11.375	Non-Silver Imagery
ART11.385	Large Format Photography
ART11.386	Photographic Lighting
ART11.387	Editorial Photography
ART11.390	Special Topics in Photography
ART11.405	Expanded Photography (formerly "Advanced Photo Techniques")
ART09.375	Video Art
ARHS03.425	Special Problems in Art History, (if content is photography related)

MINOR IN ART HISTORY

Advisor
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Eligibility

The Minor in Art History is open to any interested Rowan student. Designed for students seeking to expand their knowledge of art history to complement their major interests, it offers the opportunity to study art and its cultural meaning and significance. Transfer students are required to take a minimum of twelve credit hours in art at Rowan University to earn this Minor.

Program Requirements

The Minor in Art History consists of 18 semester hours. There are two required Art History core courses and four Art History electives, as follows:

Art History Core - 6 s.h.

Note: These courses are offered every semester.

ARHS03.103	Art History Survey I: Prehistory to Medieval
ARHS03.104	Art History Survey II: Renaissance to Modern

Art History Electives - 12 s.h. (Choose four)

Note: If intermediate courses are selected, prerequisites listed in the catalog descriptions of these courses must be met. Courses marked with an asterisk (*) are not offered every semester.

See full list of Art History Electives at the end of Art.

ARHS03.310	History of American Art
ARHS03.220	Modern Art
ARHS03.252	Concepts in Art: Criticism (WI) (*)
ARHS03.340	Survey of Women Artists (*)
ARHS03.231	Survey of Asian Art (*)
ARHS03.425	Special Problems Art History (course may be repeated)

Art Elective Bank

Art History Electives

ARHS03.103	Art History Survey I: Prehistory to Medieval	3 s.h.
ARHS03.104	Art History Survey II: Renaissance to Modern	3 s.h.
ARHS03.130	Art Appreciation	3 s.h.
ARHS03.220	Modern Art	3 s.h.
ARHS03.231	Survey of Asian Art	3 s.h.
ARHS03.241	History of Photography	3 s.h.
ARHS03.252	Concepts In Art Criticism - WI	3 s.h.
ARHS03.310	History of American Art	3 s.h.
ARHS03.340	Survey of Women Artists	3 s.h.
ARHS03.350	History of Graphic Design	3 s.h.
ARHS03.420	Contemporary Art	3 s.h.
ARHS03.425	Special Problems in Art History	3 s.h.

Studio Electives

ART02.100	Drawing I: Representational Drawing	3 s.h.
ART02.105	Color and Design: Two Dimensional	3 s.h.
ART02.110	Figure Drawing	3 s.h.
ART02.200	Expressive Drawing	3 s.h.
ART02.207	Color and Design: Three Dimensional	3 s.h.
ART02.211	Intermediate Drawing IV	3 s.h.
ART02.220	Introduction to Painting	3 s.h.
ART02.239	Introduction to Glass Working	3 s.h.
ART02.240	Introduction to Sculpture	3 s.h.
ART02.245	Intermediate Figure Sculpture	3 s.h.
ART02.260	Introduction to Printmaking	3 s.h.
ART02.301	Intermediate Sculpture	3 s.h.
ART02.304	Intermediate Glass Working	3 s.h.
ART02.315	Intermediate Painting	3 s.h.
ART02.317	Intermediate Printmaking	3 s.h.
ART02.318	Special Topics in Printmaking	3 s.h.
ART02.325	Intermediate Figure/Life Painting And Drawing	3 s.h.
ART02.327	Introduction to Watercolor	3 s.h.
ART02.370	Selected Topics in Glass-Working	3 s.h.
ART02.400	Independent Study	.5 to 9 s.h.
ART02.401	Advanced Sculpture	3 s.h.
ART02.414	Advanced Painting	3 s.h.
ART02.430	Advanced Printmaking	3 s.h.
ART09.210	Introduction To Metals And Jewelry	3 s.h.
ART09.212	Jewelry and Metal Casting	3 s.h.
ART09.228	Introduction to Illustration	3 s.h.
ART09.240	Introduction to Ceramics	3 s.h.
ART09.251	Introduction to Figure Anatomy for the Artist	3 s.h.
ART09.252	Introduction to Natural Science & Zoological Illustration	3 s.h.
ART09.253	Introduction to Digital 3D Modeling	3 s.h.
ART09.301	Digital Media And Techniques	3 s.h.
ART09.303	Professional Practices in Art I	3 s.h.
ART09.307	Special Topics in Art Studio	1 to 3 s.h.
ART09.308	Color Theory	3 s.h.
ART09.311	Intermediate Metals and Jewelry	3 s.h.

ART09.314	Special Topics in Metals/Jewelry	3 s.h.
ART09.336	Intermediate Illustration	3 s.h.
ART09.343	Introduction to Graphic Design I	3 s.h.
ART09.344	Intermediate Graphic Design II: Typography	3 s.h.
ART09.346	Computer Aided Design (CAD): 3D Modeling for the Artist/Designer	3 s.h.
ART09.349	Intermediate Graphic Design III: Visual Identity	3 s.h.
ART09.350	Intermediate Graphic Design IV: Packaging	3 s.h.
ART09.352	Intermediate Ceramics	3 s.h.
ART09.354	Special Topics in Graphic Design	1 to 3 s.h.
ART09.356	Introduction to Digital Rendering and Illustration Methods	3 s.h.
ART09.358	Web Design	3 s.h.
ART09.359	Design: Interactivity and Motion Graphics	3 s.h.
ART09.360	Storyboarding & Animation	3 s.h.
ART09.361	Scientific and Medical Sculpture	3 s.h.
ART09.363	Advanced Graphic Design V: Publication Design	3 s.h.
ART09.364	Advanced Graphic Design VI: Infographics and Professional Practice	3 s.h.
ART09.365	Time-Based Media: Animation	3 s.h.
ART09.366	Introduction to 3D Animation	3 s.h.
ART09.373	Advanced Problems in Biomedical Art	3 s.h.
ART09.375	Video Art	3 s.h.
ART09.411	Advanced Metals and Jewelry	3 s.h.
ART09.419	Advanced Illustration	3 s.h.
ART09.436	3D Digital Fabrication	3 s.h.
ART09.450	Advanced Ceramics	3 s.h.
ART09.453	Introduction to Game Media Design	3 s.h.
ART09.454	Surgical Illustration and Media	3 s.h.
ART09.463	Advanced Graphic Design VII: Internship	0 to 3 s.h.
ART09.464	Advanced Graphic Design VIII: Identity Systems and Portfolio	3 s.h.
ART09.490	B.F.A. Senior Thesis Exhibition	0 s.h.
ART11.250	Introduction to Film Photography	3 s.h.
ART11.275	Intermediate Film Photography	3 s.h.
ART11.350	Intermediate Digital Photography	3 s.h.
ART11.375	Non-Silver Imagery	3 s.h.
ART11.380	Digital Photography	3 s.h.
ART11.385	Large Format Photography	3 s.h.
ART11.406	Advanced Photography	3 s.h.
ART09.456	Biomedical Art BFA Thesis & Portfolio Capstone	3 s.h.
ARTG01.450	Internship	3 to 9s.h.

Non-Studio Art Electives

ART09.200	Theory and Analysis of Art Education	3 s.h.
ART09.201	Community Art Education for Elementary Through Middle Grades	3 s.h.
ART09.202	Community Art Education for Secondary Grades	3 s.h.
ART09.203	Technology for the Art Classroom	3 s.h.
ART09.225	Introduction to Puppetry I	3 s.h.
ART09.226	Intermediate Puppetry II - Puppetry In Education	3 s.h.
ART09.306	Special Topics in Art	1 to 3 s.h.

Department of Communication Studies

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This department offers a Bachelor of Arts in the discipline of Communication Studies that enables students to develop a sophisticated understanding of communication theory, research, and strategies. Courses such as Images of Gender in Popular Culture, Health Communication, Political Communication, Family Communication, Ethical Issues in Human Communication, Interpersonal Communication, Small Group Communication, Rhetorical Theory, and Seminar in Communication Studies provide a broad and rigorous grounding in the theory and practice of communication in our daily lives. The major concludes with Senior Transition, a course that guides students through the process of identifying professional and graduate school opportunities to apply their knowledge.

BACHELOR OF ARTS IN COMMUNICATION STUDIES

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Core Requirements

(Must be completed with grades no lower than a C-) 20 s.h.

CMS04.200	Introduction to Communication Studies
CMS04.250	Communication Theory
CMS04.350	Communication Studies Research Methods
CMS04.390	Rhetorical Criticism
CMS04.425	Ethical Issues in Human Communication
CMS04.450	Seminar in Communication Studies
CMS04.455	Senior Transition

Communication Studies Concentrations 12 s.h.

Select four courses from one of the following groups (must be completed with grades no lower than a C-):

Rhetoric/Cultural Criticism

CMS04.210	Mass Media and Their Influences
CMS04.223	Sports Communication, Culture, and Identity
CMS04.270	Persuasion and Social Influence
CMS04.290	Rhetorical Theory
CMS04.310	Images of Gender in Popular Culture
CMS04.315	Participatory Media
CMS04.317	Digital Communities
CMS04.330	International Media Communication
CMS04.370	Political Communication
CMS04.323	Images of Athletes in Popular Culture
CMS04.375	Special Topics in Communication
CMS04.385	Constructing Health
CMS04.395	Rhetoric of Sport

Interpersonal/Organizational Communication

CMS04.208	Business & Professional Communication
CMS04.220	Interpersonal Communication
CMS04.240	Small Group Communication
CMS04.255	Nonverbal Communication
CMS04.260	Organizational Communication Theory and Research
CMS04.316	Mediated Interpersonal Communication
CMS04.318	Leadership Communication
CMS04.319	Organizational Communication in Sports
CMS04.320	Communicating Gender
CMS04.340	Family Communication
CMS04.360	Intercultural Communication
CMS04.375	Special Topics in Communication
CMS04.380	Health Communication
CMS04.385	Constructing Health

Cross-Concentrations Elective 3 s.h.

Each student will select and complete one course from the emphasis area in which they are NOT specializing in (with a grade no lower than a C-).

Related Electives 6 s.h.

Each student must select 2 courses related to the major. These can be any courses offered by the Department of the Communication Studies (not counting those that have been used to fulfill the requirements listed above) or any relevant courses offered in the Edelman College of Communication and Creative Arts, chosen in concert with the student's academic advisor.

Other Requirements (All Transfer Students; Non-Transfer Students Summer 2018 and Earlier)

- Psychology (PSY) Course

- Economics (ECON) or (POSC) Political Science Course
- Total of 3 Math/Science Courses
- Total of 4 History/Humanities/Language Courses
- Sociology (SOC) Course
- History (HIST) or Philosophy (PHIL) Course
- Total of four (4) Social & Behavioral Science Courses

Other Requirements (New First-Year Students Fall 2018 and Later)

- Psychology (PSY) Course
- Sociology (SOC) Course
- Economics (ECON) or Political Science (POSC) Course
- History (HIST) Course
- Philosophy (PHIL) Course
- English (ENGL) Course
- Two Scientific Literacy (SCIL) Courses [One in addition to Rowan Core Requirement]

Free Electives 36 s.h.

To graduate, students must have a C- or better in core, concentration and cross-concentration courses and a 2.0 overall.

Total Credits in Program 120 s.h.

MINOR IN COMMUNICATION STUDIES

Required Core 6 s.h.

All Communication Studies minors should complete the following two courses (with grades no lower than a C-):

CMS04.200	Introduction to Communication Studies
CMS04.250	Communication Theory

Communication Studies Concentration Selections 12 s.h.

Each student will complete 4 courses within the concentrations, with at least one course in each (with grades no lower than a C-):

Rhetoric/Cultural Criticism

CMS04.210	Mass Media and Their Influences
CMS04.223	Sports Communication, Culture, and Identity
CMS04.270	Persuasion and Social Influence
CMS04.290	Rhetorical Theory
CMS04.310	Images of Gender in Popular Culture
CMS04.315	Participatory Media
CMS04.317	Digital Communities
CMS04.330	International Media Communication
CMS04.370	Political Communication
CMS04.323	Images of Athletes in Popular Culture
CMS04.375	Special Topics in Communication
CMS04.385	Constructing Health
CMS04.395	Rhetoric of Sport
CMS04.390	Rhetorical Criticism

Interpersonal/Organizational Communication

CMS04.208	Business & Professional Communication
CMS04.220	Interpersonal Communication
CMS04.240	Small Group Communication
CMS04.255	Nonverbal Communication
CMS04.260	Organizational Communication Theory and Research
CMS04.316	Mediated Interpersonal Communication
CMS04.318	Leadership Communication
CMS04.319	Organizational Communication in Sports
CMS04.320	Communicating Gender
CMS04.340	Family Communication
CMS04.360	Intercultural Communication
CMS04.375	Special Topics in Communication
CMS04.380	Health Communication
CMS04.385	Constructing Health

Department of Journalism

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The Department of Journalism houses the Journalism major and minor, the Sports Communication and Media major and minor, as well as certificates of undergraduate studies in Sports Media, Public Relations and the News and Entrepreneurial and Independent Media.

BACHELOR OF ARTS IN JOURNALISM

The Bachelor of Arts in Journalism prepares students for a variety of journalism career opportunities in writing, broadcast, multimedia and editing/publishing.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required (Foundational) Courses for Major 27 s.h.

JRN02.205	Journalism Principles and Practices
JRN02.310	News Reporting I
JRN02.311	News Reporting II
JRN02.321	Digital Journalism I
JRN02.325	Digital Journalism II
JRN02.319	Media Ethics
JRN02.411	Copy Editing
JRN02.335	Media Law
JRN02.410	Journalism Senior Seminar

Journalism Electives 12 s.h.

(Each student must complete 12 s.h. from the following list.

JRN02.312	Feature Writing
JRN02.313	Magazine Article Writing
JRN02.341	Broadcast News Writing
JRN02.307	On-Camera Field Reporting
JRN02.305	TV Newscast
JRN02.317	Publication Layout and Design
JRN02.425	Advanced Publication Layout
JRN02.314	Photojournalism
JRN02.363	Data Journalism
JRN02.323	Crime Reporting
JRN02.324	Health Reporting
JRN02.318	Investigative Journalism
JRN02.361	Sports Journalism I
JRN02.362	Sports Journalism II
RTF03.396/JRN02.326	Sports Broadcasting I
RTF03.397/JRN02.327	Sports Broadcasting II
JRN02.355	Journalism Practicum Fall
JRN02.357	Journalism Practicum Spring
RTF03.295	Intro to New Media
PR06.354	The Impact of PR on the News
RTF03.220	The Television Industry
JRN02.356	Journalism Internship Fall
JRN02.358	Journalism Internship Spring
JRN02.359	Journalism Internship Summer
JRN02.364	Journalism Through Film
JRN02.365	Introduction to Entrepreneurial Media
JRN02.366/PR06.324	Media Metrics and Analytics

JRN01.407	Journalism Special Topics Courses

Free Electives 39 s.h.

Try to use at least 12 s.h. to build an area of expertise relevant to your program.

Total Hours Required for Graduation (with Gen Ed Courses) = 120 s.h.

Students must earn a grade of at least a **C minus** in each course under Core Requirements and Sequences. C minus or above is required in all prerequisites to other courses.

Students must maintain a 2.0 GPA in their 39 credits of the major, and a 2.0 overall GPA to graduate with a Bachelor of Arts in Journalism.

Transfer courses of 300 level or above that correlate with Rowan's courses will be accepted in the major.

Students may earn up to 9 credits in internships. Any other internships can be taken on their own, but not for credit.

MINOR IN JOURNALISM

This program is designed to address the needs of students who wish to combine two areas of academic study into one profession (such as business journalism or writing about the arts) or to increase their understanding of journalism from an academic standpoint, an option that may be particularly useful for education majors.

The program consists of 21 credits, and students must complete College Composition I (COMP01.111) and College Composition II (COMP01.112) and achieve an overall 2.0 GPA in order to be admitted to the minor.

Required Courses 12 s.h.

JRN02.205	Journalism Principles and Practices
JRN02.310	News Reporting I
JRN02.319	Media Ethics
JRN02.321	Digital Journalism I

Electives: (choose three) 9 s.h.

JRN02.425	Advanced Publication Layout
JRN02.341	Broadcast News Writing
JRN02.411	Copy Editing
JRN02.323	Crime Reporting
JRN02.312	Feature Writing
JRN02.324	Health Reporting
RTF03.295	Introduction to New Media
JRN02.318	Investigative Journalism
JRN02.410	Journalism Senior Seminar
JRN02.313	Magazine Article Writing
JRN02.319	Media Ethics
JRN02.335	Media Law
JRN02.311	News Reporting II
JRN02.307	On-Camera Field Reporting
JRN02.325	Digital Journalism II
JRN02.314	Photojournalism
JRN02.317	Publication Layout and Design
RTF03.396/JRN02.326	Sports Broadcasting I
RTF03.397/JRN02.327	Sports Broadcasting II
JRN02.361	Sports Journalism I
JRN02.362	Sports Journalism II
JRN02.363	Data Journalism
JRN02.305	TV Newscast
JRN02.364	Journalism Through Film
JRN02.365	Introduction to Entrepreneurial Media
JRN02.366/PR06.324	Media Metrics and Analytics
JRN01.407	Journalism Special Topics Courses

Substitution of one course NOT on the above list of electives may be made with the approval of the Department Chair.

CERTIFICATE OF UNDERGRADUATE STUDY IN ENTREPRENEURIAL AND INDEPENDENT MEDIA

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This CUGS is designed to teach students how to benefit from advances in digital technology to create and distribute high-quality media on a small budget. In this CUGS, students learn both the media and business aspects of producing, marketing, and generating revenue their own media products and platforms, including blogs, podcasts, ebooks, YouTube channels, audiobooks, etc. Students also learn about startup protocols for more traditional types of media.

The CUGS in Entrepreneurial and Independent Media consists of four courses totaling 12 credits. Three courses will be required and the fourth will be drawn from a bank of electives.

Required Courses (must take all three):

JRN02.365	Introduction to Entrepreneurial Media Prerequisite: College Composition 1 (COMP01.111)	3 s.h.
JRN02.366/PR06.324	Media Metrics and Analytics Prerequisite: College Composition 1 (COMP01.111)	3 s.h.
ENT06.240	Entrepreneurship and Innovation Prerequisite: Sophomore standing	3 s.h.

Electives (choose one):

RTF03.295	Introduction to New Media Prerequisite: College Composition 1 (COMP01.111)	3 s.h.
CMS04.317	Digital Communities Prerequisite: Public Speaking (CMS04.205)	3 s.h.
JRN02.321	Online Journalism 1 Prerequisite: JRN02.205 - Journalism Principles and Practices *or* RTF03.295 - Introduction to New Media *or* PR06.301 - Basic Public Relations Writing	3 s.h.
MKT09.200	Principles of Marketing Prerequisites: College Composition 1 (COMP01.111) and 12 semester hours.	3 s.h.
ENT06.342	Financing and Legal Aspects of Entrepreneurship Prerequisite: Junior Standing, Entrepreneurship and Innovation ENT06.326 or Permission of Instructor.	3 s.h.
WA01.356	Self-Publishing Prerequisites: College Comp. II (COMP01.112)	3 s.h.

BACHELOR OF ARTS IN SPORTS COMMUNICATION AND MEDIA

Dr. Emil Steiner
Coordinator
6 East High Street, Glassboro, NJ
856.256.4049
steiner@rowan.edu

The Bachelor of Arts in Sports Communication and Media provides students with a broad understanding of the role of communication within the world of sports, as well as sports-specific education and training in five areas of interest: Communication Studies, Journalism, Public Relations and Advertising, Esports, and Radio, Television and Film Production. While focused on sports media, the program prepares students for careers in all fields of communication.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required (Foundational) Courses for Major 22 s.h.

SPRT09.101	Introduction to Sports Communication & Media (1 s.h.)
CMS04.223	Sports Communication Culture & Identity

JRN02.205	Journalism Principles and Practices
JRN02.210	Journalistic Writing
PR05.350	Strategic Communication Overview
RTF03.275	Applied Media Aesthetics: Sight/Sound/Story
SPRT09.301/302/303	Internship in Sports Communication and Media
SPRT09.401	Senior Seminar in Sports Communication and Media

Sports Communication and Media Concentrations 12 s.h.

Students will take all 12 s.h. from one of the following concentrations.

Communication Studies and Sports

CMS04.395	Rhetoric of Sport
CMS04.323	Images of Athletes in Popular Culture
CMS04.319	Organizational Behavior in Sport
CMS04.333	Special Topics in Sports Communication

Sports Journalism

JRN02.310	News Reporting I
JRN02.321	Digital Journalism I
JRN02.361	Sports Journalism I
JRN02.362	Sports Journalism II

Sports Public Relations & Advertising

PR06.306	Social Media & Sports Communication
PR06.307	Sports & Entertainment Event Planning
PR06.308	Reputation Management & Crisis in Sports
PR06.309	Sports Branding & Fan Relations

RTF Sports Production (Choose 4 from these 5 courses)

RTF03.345	Live Event TV &Video Production
RTF03.396\JRN02.326	Sports Broadcasting I
RTF03.397\JRN02.327	Sports Broadcasting II
RTF01.402	Special Topics in Sports Production

Esports

Students must take 6 credits from these specific courses:

SPRT09.201	Introduction to Esports
SPRT09.211	Esports Coverage & Media: Reporting (1 s.h.)
SPRT09.212	Esports Coverage & Media: In-Game Observing (1 s.h.)
SPRT09.213	Esports Coverage & Media: Shoutcasting (1 s.h.)

Students must take 6 credits, choosing from any of these courses:

SPRT09.304	Special Topics in Sports Communication & Media
CMS04.323	Images of Athletes in Popular Culture
JRN02.361	Sports Journalism I
PR06.306	Social Media & Sports Communication
MGT06.222	Introduction to Sport Management

Related Electives 6 s.h.

Students take an additional 6 s.h. from any of the other concentrations.

Free Electives 53 s.h.

Total Hours Required for Graduation (with Gen Ed Courses) = 120 s.h.

Students must earn a grade of at least a C minus in each course under Core Requirements and Sequences. C minus or above is required in all prerequisites to other courses.

Students must maintain a 2.5 GPA in their 39 credits of the major, and a 2.0 overall GPA to graduate with a B.A. in Sports Communication and Media.

Transfer courses of 300 level or above that correlate with Rowan's courses will be accepted in the major.

Students may earn up to 9 credits in internships. Any other internships can be taken on their own, but not for credit.

MINOR IN SPORTS COMMUNICATION AND MEDIA

Dr. Emil Steiner
Coordinator
6 High Street, Glassboro, NJ
856.256.4049
steiner@rowan.edu

The Minor in Sports Communication and Media provides students with sports-specific training in a variety of fields, including media relations, broadcasting, public relations, journalism, social media, new media, photography, advertising, radio, television, and film. It is an interdisciplinary program within the Edelman College of Communication and Creative Arts. The Minor complements all of the majors within the college and many others across the university.

Required Courses 13 s.h.

SPRT09.101	Introduction to Sports Communication & Media (1 s.h.)
CMS04.208	Sports Communication Culture & Identity
JRN02.210	Journalistic Writing for Non-Majors
PR05.350	Strategic Communication Overview
RTF03.275	Applied Media Aesthetics: Sight/Sound/Story

Elective Courses 9 s.h.

Choose any three of the following courses:

CMS04.319	Organizational Communication in Sports
CMS04.395	Rhetoric of Sport
CMS04.323	Images of Athletes in Popular Culture
CMS04.333	Special Topics in Sports Communication
JRN02.361	Sports Journalism I
JRN02.362	Sports Journalism II
PR06.306	Social Media & Sports Communication
PR06.307	Sports & Entertainment Event Planning
PR06.308	Reputation Management & Crisis in Sports
PR06.309	Sports Branding & Fan Relations
RTF03.345	Live Event TV &Video Production
RTF01.402	Special Topics in Sports Broadcasting
RTF03.396/JRN02.326	Sports Broadcasting I
RTF03.397/JRN02.327	Sports Broadcasting II
SPRT09.201	Introduction to Esports
SPRT09.211	Esports Coverage & Media: Reporting (1 s.h.)
SPRT09.212	Esports Coverage & Media: In-Game Observing (1 s.h.)
SPRT09.213	Esports Coverage & Media: Shoutcasting (1 s.h.)

*Students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page.

CERTIFICATE OF UNDERGRADUATE STUDY IN SPORTS MEDIA

Dr. Emil Steiner
Coordinator
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The Certificate of Undergraduate Study in Sports Media provides students with practical experience in sports-related reporting, interviewing, writing, digital media production, and audio and video broadcasting techniques. Students will explore current issues in sports and society, cover local high school and Rowan University sports teams, and gain experience in the college radio station and television studio. Students will also produce a portfolio of sports media work, which is essential to obtaining an internship or employment in the field.

Certificate of Undergraduate Study in Sports Media 12 s.h.

The requirements include the following four courses:

JRN02.361	Sports Journalism
JRN02.326/RTF03.396	Sports Broadcasting I
JRN02.362	Sports Journalism II
JRN02.327/RTF03.397	Sports Broadcasting II

The CUGS in Sports Media is available to all students with 45 credits. Majors in Radio, Television, and Film and Journalism can only take two of the CUGS courses within their major. Academic advisors for Journalism and RTF Departments will

ensure that students in those majors sign up for the appropriate section of the cross listed courses. Students must complete all courses required for the CUGS in Sports Media with at least a 2.0 GPA.

CERTIFICATE OF UNDERGRADUATE STUDY IN THE ESPORTS INDUSTRY & ENTERTAINMENT EXPERIENCE

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steiner@rowan.edu

The Certificate of Undergraduate Study in the Esports Industry and Entertainment Experience is an interdisciplinary certificate that trains students in the critical communication, sports management, digital production, problem solving and leadership skills necessary for successful careers in esports and beyond.

Certificate of Undergraduate Study in the Esports Industry and Entertainment Experience 12 s.h.

The requirements include the following courses:

Required courses 3 s.h.

SPRT09.201	Introduction to Esports

Elective Courses Choose any of the following electives for a total of 9 s.h

SPRT09.211	Esports Coverage & Media: Reporting (1 s.h.)
SPRT09.212	Esports Coverage & Media: In-Game Observing (1 s.h.)
SPRT09.213	Esports Coverage & Media: Shoutcasting (1 s.h.)
JRN01.407	Special Topic: Current Issues in Sports
MGT06.222	Introduction to Sports Management
CMS04.223	Sports Communication, Culture & Identity
CMS04.323	Images of Athletes in Pop Culture
PR06.307	Sports & Entertainment Event Planning
PR06.306	Social Media & Sports Communication
RTF03.345	Live Event TV & Video Production
SPRT09.301/302/303	Internship in Sports Communication & Media

The CUGS in Esports Industry and Entertainment Experience is available to all non-matriculated and matriculated students. Students majoring in Sports Communication and Media can only count two of the CUGS courses toward their major requirements. Students must complete all courses required for the CUGS in Esports Industry and Entertainment Experience with at least a 2.0 GPA.

Department of Public Relations and Advertising

Joseph Basso
Chair
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The Public Relations and Advertising Department offers majors in public relations and advertising and a minor in strategic communication. Core courses, such as Basic Public Relations Writing, offer students a solid foundation in communication, while upper-level courses qualify students for a wide range of careers in public relations, advertising, and related fields.

The Department also offers a graduate program leading to a Master of Arts in Strategic Communication. The Department advises a nationally acclaimed chapter of the Public Relations Student Society of America and a student chapter of the American Advertising Federation. The department holds CEPR (Certified Educator in Public Relations) certification from the Public Relations Society of America for its undergraduate and graduate programs.

BACHELOR OF ARTS IN PUBLIC RELATIONS

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Foundational Courses		30 s.h.
PR06.350	Introduction to Public Relations	
ADV04.330	Introduction to Advertising	
PR06.310	Intro PR/AD Research	
PR06.301	Basic Public Relations Writing	
PR06.305	Advanced Public Relations Writing	
JRN02.317	Publication Layout & Design	
PR99.362	Public Opinion	
Upper Level and Capstone Courses		
PR06.355	PR/AD Law and Ethics	
PR06.353	Case Studies in Public Relations (WI)	
PR06.454	PR Planning (WI)	
Related Electives		9 s.h.
Select two courses from the following groups:		
ADV04.360	Integrated Marketing Communication	
ADV04.432	Media Planning	
CMS04.210	Mass Media	
CMS04.240	Small Group Communication	
CMS04.250	Communication Theory	
CMS04.270	Persuasion and Social Influence	
CMS04.370	Political Communication	
CMS04.380	Health Communication	
JRN02.310	News Reporting I	
JRN02.312	Feature Writing	
JRN02.313	Magazine Article Writing	
JRN02.319	Media Ethics	
JRN02.335	Media Law	
MGT06.300	Organizational Behavior	
PR06.354	Impact of PR on the News	
PR06.359	PR Practicum	
PR06.360	PR/AD Internship I	
PR06.362	PR/AD Internship II	
PR06.364	PR/AD Internship III	
RTF03.220	The Television Industry	
Other Requirements		
PHIL09.110	Logic of Everyday Reasoning	
PR05.101	Contemporary Issues in Strategic Communication	
ADV04.232	Advertising Media Budgeting	
Free Electives		54 s.h.
Total Credits in Program		120 s.h.

Dual Degree (4 +1 program): 4+1 Undergraduate/Graduate Dual Degree Program: BA in Public Relations, Master of Arts in Strategic Communication

Overview

This program provides a seamless transition between undergraduate and graduate coursework through a single five-year degree program to earn both degrees. Upon completion, graduates will possess both the theoretical and practical knowledge to perform duties relevant to work in the field, including positions with a strategic communication and management focus. Rowan University currently offers a Bachelor of Arts in Public Relations and a Master of Arts in Strategic Communication. The accelerated program proposed would allow for students to obtain both of these degrees in 5 years (through 141 total credits), providing a cost-effective and efficient option for achieving this outcome.

4 + 1 Undergraduate Program Requirements -- BA in Public Relations

General Education Courses 42 s.h. Credit Hours

Rowan Core -- 9 s.h.

Rowan Literacies -- 15 sh.

Non-Program Courses -- 18 s.h.

BA in Public Relations Coursework

Required Public Relations Courses		21 s.h. Credit Hours
PR06.350	Into to Public Relations	3 s.h.
ADV04.330	Intro to Advertising	3 s.h.
PR06.301	Basic PR Writing	3 s.h.
JRN02.317	Publication Layout & Design	3 s.h
PR06.310	Intro to PR/AD Research	3 s.h
PR06.360	Public Opinion	3 s.h.
PR06.305	Advanced PR Writing	3 s.h.
Required Capstone Courses		9 s.h. Credit Hours
PR06.353	Case Studies in PR	3 s.h.
PR06.454	PR Planning	3 s.h.
PR06.355	PR/AD Law and Ethics	3 s.h.
Related Electives (choose from bank)		9 s.h. Credit Hours
Free Electives		39 s.h. Credit Hours

(Graduate work will fulfill 12 of the free electives in the 4+1 program)

4 + 1 Graduate Program Requirements

Required M.A. Courses taken as an Undergraduate 4 + 1 student		12 s.h.
MAPR01.547	Graduate Strategic Writing I	3 s.h.
MAPR01.551	Graduate Strategic Communication Overview	3 s.h.
MAPR01.157	Graduate Strategic Writing II	3 s.h.
	Graduate Elective	3.0 s.h.
Required M.A. Courses taken as a Graduate 4 + 1 Student		12 s.h.
MAPR01.550	Intro to Grad Communication Research	3 s.h.
MAPR01.543	Grad Strategic Case Studies and Public Relations Planning	3 s.h.
MAPR01.620	Strategic Communications Seminar	6 s.h.
Elective Graduate M.A. courses taken while a Graduate 4 +1 student		9 s.h.

Elective courses permit the M.A. student to tailor the program to special needs for career development. These elective courses include some of the following courses (other course offerings may be available):

MAPR01.610	Internship	3 s.h.
MAPR98.503	School Public Relations	3 s.h.
MAPR06.515	Online Public Relations	3 s.h.
MAPR01.556	Organizational PR Management/Counseling	3 s.h.
MAPR01.565	IMC and New Media	3 s.h.
MAPR01.559	Strategic Public Affairs	3 s.h.
Total Required Credits for the Graduate Portion of the Program		33 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 141 s.h.

Requirements for Admission: Undergraduate admission to the 4+1 Dual Degree program is open to any matriculated Rowan student in the Department of Public Relations and Advertising Bachelor's Degree in Public Relations program. Matriculated undergraduate applicants may contact the Graduate Program Coordinator, Dr. Bokyung Kim, in the Department of Public Relations and Advertising at any time to discuss the program and ensure that their course sequence in the BA program is on track to be completed in four years should they wish to pursue the 4+1 Dual Degree Program at a later date.

Students seeking acceptance into the program will apply upon completion of 60 credits, generally at the beginning of the Junior Year. The applicant must complete the 4+1 Application form, available from the Graduate Program Coordinator or via the department website, which will be processed following university protocol through Rowan Global.

Prior to submitting the formal application, applicants must meet the following criteria:

- A GPA of 3.0 or above with a GPA of 3.25 or above in the major, BA in Public Relations
- Successful completion of Intro to Public Relations (PR 06350) and at least two other courses in the Public Relations major
- Successful completion of at least 60-75 credits overall with at least 15 credits completed at Rowan University while matriculated in the BA in Public Relations degree program

Prospective applicants who meet these criteria will be asked to submit the following:

- One letter of recommendation from a Public Relations professor

- One letter of recommendation from an individual of the student's choosing, such as a professor, employer, etc.
- A writing sample from Basic PR Writing (PR 06301) or Advanced PR Writing (PR 06305)
- A 300-350 word statement of purpose for attending the program

Requirements for Graduation: To graduate from this accelerated dual degree program with a B.A. and an M.A, students must successfully complete all courses (foundational, core, and program related) required for the Bachelor of Arts in Public Relations, specifically 120 Credit Hours (including 12 graduate credits) with a grade of C- or better in undergraduate courses and a B or better in graduate level (MAPR designation, Hegis Level 5 or 6) courses. Successful completion of all courses required for the Master of Arts in Strategic Communications, specifically 21 Credit Hours with a grade of B or better, including completion of the master's project.

Student Status and Contingency for Students who do not Complete the program: Students who enroll in the 4+1 dual degree program but who do not maintain satisfactory progress (C- or better in undergraduate level courses; B or better in graduate level courses) or who wish to discontinue the program prior to completion may apply up to 12 credits of graduate course work, if completed with a passing grade, to their undergraduate free elective bank according to the program requirements for free electives. I f the student withdraws from the program prior to completion of any course, university policies apply with respect to credits earned.

BACHELOR OF ARTS IN ADVERTISING

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Advertising Courses		39 s.h.
ADV04.330	Introduction to Advertising	
PR06.350	Introduction to Public Relations	
PR06.310	Intro PR/AD Research	
ADV04.375	Advertising Copywriting	
ADV04.421	Account Planning	
JRN02.317	Publication Layout & Design	
PR06.355	PR/AD Law and Ethics	
ADV04.360	Integrated Marketing Communication	
or MKT09.200	Principles of Marketing	
Upper Level and Capstone Courses		
PR06.355	PR/AD Law and Ethics	
ADV04.432	Media Planning	
ADV04.352	Advertising Strategies (Fall)	
ADV04.434	Advertising Campaigns (Spring)	
Related Electives (select two courses from the following offerings)		6 s.h.
ADV04.420	Portfolio Preparation	
ADV04.355	Advertising Practicum	
CMS04.210	Mass Media	
CMS04.250	Communication Theory	
CMS04.240	Small Group Communication	
CMS04.270	Persuasion and Social Influence	
CMS04.370	Political Communication	
CMS04.380	Health Communication	
JRN02.310	News Reporting I	
JRN02.312	Feature Writing	
JRN02.313	Magazine Article Writing	
JRN02.319	Media Ethics	
JRN02.335	Media Law	
MGT06.300	Organizational Behavior	
PR06.354	Impact of PR on the News	
PR06.360	PR/AD Internship I	
PR06.362	PR/AD Internship II	
PR06.364	PR/AD Internship III	
RTF03.220	The Television Industry	

Other Requirements

- PHIL091.410 Logic of Everyday Reasoning

- PR05.101 Contemporary Issues in Strategic Communication
- ADV04.232 Advertising Media Budgeting

Free Electives 39 s.h.
Total Credits in Program 120 s.h.

Dual Degree (4 +1 program): 4+1 Undergraduate/Graduate Dual Degree Program: BA in Advertising, Master of Arts in Strategic Communication

Overview

This program provides a seamless transition between undergraduate and graduate coursework through a single five-year degree program to earn both degrees. Upon completion, graduates will possess both the theoretical and practical knowledge to perform duties relevant to work in the field, including positions with a strategic management focus. Rowan University currently offers a Bachelor of Arts in Advertising and a Master of Arts in Strategic Communication. The accelerated program proposed would allow for students to obtain both of these degrees in 5 years (141 credits total) providing a cost-effective and efficient option for achieving this outcome.

4 + 1 Undergraduate Program Requirements -- BA in Advertising

General Education Courses 42 s.h. Credit Hours

Rowan Core -- 9 s.h.

Rowan Literacies -- 15 s.h.

Non-Program Courses -- 18 s.h.

BA in Advertising Coursework

Required Advertising Courses 21 s.h. Credit Hours

ADV04.330	Intro to Advertising	3 s.h.
PR06.350	Into to Public Relations	3 s.h.
ADV04.735	Ad Copywriting	3 s.h.
ADV04.421	Account Planning	3 s.h.
PR06.305	Advanced PR Writing	3 s.h.
JRN02.317	Publication Layout & Design	3 s.h
PR06.310	Intro to PR/AD Research	3 s.h

Required Capstone Courses 12 s.h. Credit Hours

ADV04.432	Media Planning	3 s.h.
ADV04.352	Advertising Strategies	3 s.h.
ADV04.434	Advertising Campaigns	3 s.h.
PR06.355	PR/AD Law and Ethics	3 s.h.

Related Electives (choose from bank) 6 s.h. Credit Hours
Free Electives 39 s.h. Credit Hours
(Graduate work will fulfill 12 of the free electives in the 4+1 program)

4 + 1 Graduate Program Requirements

Required M.A. Courses taken as an Undergraduate 4 + 1 student 12 s.h.

MAPR01.547	Graduate Strategic Writing I	3 s.h.
MAPR01.551	Graduate Strategic Communication Overview	3 s.h.
MAPR01.157	Graduate Strategic Writing II	3 s.h.
	Graduate Elective	3 s.h.

Required M.A. Courses taken as a Graduate 4 + 1 Student 12 s.h.

MAPR01.550	Intro to Grad Communication Research	3 s.h.
MAPR01.543	Grad Strategic Case Studies and Public Relations Planning	3 s.h.
MAPR01.620	Strategic Communications Seminar	6 s.h.

Elective Graduate M.A. courses taken while a Graduate 4 +1 student 9 s.h.

Elective courses permit the M.A. student to tailor the program to special needs for career development. These elective courses include some of the following courses (other course offerings may be available):

MAPR01.610	Internship	3 s.h.
MAPR98.503	School Public Relations	3 s.h.
MAPR06.515	Online Public Relations	3 s.h.
MAPR01.556	Organizational PR Management/Counseling	3 s.h.
MAPR01.565	IMC and New Media	3 s.h.
MAPR01.559	Strategic Public Affairs	3 s.h

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Total Required Credits for the Graduate Portion of the Program 33 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 141 s.h.

Requirements for Admission: Undergraduate admission to the 4+1 Dual Degree program is open to any matriculated Rowan student in the Department of Public Relations and Advertising Bachelor's Degree in Advertising program. Matriculated undergraduate applicants may contact the Graduate Program Coordinator, Dr. Bokyung Kim, in the Department of Public Relations and Advertising at any time to discuss the program and ensure that their course sequence in the BA program is on track to be completed in four years should they wish to pursue the 4+1 Dual Degree Program at a later date.

Students seeking acceptance into the program will apply upon completion of 60 credits, generally at the beginning of the Junior Year. The applicant must complete the 4+1 Application form, available from the Graduate Program Coordinator or via the department website, which will be processed following university protocol through Rowan Global.

Prior to submitting the formal application, applicants must meet the following criteria:

- A GPA of 3.0 or above with a GPA of 3.25 or above in the major, BA in Advertising
- Successful completion of Intro to Intro to Advertising (ADV 04330) and at least two other courses in the Advertising major
- Successful completion of at least 60-75 credits overall with at least 15 credits completed at Rowan University while matriculated in the BA in Advertising degree program

Prospective applicants who meet these criteria will be asked to submit the following:

- One letter of recommendation from an Advertising professor
- One letter of recommendation from an individual of the student's choosing, such as a professor, employer, etc.
- A writing sample from Advertising Copywriting (ADV 04375) or a product sample from Account Planning (ADV 04421)
- A 300-350 word statement of purpose for attending the program

Requirements for Graduation: To graduate from this accelerated dual degree program with a B.A. and an M.A, students must successfully complete all courses (foundational, core, and program related) required for the Bachelor of Arts in Advertising, specifically 120 Credit Hours (including 12 graduate credits) with a grade of C- or better in undergraduate courses and a B or better in graduate level (MAPR designation, Hegis Level 5 or 6) courses. Successful completion of all courses required for the Master of Arts in Strategic Communications, specifically 21 Credit Hours with a grade of B or better, including completion of the master's project.

Student Status and Contingency for Students who do not Complete the program: Students who enroll in the 4+1 dual degree program but who do not maintain satisfactory progress (C- or better in undergraduate level courses; B or better in graduate level courses) or who wish to discontinue the program prior to completion may apply up to 12 credits of graduate course work, if completed with a passing grade, to their undergraduate free elective bank according to the program requirements for free electives. I f the student withdraws from the program prior to completion of any course, university policies apply with respect to credits earned.

MINOR IN STRATEGIC COMMUNICATION

Requirements 18 s.h.

PR05.350	Strategic Communication Overview
ADV04.375	Advertising Copywriting
JRN02.317	Publication Layout and Design
PR06.310	Intro PR/AD Research
ADV04.360	Strategic Communication Practice (Strategic Communication Overview PR05050)
PR06.301	Basic PR Writing

CERTIFICATE OF UNDERGRADUATE STUDY IN PUBLIC RELATIONS AND THE NEWS

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Kathryn Quigley
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General Merit of the Program: In age of the digital media, every profession requires knowledge and expertise in communicating with targeted audiences, a role that in the past was primarily reserved for public relations professionals and the press. This CUGS provides students with the historical, legal and ethical understanding of journalistic and public relations practices. It provides practical experience in a wide variety of public relations and news writing forms. It also explores the information management world, where journalism and public relations both overlap and compete with one another.

Certificate of Undergraduate Study in Public Relations and the News 12 s.h.

The requirements include the following five courses:

JRN02.205	Journalism Principles & Practices
PR06.350	Intro to PR
PR06.301	Basic PR Writing
or JRN02.310	News Reporting I
PR06.354	Impact of PR on the News

To be awarded the CUGS in PR & Advertising, students must complete all courses required for the CUGS with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN ADVERTISING AND GRAPHIC DESIGN

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Donna Sweigart
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The Certificate of Undergraduate Study (CUGS) Advertising and Graphic Design provides students with an understanding of both subjects while expanding their understanding of the vocabulary, history, issues, and theory of visual communication as those concepts relate to advertising and design. Students must take four courses (12 s.h.) to complete the CUGS: Advertising and Graphic Design comprised of available but not required elective courses. There are two required courses and two choice options within this CUGS.

Certificate of Undergraduate Study in Advertising and Graphic Design 12 s.h.

The requirements include the following two courses:

ADV04.370	Essentials of Design
PR05.318	Strategic Visual Communication

Course 3: (Select one option)

ART09.358	Web Design
or ART09.343	Introduction to Graphic Design I

Course 4: (Select one option)

ART09.344	Intermediate Graphic Design II: Typography (prerequisite ADV04.370 Essentials of Design)
or ARHS03.350	History of Graphic Design

To be awarded the CUGS in Advertising and Graphic Design, students must complete the four courses with a grade of C- or better. Students can complete the CUGS within two or three semesters. The courses may be taken in any order provided that students choosing (ART 09344) Graphic Design II: Typography have already completed the perquisite (ADV 04370)

Essentials of Design, a required course in the CUGS.

Department of Radio, Television, and Film

Joseph Bierman
Chair
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The Department offers a Bachelor of Arts in Radio, Television, and Film (RTF) that prepares students for career opportunities in traditional and emerging media industries by covering a wide range of topics, including media production, business, history, and aesthetics. Students can select from three concentrations within the major. The RTF Production Concentration emphasizes production skills, the RTF Film/TV Studies Concentration emphasizes writing and research skills, and the RTF Broadcast/Video Systems Concentration emphasizes technical skills. Each concentration includes a broad exploration of the history, business practice, writing, and aesthetics of the media. Students completing the degree receive a broad-based liberal arts education and a strong preparation for either media production or critical studies-related careers.

Outside of the classroom, learning continues as students are engaged in student clubs and organizations, including Cinema Workshop (digital filmmaking), The Rowan Television Network (television production), and WGLS-FM (the University's radio station). In addition, the department offers juniors and seniors an extensive internship program that includes internships at businesses in the Philadelphia, New Jersey, and the New York Metropolitan areas.

BACHELOR OF ARTS IN RADIO, TELEVISION, AND FILM

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Radio, Television and Film Core Requirements 19 s.h.

RTF03.201	Foundations of Media Production
RTF03.270	Film History and Appreciation I (CCI)
RTF03.205	TV History and Appreciation (CCI)
RTF03.275	Applied Media Aesthetics (CCII or permission)
RTF03.370	Film Production I (Applied Media Aesthetics, Foundation)
RTF03.222	TV Production I (Applied Media Aesthetics, Foundations)
RTF03.475	RTF Senior Portfolio Seminar (90 s.h.)

Industry Conventions 6 s.h.

Select 2 of the following courses:

RTF03.221	The Radio Industry (CCI)
RTF03.295	Intro to New Media (CCII)
RTF03.290	The Media Industries (30 s.h.)

Media Writing 6 s.h.

Select 2 of the following writing-based courses:

RTF03.393	Screenwriting 1: Writing the Short, W.I. (CCII)
RTF03.433	Screenwriting 2: Writing the Feature (Screenwriting 1)
RTF03.433	Episodic Screenwriting 1, W.I. (CCII, Screenwriting 1)
RTF03.434	TV Episodic Screenwriting 2, W.I. (Screenwriting 1, Episodic Screenwriting 1)

Genre/Medium Studies 3 s.h.

Select 1 of the following courses:

RTF03.372	American Film Directors (CCII, 45 s.h.)
RTF03.471	Techniques in Documentary Films, W.I. (Film 1, TV1, or permission)
RTF03.271	Film History and Appreciation II (30 s.h.)
RTF03.272	Images of Women in Film (30 s.h.)
RTF03.420	Current Issues in Electronic Media (The Television Industry, 90 s.h.)
RTF03.294	Contemporary International Cinema (CCI, CCII)

RTF03.340	RTF Research & Criticism (CCI, CCII, 75 s.h.)
RTF03.373	Film Noir (CCII, 45 s.h.)
RTF03.206	TV History and Appreciation, 1960's-70's (CCII)
CMS04.215	Fiction to Film (30 s.h.)

RTF without Concentrations
Choose four non-required RTF courses.
RTF with Concentrations
Choose to focus on courses from the Production Concentration, Film/TV Studies Concentration, or Broadcast/Video Systems Concentration.

Production Concentration 12 s.h.
Select 4 of the following courses:

RTF03.321	TV Production II (TV Production I)
RTF03.371	Film Production II (Film Production I)
RTF03.395	Sound for Film and Television (Media Aesthetics)
RTF03.450	TV Documentary and Field Production (TV Production I, II, or permission)
RTF03.470	Advanced Film Production (Film Prod. I, II; or permission)
RTF03.394	New Media Production (Intro to New Media)
RTF03.472	New Media Production II (New Media Production)
RTF03.471	Techniques in Documentary Films, W.I. (Film 1, TV1, or permission)

Film/TV Studies Concentration 12 s.h.
Select 4 courses.

RTF03.271	Film History since 1940 (30 s.h.)
RTF03.206	TV History and Appreciation: 1960's – 1070's (CCII)
RTF03.372	American Film Directors (CCII, 45 s.h.)
RTF03.471	Techniques in Documentary Films (Film 1, TV 1, or permission)
RTF03.373	Film Noir (CCII 45 s.h.)
RTF03.294	Contemporary International Cinema (CCII)
RTF03.272	Images of Women in Film (30 s.h.)
RTF03.375	Evolution of Quality TV (CCII)
RTF03.340	RTF Research and Criticism (CCII, 75 s.h.)

Broadcast/Video Systems Concentration 12 s.h.
Select 4 courses.

RTF03.375	Broadcast/Video Systems 1
RTF03.376	Broadcast/Video Systems 2
CS01.210	Introduction to Computer Networks and Data Communication
CS01.102	Introduction to Programming
or CS01.104	Introduction to Scientific Programming
or CS04.103	Computer Science and Programming (4 s.h.)

Free Electives 33 s.h.
Total Credits in Program 120-121 s.h.

ACCELERATED BACHELOR OF ARTS IN RADIO, TELEVISION, AND FILM/DIANA KING MASTER OF ARTS IN TELEVISION STUDIES

The accelerated Bachelor of Arts in Radio, Television, and Film/Diana King Master of Arts in Television Studies allows exceptional, highly motivated students to complete both a bachelor's and a master's degree in five years rather than the normal six. In this "4+1" program, students begin taking graduate courses during their senior year, advancing their graduate studies while still at the undergraduate level and while paying undergraduate tuition and fees. Twelve graduate credits are applied to both the undergraduate and graduate requirements under this dual degree program. Application procedures and further information are available at: Accelerated BA/MA .

NEW MEDIA MINOR

The Minor in New Media is an interdisciplinary program of study offered within the Edelman College of Communication and Creative Arts. Students will take 18 credit hours to pursue a particular interest in new media – meaning evolving media that focus on interactive and digital technology, often disseminated through social networks. Students will receive advanced and specialized education for technical proficiency, digital literacy, and digital professionalism, which is the application of their skills and competencies to professional contexts.

The minor includes a foundation course in new media, several courses that develop technical proficiency, a series of electives, and a capstone course, which will enable students to be conversant in ideas and confident in their new media abilities. Students will have grounding in both the theory and practice of using cutting-edge technology to create digital content.

The New Media Minor will provide opportunities for students to:

1. Examine and explore concepts and theories within the study of new media, which will involve:

- grounding students in the study of new media from applied, critical, ethical, and theoretical perspectives.
- strengthening students' digital literacy with respect to:
  - theoretical, conceptual, and historical examinations of digital media.
  - critical examinations of messages, relationships, and audience in the digital sphere.

2. Develop confidence and ability in new media production, which will include:

- providing students with a well-rounded technical proficiency that translates to practical, applied skills in publishing content of all sorts within a digital context.
- helping students understand the business and economic fundamentals of new media.
- aiding students in post-undergraduate opportunities by allowing for the creation and reflection of a digital portfolio of work that is relevant to their chosen professional path.

3. Cultivate ethical approaches to entrepreneurship, creativity, and global/social awareness within professional, civic and personal spheres of life.

New Media Minor Course Requirements

To complete the New Media Minor, students must complete a total of 18 credit hours.

Required Foundation Course		3 s.h.
RTF03.295	Introduction to New Media	
Technical Proficiency		6-9 s.h.
Select two or three of the following courses:		
CMS04.315	Participatory Media	
JRN02.321	Online Journalism I	
RTF03.394	New Media Production	
Minor Related Electives		3-6 s.h.
Select one or two of the following courses:		
ADV04.370	Essential of Design	
ART09.358	Designing for the World Wide Web	
ART09.375	Time-Based Media: Video	
CMS04.316	Mediated Interpersonal Communication	
CMS04.317	Digital Communities	
JRN02.314	Photojournalism	
JRN02.319	Media Ethics	
JRN02.325	Online Journalism II	
JRN02.363	Data Journalism	
MAPR01.565	IMC and New Media Overview	
MAPR01.568	Strategic Visual Communication	
MAPR06.515	Online Public Relations	
MAWR01.555	Writing for Electronic Communities	
MAWR01.559	Visual Rhetoric and Multimodal Composition	
MAWR01.564	Information Architecture	
MAWR01.620	Internet and Writing Studies	
RTF03.201	Foundations in Media Production	
RTF03.370	Film Production 1	
RTF03.472	New Media Production 2	
WA01.301	Writing, Research, and Technology	
	Internship (w/in College major)	
Required Capstone Course		**3 s.h.**
INTR01.490	New Media Practicum	
Program Total		**18 s.h.**

BACHELOR OF FINE ARTS IN BIOMEDICAL ART AND VISUALIZATION

Accreditation National arts accreditation has been granted by The National Association of Schools of Art & Design (NASAD)

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The Bachelor of Fine Arts in Biomedical Art and Visualization (BMAV) program combines art, design, science and medical based content using a variety of digital media and computer graphic technologies. The major allows the student to focus on future career possibilities in the areas of medical and scientific: visualization, information design, animation and interactive educational games and applications. The major is based on the traditional field of scientific and medical illustration with the curriculum for this program incorporates leading-edge, innovative concepts and digital media techniques, which include: digital painting, drawing, and graphics; 3D modeling, 2D/3D animation, interactive design and visualizations. This program is designed to prepare students for a professional career in the field(s) of scientific and medical illustration, animation, information design, interactive simulation, and visualization. The degree is designed to have a comprehensive and interdisciplinary focus on applied arts and sciences. The Biomedical Art and Visualization major is at the forefront of newly emerging digital media markets, whereby scientific and medical visualization are in demand in these areas: consumer health and pharmaceutical markets, medical device and biotechnology media markets, veterinary medicine markets, television & film, publishers (magazines, journals, news, textbooks) medical & scientific advertising, hospitals & healthcare agencies, university service bureaus, research institutes, government agencies, medical legal firms and forensic reconstruction / criminal investigation visuals, museums and cultural institution exhibitions, serious gaming and simulation, and instructional design and e-learning. Please note, this is an interdisciplinary curriculum cross listed in both the Department of Art and the Department of Radio, TV and Film.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements

Foundation Core - 12 s.h.

ART02.100	Drawing I: Representational Drawing
ART02.105	Color & Design - 2D
ART02.240	Intro to Sculpture - 3D
ART09.301	Digital Media & Techniques

Primary Studio - 30 s.h.

BMV/ART09.251	Introduction to Figure Anatomy for the Artist
BMV/ART09.252	Intro to Natural Science & Zoological Illustration
BMV/ART09.356	Introduction to Digital Rendering and Illustration Methods
BMV/ART09.253	Introduction to Digital 3D Modeling
BMV/ART09.360	Storyboarding & Animation
BMV/ART09.453	Introduction to Game Media Design
BMV/ART09.454	Surgical Illustration and Media
BMV/ART09.373	Advanced Problems in Biomedical Art & Visualization
BMV/ART09.361	Scientific and Medical Sculpture
BMV/ART09.456	Biomedical Art BFA Thesis & Portfolio Capstone

Support Studio - 12 s.h.

ART09.343	Introduction to Graphic Design I
ART09.344	Intermed Graphic Des II: Typography
ART09.364	Adv Graphic Design VI (Visual Communication)
ART11.380	Digital Photography

Art History - 6 s.h.

ARHS03.103	Art History Survey I: Prehistory to Medieval
ARHS03.104	Art History Survey II: Renaissance to Modern

Science Courses - 24 s.h.

BIOL01.104	Biology 1: Introduction to Evolution and Scientific Inquiry
BIOL01.106	Biology 2: Concepts In Genetics
BIOL01.203	Biology 3: Introduction To Cell Biology
BIOL10.210	Human Anatomy and Physiology I
BIOL10.212	Human Anatomy and Physiology II
BIOL07.301	Comparative Vertebrate Anatomy
or BIOL01.428	Developmental Biology

Review and Exhibition Requirements - 0 s.h.

ART02.222	Review: Foundation Core Review
ART09.390	Work in Progress Review
ART09.490	Senior Thesis Exhibition

Program Total Requirements **120 s.h.**

Department of Writing Arts

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The Department of Writing Arts offers a variety of curricula, ranging from the First-Year Writing program to a Master of Arts in Writing. The department's Bachelor of Arts in Writing Arts allows those with an interest in writing to pursue a 34-credit degree program, which may include one of three concentrations: Creative Writing, Technical and Professional Writing, and Publishing and Writing for the Public. In addition, the Department offers a Combined Advanced Degree Program which allows students to earn a Bachelor of Arts/Master of Arts in five years. We offer four minors: Creative Writing, Publishing and Writing for the Public, Technical and Professional Writing, and in Writing Arts, and we also offer a Liberal Studies Program B Sequence in Writing Arts as well as Certificates of Undergraduate Study in Creative Writing, Publishing and Writing for the Public, Technical and Professional Writing, Professional Communication, Writing for the Environment, and Writing Studies for Educators. Some students may also double major in Writing Arts and Elementary Education or Early Childhood Education. We provide courses for Literacy Studies Majors. More information on all the programs is available at www.rowan.edu/writingarts

BACHELOR OF ARTS IN WRITING ARTS

The Writing Arts major provides broad-based study and practice in written communication, drawing on the disciplinary strengths of the Edelman College of Communication and Creative Arts and from departments across the University. Writing Arts offers students intensive experience in a variety of writing forms, creative and expository, personal and public. Students learn how writers compose in print and new media forms and how audiences react to their writing. In classroom workshops and peer response groups, through lecture and discussion, and by creating and composing multiple drafts and revisions, students develop sensitivity to rhetorical considerations of audience, purpose, and genre. Through these diverse experiences, students are prepared for success in a wide variety of settings beyond the University.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Rowan Core Courses		9 s.h.
Non-Program Courses		18 s.h.
Major Requirements		19 s.h.
WA01.200	Introduction to Writing Arts	
WA01.201	How Writers Read	
or WA01.250	Tutoring Writing	
or CMS04.250	Communication Theory	
WA07.290	Creative Writing I	
or WA07.309	Writing Children's Stories	
WA01.300	The Writer's Mind	
WA01.301	Writing, Research, and Technology	
WA01.445	Senior Seminar: Methods of Analysis and Evaluation of Writing	
WA01.450	Writing Arts Portfolio Seminar [1 credit]	

Choose one course from the following bank.

Elements of Language		3 s.h.
WA01.350	Rhetorics of Style	
WA01.355	Editing for Publication	
CMS04.225	Semantics	
CMS04.325	Linguistics	
ENGL05.301	American English Grammar	
ANTH02.250	Introduction to Anthropological Linguistics	

or

Completion of second semester of 200-level foreign language NOTE: *Languages that offer this level course: Arabic, Chinese, French, German, Italian, Japanese, Russian, and Spanish. Also, while the requirement is 3 credits, other courses prior to this second semester 200-level course will likely be necessary.*

Writing Concentration	12 s.h.

*You must choose **12 s.h.** from any of the courses listed below. If you choose all 12 s.h. from one of the three concentrations, that concentration will appear on your transcript. If you complete more than one concentration, you must take at least nine separate credits in each concentration. See www.rowan.edu/wa for advice on shaping the concentration.*

Creative Writing

WA07.290	Creative Writing I
or WA07.309	Writing Children's Stories (not the one chosen in required courses)
WA07.291	Creative Writing II
WA07.391	Writing Fiction
WA07.392	Fundamentals of Playwriting
WA07.395	Writing Poetry
WA07.415	Writing the Young Adult Novel
WA01.250	Tutoring Writing
WA01.305	Writing Comedy
WA01.304	Writing Creative Nonfiction
WA01.358	Teaching the Writer's Workshop
WA01.370	Professions in WA [1 credit]
JRN02.332	The Publishing Industry
RTF03.393	Screenwriting 1: Writing the Short
RTF03.493	Screenwriting 2: Writing the Feature
WA01.320 *or* WA01.321	Internship
WA01.312	Research Practicum

Technical and Professional Writing

The requirements include the following four courses from two course banks Required Courses 6 s.h.: Choose any two of the following

WA01.302	Intro to Technical Writing
WA01.325	Scientific Writing and Rhetoric
WA01.326	Writing for Nonprofits
WA01.330	Medical Writing and Rhetoric
WA01.355	Editing for Publication

Electives 6 s.h.: Choose the remaining two courses from the above list or from following list: courses taken from required list cannot be double-counted:

WA01.250	Tutoring Writing
WA01.322	Writing for the Workplace (WI)
WA01.335	Environmental Writing and Rhetoric
WA01.370	Professions in Writing Arts [1 credit]
CMS04.393	Rhetoric of Science, Technology, and Medicine
HSC08.200	Developing Scientific and Health Literacies
JRN02.313	Magazine Article Writing
JRN02.317	Publication Layout and Design
JRN02.332	The Publishing Industry
RTF03.295	Introduction to New Media
WA01.320 *or* WA01.321	Internship
WA01.312	Research Practicum

Publishing and Writing for the Public

The requirements include the following four courses from two course banks Required Courses 6 s.h.: Choose any two of the following:

WA01.335	Environmental Writing and Rhetoric
WA01.355	Editing for Publication
WA01.356	Self Publishing
JRN02.332	The Publishing Industry
MAWR01.566	Editing the Literary Journal (with senior privilege)
MAWR01.567	Professions in Publishing (with senior privilege)

Electives 6 s.h.: Choose the remaining two courses from the above list or from following list: courses taken from required list cannot be double-counted:

WA01.370	Professions in Writing Arts [1 credit]
WA01.305	Writing Comedy
WA01.322	Writing for the Workplace (WI)
WA01.375	Writing About Popular Culture
CMS04.215	Fiction to Film
CMS04.290	Rhetorical Theory
CMS04.315	Participatory Media
JRN02.313	Magazine Article Writing
JRN02.314	Photojournalism
JRN02.317	Publication Layout and Design

JRN02.321	Online Journalism I
JRN02.335	Media Law
RTF03.275	Applied Media Aesthetics: Sight, Sound and Story
RTF03.295	Introduction to New Media
WA01.320 *or* WA01.321	Internship
WA01.312	Research Practicum

Free Electives 59 s.h.
Total 120 s.h.

ACCELERATED BACHELOR OF ARTS IN WRITING ARTS/MASTER OF ARTS IN WRITING

The accelerated Bachelor of Arts in Writing Arts/Master of Arts in Writing allows exceptional, highly motivated students to complete both a bachelor's and a master's degree in five years rather than the normal six. In this "4+1" program, students begin taking graduate courses during their senior year, advancing their graduate studies while still at the undergraduate level and while paying undergraduate tuition and fees. Twelve graduate credits are applied to both the undergraduate and graduate requirements under this dual degree program.

Application procedures and further information are available at: Accelerated BA/MA.

BACHELOR OF ARTS IN APPLIED PROFESSIONAL COMMUNICATION

The Bachelor of Arts in Applied Professional Communication extends opportunities for career preparation and interdisciplinary study. This multi-departmental major provides students with communication skills that support them in a range of professional settings with a focus on digital communication(s).

The B.A. in Applied Professional Communication is offered exclusively as a 3+1 program on the Rowan College at Burlington County (RCBC) Mount Laurel campus. It allows students to pursue a foundational curricular platform at a community college and complete their Rowan degree while remaining on the RCBC campus. Rowan University requires the completion of 120 semester hours of approved general education and major coursework in order to graduate with a bachelor's degree. The Bachelor of Arts in Applied Professional Communication is a full- or part-time program that provides students with 30 of the required semester hours when students transfer into Rowan University for the fourth year.

General Education

All students starting ***before*** Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Applied Professional Communication Courses 30 s.h.

WA01.322	Writing for the Workplace (WI)
or WA01.302	Introduction to Technical Writing
PR05.350	Strategic Communication Overview
ADV04.360	Integrated Marketing Communication
	Free Elective
RTF03.394	New Media Production
JRN02.319	Media Ethics
CMS04.315	Participatory Media
CMS04.318	Leadership Communication
CMS04.4xx	Professional Practices and Partnership Practicum 1
CMS04.4xx	Professional Practices and Partnership Practicum 2

General Education and Elective Courses 90 s.h.
Total Hours Required for Graduation (with Gen Ed Courses) 120 s.h.

Students must earn a grade of at least a C minus in each course under Core Requirements, Concentrations and Related Electives. C minus or above is required in all prerequisites to other courses.

MINOR IN CREATIVE WRITING

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The Writing Arts Department at Rowan University offers a program of study in creative writing leading to a minor.

To fulfill the requirements for the minor, students must complete 18 hours of course work selected from a variety of courses in the writing of poetry, fiction, children's stories, plays, television and film scenarios.

The minor is open to Writing Arts majors and students who are not Writing Arts majors. Writing Arts majors who complete the 12 credit creative writing concentration within the major may take an additional 6 credits to receive the minor. No required courses counting toward the Writing Arts major can be double counted for the Creative Writing Minor. Students do not have to be in the minor to take creative writing courses.

Once enrolled in the Creative Writing Minor, students can look forward to these goals and achievements:

- The ability to understand and apply creative writing craft elements in a variety of genres
- The ability to read and critique texts through the strategies of close reading
- A deeper understanding of the relationship between the writer, the audience, and the work
- The opportunity to experiment creatively with various genres as the student develops a voice and a style

Requirements 18 s.h.: Choose any six of the following*

To complete the Minor in Creative Writing, students must complete 18 hours of coursework selected from the following list:

WA07.290	Creative Writing I
WA07.291	Creative Writing II
WA07.309	Writing Children's Stories
WA07.391	Writing Fiction
WA07.392	Fundamentals of Playwriting
WA07.395	Writing Poetry
WA07.415	Writing the Young Adult Novel
WA01.201	How Writers Read
WA01.300	The Writer's Mind - WI
WA01.304	Writing Creative Nonfiction - WI
WA01.305	Writing Comedy
WA01.320	Internship in Writing Arts
WA01.350	Rhetorics of Style - WI
WA01.358	Teaching the Writer's Workshop - WI
RTF03.393	Screenwriting 1: Writing the Short
RTF03.493	Screenwriting 2: Writing the Feature
JRN02.312	Magazine Article Writing

Students may also receive credit for selected special topic courses with permission of advisor.

It is also possible for students to take the following graduate classes in creative writing in accordance with the senior privilege policy:

MAWR01.566	Editing the Literary Journal
MAWR01.558	Fiction Workshop
MAWR01.620	Writing Stories for Children and Young Adults
MAWR01.622	Publishing for Creative Writers
MAWR02.505	Poetry Workshop
MAWR02.515	Creative Nonfiction Workshop
MAWR02.520	Writing the Novel
MAWR02.523	Writing the Memoir
MAWR02.524	Writing the Graphic Novel

(Graduate course descriptions can be viewed in the graduate catalog.)

*Students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page.

MINOR IN PUBLISHING AND WRITING FOR THE PUBLIC

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The Publishing and Writing for the Public Minor offers students an opportunity to study and create across publics, genres, and issues, and publish across multiple industries, communities, and media. Students will explore working in the publishing industry to gain a comprehensive understanding of and practice with the author as client, the text as a dynamic document, and the written work as product. Students as writers will explore the complex relationship between writing, rhetoric, and the public sphere, so as to gain agency as entrepreneurial and socially engaged writers who create, reach, and impact audiences meaningfully. The primary bank of courses focuses on publishing practices, and the secondary bank emphasizes rhetorical approaches for engaging and creating audiences. This Minor is unique in that it emphasizes the relationship between writers and publics and helps them to orient themselves toward a profession in publishing. Students will be able to indicate this formal program of study on their resumes and transcripts, thereby indicating to employers that a student has special competencies within this area.

Required Courses 9 s.h.: Choose any three of the following*

WA01.355	Editing for Publication
WA01.356	Self Publishing
JRN02.332	The Publishing Industry
MAWR01.566	Editing the Literary Journal (with Senior Privilege)
MAWR01.567	Professions in Publishing (with Senior Privilege)

Electives 9 s.h.: Choose the remaining three courses from the above list or from following list; courses taken from required list cannot be double-counted*

WA01.312	Research Practicum
WA01.320 *or* 01.321	Internship in Writing Arts I and/or II
WA01.335	Environmental Writing and Rhetoric
WA01.375	Writing about Popular Culture
WA01.370	Professions in Writing Arts
CMS04.313	Environmental Communication
CMS04.290	Rhetorical Theory
CMS04.315	Participatory Media
JRN02.317	Publication Layout and Design
JRN02.321	Digital Journalism I
RTF03.295	Introduction to New Media

*Students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page.

MINOR IN TECHNICAL AND PROFESSIONAL WRITING

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This 18-hour minor allows students to study techniques and strategies used in genres of technical and professional writing, including within technical, medical, scientific, nonprofit, and other professional contexts. Students will learn to write in various professional and technical genres, such as reports, proposals, instructions, and educational materials, and will learn to compose for a variety of audiences. A particular focus of the minor will be in learning to communicate complex information to lay audiences. Towards this end, students will gain skills in audience analysis, document design, style and editing, and research. Students will become more aware of theories and strategies of writing through close rhetorical analysis of professional and technical exemplary texts.

Required Courses 9 s.h.: Choose any three of the following*

WA01.302	Intro to Technical Writing
WA01.325	Scientific Writing and Rhetoric
WA01.326	Writing for Nonprofits
WA01.330	Medical Writing and Rhetoric
WA01.355	Editing for Publication

Electives 9 s.h.: Choose the remaining three courses from the above list or from following list; courses taken from required list cannot be double-counted*

WA01.250	Tutoring Writing

WA01.301	Writing, Research, and Technology
WA01.322	Writing for the Workplace (WI)
WA01.320 *or* WA01.321	Internship in Writing Arts I and/or II
WA01.370	Professions in Writing Arts [1 credit]
WA01.312	Research Practicum
HSC08.200	Developing Scientific and Health Literacies
CMS04.393	Rhetoric of Science, Technology, and Medicine
JRN02.313	Magazine Article Writing
JRN02.317	Publication Layout and Design
JRN02.332	The Publishing Industry
RTF03.295	Introduction to New Media
MAWR01.555	Writing For Electronic Communities
MAWR01.560	Managerial Communication
MAWR01.564	Information Architecture
MAWR01.565	Technical Writing
MAWR01.615	Independent Study (in a Technical or Professional Writing area)
MAWR01.620	Internet and Writing Studies
MAWR01.621	Visual Rhetoric and Multimodal Composition

*Students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page.

MINOR IN WRITING ARTS

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No matter what field one is preparing for, good writing is likely to be integral to success. The minor in Writing Arts provides interested students the opportunity to improve their own writing and to better understand and evaluate the writing of others. Doing so enhances one's ability to communicate in a variety of subjects.

The twenty-two hour minor in Writing Arts provides a streamlined version of the major in Writing Arts. Students complete many of the same required courses and other courses that parallel our related electives offerings.

Required 22 s.h.

All courses are 3 s.h., except for Portfolio Seminar, which is 1 s.h.

Introductory Level Courses 6 s.h.: Must take

WA01.200	Introduction to Writing Arts

And choose one 3 s.h.

WA07.290	Creative Writing I
or WA07.309	Writing Children's Stories

Advanced Level Courses 6 s.h.

WA01.300	The Writer's Mind
WA01.301	Writing, Research, & Technology

Senior Level Capstone Courses 4 s.h

WA01.445	Senior Seminar: Methods of Analysis and Evaluation of Writing
WA01.420	Writing Arts Portfolio Seminar

Electives 6 s.h.: Choose any two

WA01.201	How Writers Read
WA01.250	Tutoring Writing
WA01.302	Intro to Technical Writing
WA01.304	Writing Creative Nonfiction
WA01.305	Writing Comedy
WA01.322	Writing for the Workplace (WI)
WA01.325	Scientific Writing and Rhetoric
WA01.326	Writing for Nonprofits
WA01.330	Medical Writing and Rhetoric
WA01.350	Rhetorics of Style
WA01.358	Teaching the Writer's Workshop
WA07.290	Creative Writing I, if not taken above
WA07.309	Writing Children's Stories, if not taken above

WA07.291	Creative Writing II
WA07.391	Writing Fiction
WA07.395	Writing Poetry
WA07.415	Writing the Young Adult Novel
RTF03.393	Screenwriting 1: Writing the Short
RTF03.493	Screenwriting 2: Writing the Feature
CMS04.325	Linguistics
ENGL02.301	American English Grammar
JRN02.317	Publication Layout and Design
JRN02.313	Magazine Article Writing

CERTIFICATE OF UNDERGRADUATE STUDY IN CREATIVE WRITING

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The 12-hour Certificate of Undergraduate Study in Creative Writing allows students to study writing techniques and strategies used in fiction, creative nonfiction, poetry, drama, children's writing, and other genres. Students will learn about narrative, structure, point of view, characterization, style, figurative language, and other strategies that have broad application not only to creative writing but also academic and professional writing. Students will become more aware of theories and strategies of writing and reception through the close reading of exemplary texts.

Certificate of Undergraduate Study in Creative Writing 12 s.h.

There are no required courses. Students may select 12 hours from the following array of courses to suit their individual creative agendas:

WA07.290	Creative Writing I
WA07.291	Creative Writing II
WA07.309	Writing Children's Stories
WA07.391	Writing Fiction
WA07.392	Fundamentals of Playwriting
WA07.395	Writing Poetry
WA07.415	Writing the Young Adult Novel
WA01.201	How Writers Read
WA01.300	The Writer's Mind (WI)
WA01.304	Writing Creative Nonfiction (WI)
WA01.305	Writing Comedy
WA01.320	Internship in Writing Arts
WA01.350	Rhetorics of Style (WI)
WA01.358	Teaching the Writer's Workshop
RTF03.393	Screenwriting 1: Writing the Short
RTF03.493	Screenwriting 2: Writing the Feature
JRN02.313	Magazine Article Writing

Students may also receive credit for selected special topic courses with permission of advisor. It is also possible for students to take the following graduate classes in creative writing in accordance with the senior privilege policy:

MAWR01.566	Editing the Literary Journal
MAWR01.558	Fiction Workshop
MAWR02.505	Poetry Workshop
MAWR02.515	Creative Non-fiction Workshop
MAWR02.520	Writing the Novel
MAWR02.523	Writing the Memoir
MAWR02.524	Writing the Graphic Novel

CERTIFICATE OF UNDERGRADUATE STUDY IN PROFESSIONAL COMMUNICATION

Clara Popa, Drew Kopp
Advisors
Edelman College of Communication and Creative Arts
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popa@rowan.edu, kopp@rowan.edu

This 12-hour certificate allows students to study theories and techniques of workplace and leadership communication. Using organizational and leadership communication theories, students will critically reflect on practices of workplace and leadership communication, while also learning to communicate complex information to lay audiences within various

professional and technical genres, including reports, proposals, instructions, and educational materials. Towards this end, students will gain skills in audience analysis, business presentation, and interviewing strategies, organizational culture analysis, document design, style and editing, and research. Students will become more aware of theories and strategies of oral and written communication through close analysis of organizations and professional and technical exemplary texts.

Certificate of Undergraduate Study in Professional Communication 12 s.h.

Students must take the two courses in the Writing Bank and their choice of two courses from the Communication Bank to fulfill the 12 credit requirement for the CUGS.

Writing Bank (6 credits)

All courses are 3 credit hours. Prerequisites are in parentheses.

WA01.322	Writing for the Workplace (WI) (COMP01.112 and 45 credits)
WA01.302	Intro to Technical Writing (COMP01.112 and 45 credits)
WA01.408	Writing as Managers (Restricted to management majors; COMP01.112 and 45 credits)
WA01.326	Writing for Nonprofits (COMP01.112 and 60 credits)

Communication Bank (6 credits)

All courses are 3 credit hours. Prerequisites are in parentheses.

CMS04.220	Interpersonal Communication
CMS04.208	Business and Professional Communication (CMS04.205)
CMS04.318	Leadership Communication
CMS04.260	Organizational Communication Theory and Research (COMP01.112 or ENGR01.201)

To be awarded the CUGS in Professional Communication, students must complete all courses required for the CUGS in Professional Communication with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN PUBLISHING AND WRITING FOR THE PUBLIC

Amy Woodworth
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The Certificate of Undergraduate Study (CUGS) in Publishing and Writing for the Public offers students an opportunity to study and create across publics, genres, and issues, and publish across multiple industries, communities, and media. Students will explore working in the publishing industry to gain a comprehensive understanding of and practice with the author as client, the text as a dynamic document, and the written work as product. Students as writers will explore the complex relationship between writing, rhetoric, and the public sphere, so as to gain agency as entrepreneurial and socially engaged writers who create, reach, and impact audiences meaningfully. The primary bank of courses focuses on publishing practices, and the secondary bank emphasizes rhetorical approaches for engaging and creating audiences. This CUGS is unique in that it emphasizes the relationship between writers and publics and helps them to orient themselves toward a profession in publishing. Students will be able to indicate this formal program of study on their resumes and transcripts, thereby indicating to employers that a student has special competencies within this area.

Certificate of Undergraduate Study in Publishing and Writing for the Public 12 s.h.

The requirements include the following four courses from two course banks:

Required Courses 6 s.h.: Choose any two of the following

WA01.355	Editing for Publication
WA01.356	Self Publishing
JRN02.332	The Publishing Industry
MAWR01.566	Editing the Literary Journal (with Senior Privilege)
MAWR01.567	Professions in Publishing (with Senior Privilege)

*Electives 6 s.h.: Choose the remaining two courses from the above list or from following list; courses taken from required list cannot be double-counted**

WA01.312	Research Practicum
WA01.320 *or* 01.321	Internship in Writing Arts I and/or II
WA01.335	Environmental Writing and Rhetoric
WA01.370	Professions in Writing Arts
WA01.375	Writing about Popular Culture
CMS04.313	Environmental Communication
CMS04.290	Rhetorical Theory
CMS04.215	Fiction to Film
CMS04.315	Participatory Media

JRN02.314	Photojournalism
JRN02.317	Publication Layout and Design
JRN02.321	Digital Journalism I
JRN02.332	The Publishing Industry
JRN02.335	Media Law
RTF03.275	Applied Media Aesthetics: Sight, Sound and Story
RTF03.295	Introduction to New Media

To be awarded the CUGS in Publishing and Writing for the Public, students must complete all courses required for the CUGS in Publishing and Writing for the Public with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN TECHNICAL AND PROFESSIONAL WRITING

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The Certificate of Undergraduate Study (CUGS) in Technical and Professional Writing allows students to study techniques and strategies used in genres of technical and professional writing, including within technical, medical, scientific, nonprofit, and other professional contexts. Students will learn to write in various professional and technical genres, such as reports, proposals, instructions, and educational materials, and will learn to compose for a variety of audiences. A particular focus of the certificate will be in learning to communicate complex information to lay audiences. Towards this end, students will gain skills in audience analysis, document design, style and editing, and research. Students will become more aware of theories and strategies of writing through close rhetorical analysis of professional and technical exemplary texts.

Certificate of Undergraduate Study in Technical and Professional Writing 12 s.h.

The requirements include the following four courses from two course banks:

Required Courses 6 s.h.: Choose any two of the following

WA01.302	Intro to Technical Writing
WA01.325	Scientific Writing and Rhetoric
WA01.326	Writing for Nonprofits
WA01.330	Medical Writing and Rhetoric
WA01.355	Editing for Publication

*Electives 6 s.h.: Choose the remaining two courses from the above list or from following list; courses taken from required list cannot be double-counted**

WA01.250	Tutoring Writing
WA01.301	Writing, Research, and Technology
WA01.322	Writing for the Workplace (WI)
WA01.312	Research Practicum
WA01.320 *or* WA01.321	Internship in Writing Arts I and/or II
WA01.370	Professions in Writing Arts [1 credit]
JRN02.313	Magazine Article Writing
JRN02.317	Publication Layout and Design
RTF03.295	Intro to New Media
MAWR01.555	Writing For Electronic Communities
MAWR01.560	Managerial Communication
MAWR01.564	Information Architecture
MAWR01.565	Technical Writing
MAWR01.615	Independent Study (in a Technical or Professional Writing area)
MAWR01.620	Internet and Writing Studies
MAWR01.621	Visual Rhetoric and Multimodal Composition

To be awarded the CUGS in Technical and Professional Writing, students must complete all courses required for the CUGS in Technical and Professional Writing with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN WRITING FOR THE ENVIRONMENT

Ted Howell
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The Certificate of Undergraduate Study (CUGS) offers the opportunity to combine knowledge about and advocacy for environmental issues with the reading, writing, and communication skills necessary for success in a variety of academic fields and professional careers. It will enable students to forge connections between the sciences, social sciences, humanities, and creative arts and nurture the skills they need to advocate for environmental issues that are important to them and their

communities.

The Certificate of Undergraduate Study (CUGS) in Global Health Studies is an interdisciplinary program designed to provide students with the opportunity to study the global and local forces (sociocultural, political-economic, biological, and environmental) that affect patterns of health and disease throughout the world. Knowledge gained in completing this CUGS will help prepare students to work in fields related to international health, including the government sector, international development, the non-profit/humanitarian sector, and international healthcare. The CUGS will also offer a new course of study and credential for students who wish to pursue graduate education.

Certificate of Undergraduate Study in Writing for the Environment 12 s.h.

Writing Arts Bank (6 credits)

Students must take 2 of the following three-credit courses:

WA01.302	Introduction to Technical Writing
WA01.325	Scientific Writing and Rhetoric
WA01.326	Writing for Nonprofits

Environmental Studies Bank (6 credits)

Students must take 2 of the following three-credit courses:

WA01.335	Environmental Writing and Rhetoric
ENST94.102	Human Nature: Introduction to Environmental & Sustainability Studies
ENST94.303	Environmental Advocacy
SOC08.400	Environment, Policy and Society

While Environmental Advocacy (ENST94.303) has ENST94.102 as a prerequisite, for students enrolled in this CUGS, the Department of Geography, Planning, & Sustainability will waive major restrictions and prerequisite restrictions to ensure students are able to enroll in the course. Students should contact the Department of Geography, Planning, & Sustainability to ensure this requirement will be waive, enabling them to enroll in ENST94.303.

CERTIFICATE OF UNDERGRADUATE STUDY IN WRITING STUDIES FOR EDUCATORS

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The Certificate of Undergraduate Study (CUGS) in Writing Studies for Educators provides broad-based study and practice in a variety of writing forms, creative and expository, personal and public, that complement courses in Education. Students learn how writers compose in print and new media forms and how audiences react to their writing. In classroom workshops and peer response groups, through lecture and discussion, and by creating and composing multiple drafts and revisions, students develop sensitivity to rhetorical considerations of audience, purpose, and genre. This CUGS allows students who are interested in credentialing themselves within the field of Writing Studies without majoring or minoring in Writing Arts.

Certificate of Undergraduate Study in Writing Studies for Educators **15 s.h.**

The requirements include the following five courses:

Introductory electives: (prerequisites are in parentheses)

WA01.300	The Writer's Mind—WI (COMP01.112 and 45 credits)
*or*WA07.290	Creative Writing I (COMP01.111)
or WA07.309	Writing Children's Stories (30 credits)

Choose one Elective:

WA01.250	Tutoring Writing (COMP01.112)
or WA01.201	How Writers Read (COMP01.112)
or WA01.350	Rhetorics of Style—WI (COMP01.112)

Writing Pedagogy course:

WA01.358	Teaching the Writer's Workshop - WI (CWI or WCS or WM)

Technology course:

WA01.315	Writing with Technologies (COMP01.112, and 60 credits)

Capstone course:

WA01.415	Situating Writing (COMP01.112, and 75 credits)

To be awarded the CUGS in Writing Studies for Educators, students must complete all courses required for the CUGS with at least a 2.0 average.

College of Education

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Mission

To positively impact and develop local, regional, national and global educational communities by:

- collaborating with partners in the field to promote learning and the mental and physical health of diverse learners in all settings
- integrating teaching, research, and service to advance knowledge in the field
- preparing and supporting professionals through the development of knowledge, skills and dispositions with the ultimate goal of ensuring equitable educational opportunities for all learners.

Vision

The College of Education will be a leading force in preparing and supporting reflective practitioners who use education to transform our global society.

College of Education Conceptual Framework Pillars

The four pillars of the College of Education Conceptual Framework are an important foundation that informs who we are and what we truly value. Those pillars are:

1. content and pedagogical knowledge,
2. technology to facilitate teaching and learning,
3. diversity with a commitment to social justice, and
4. impact on student learning.

By building a foundation of content and pedagogical knowledge, using technology to facilitate teaching and learning, valuing diversity with a commitment to social justice, and impacting P-12 student or client learning, we inform our practices and provide a foundation upon which learning evolves.

Programs Offered

The College of Education offers the Bachelor of Arts in Education (Early Childhood, Elementary, Subject Matter, and Health and Physical Education concentrations), the Bachelor of Arts in Inclusive Education, the Bachelor of Arts in Leadership and Social Innovation, and the Bachelor of Arts in Literacy Studies. The College of Education also offers non-degree instructional certificate and endorsement programs in Bilingual/Bicultural Education, English as a Second Language, Middle School, Teacher of Reading, and Teacher of Students with Disabilities, as well as numerous graduate programs.

In addition, the College of Education offers two Minors: The Minor in Education and the Minor in Leadership Studies. For those seeking an alternate route program, the College offers ASPIRE to Teach at Rowan University.

Undergraduate Degree Programs Offered

Educational Services and Leadership
B.A. in Leadership and Social Innovation
Minors and Certificates
CUGS in Access, Success, and Equity in Social Innovation
Minor in Leadership Studies

Department of Interdisciplinary and Inclusive Education
Early Childhood Education (P-3) (B.A. in Education)
Elementary Education (K-6) (B.A. in Education)
B.A. in Inclusive Education
Minors, Certificates, and Endorsements
Minor in Education
CUGS in Teaching in Urban and Diverse Settings
Post Baccalaureate: Teacher of Students with Disabilities
Teacher of Students with Disabilities

Department of Language, Literacy, and Sociocultural Education
B.A. in Literacy Studies
B.A. in Education (Subject-Matter Education English)
B.A. in Education (Subject-Matter Education Spanish)
B.A. in Education (Subject-Matter Education Social Studies)
Certificates and Endorsements
CUGS in Bilingual/Bicultural Education
CUGS in Teaching English as a Second Language (ESL)
Teacher of Reading Endorsement
Post-Baccalaureate: Teacher of Reading

Department of Science, Technology, Engineering, the Arts, and Mathematics (STEAM)
Health and Physical Education (P-12) (B.A. in Education)
Subject-Matter Education (P-12) (B.A. in Education)
Subject-Matter Education Art (B.A. in Education)
Subject-Matter Education Music (B.A. in Education)

Combined Advanced Degree Programs
CADP (BA/BS + MA STEM)
Biological Sciences
Chemistry
Mathematics
Physical Sciences
Physics

Certificates and Endorsements
Middle School

Accreditation

Rowan University's teacher education program, one of the largest and most comprehensive in New Jersey and in the nation, has been accredited by the National Council for Accreditation of Teacher Education (NCATE) now known as the Council for the Accreditation of Educator Preparation (CAEP) since 1956. In addition, College of Education programs have received National Recognition from the following professional organizations:

- CEC Council for Exceptional Children
- ELCC Educational Leadership Constituent Council
- ILA International Literacy Association
- NASP National Association of School Psychologists
- CACREP Council for Accreditation of Counseling and Related Educational Programs

In addition, the Master of Arts in Counseling in Educational Settings program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

The New Jersey State Department of Education also approves all initial licensure preparation and advanced preparation programs within the College of Education.

Admission, Retention and Eligibility for Teacher Certification

Admission to Rowan University does not guarantee admission as a teacher certification candidate. Students desiring admission as a teacher certification candidate must file an application. Admission to teaching certification has specific program requirements as outlined on Program Guides. Students are notified of their acceptance at the beginning of their junior year. The same process applies to two-year transfer students, but is generally compressed to take place in the fall semester of the junior year. This outline describes the minimum college requirements. Students should check with their advisors and certifying department for specific expectations, program requirements and standards.

Departments

Center for Access, Success, and Equity (CASE)

The Center for Access, Success, and Equity was created to address three overarching topics in education today: access, success, and equity for students in P-20 institutions. The overall goal is to "turn research into practice" and have a direct impact on the educational outcomes of students by completing extensive research, offering professional services, and engaging in policy creation and reform. We view all three of these actions as overlapping and intertwined with one another, with one component complementing, or leading into, the next.

College of Education Advising Center (CEAC)

The College of Education Advising Center provides students with the necessary support and guidance as they pursue their educational goals and courses through the College of Education. It is a resource that offers program advisement for current and prospective students. The center is focused on providing accurate and timely information to assist students who are working toward a degree and/or licensure in a number of professional education careers.

Learning Resource Center-South (LRC-South)

The Learning Resource Center-South is open at Rowan University. Housed on the ground floor of James Hall in the College of Education, the LRC-South offers materials and resources that support the education of students with disabilities, helping them to succeed and to achieve the least restrictive environment.

The LRC-South at Rowan University is a partnership with the New Jersey Department of Education Office of Special Education and 100% funded by federal Individuals with Disabilities Education Act (IDEA) Part B funds (CFDA #84.027A).

*Membership to the LRC-South is available to the Rowan community and the general public for just $2.00 per year cash only.

The LRC-South offers a variety of services including the following:

- Training & Consultations: In-service workshops, webinars, and technical assistance to educators and parents of students with disabilities.
- Production Area: An open workroom with laminators, Ellison machines, poster printers, button makers, and much more.
- Resource Lending Library: An extensive collection of current resources.
- Monthly Events: A variety of activities, including Make It & Take It!, Family/Community Events, Educator Workshops, and Webinar.
- Mobile Outreach: Free delivery of classroom materials and resources to your school's office.

Office of Clinical Experiences (OCE)

The Office of Clinical Experiences coordinates all field-based placements, including school or clinical settings required for graduation and state certification applications. The mission of the College of Education to collaborate with partners in the field to promote learning and the mental and physical health of diverse learners in all settings. Office of Clinical Experiences is located in the College of Education Advising Center in Herman D. James Hall, 2nd floor. Hours are 8:30am to 4:30pm, Monday through Friday.

Office of Educator Support and Partnerships (OESP)

The mission of the Office of Educator Support and Partnerships is to provide support to programs and initiatives related to educator preparation. This office supports both initial and advanced programs as well as P-12 partnerships. The Office of Educator Support and Partnerships will provide leadership in the following areas:

- Office of Clinical Experiences
- Professional Development School network
- edTPA
- Praxis Lab
- Teacher pipeline programs

Rowan University Early Childhood Demonstration Center

A high-quality early childhood program that focuses on developmentally appropriate practices and project approaches. The program accepts children aged 2.5-6 from faculty, student, and staff families within Rowan as well as from families in communities external to Rowan University.

MINOR IN EDUCATION

Alexandria Daniels Funkhouser
Program Advisor
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The major goals of the Minor in Education are three-fold:

1. Create an avenue for students at Rowan who have an interest in Education but do not want to complete a full BA in Education. This work will be noted on their transcripts as a Minor.
2. Create an avenue for Internal/External Transfer Candidates (for P-3, K-6, and P-12 Subject-Matter) to complete a Minor rather than spending a minimum of 4 additional semesters to complete the Major in Education. Candidates who are not currently Education majors but who are interested in becoming Early Childhood (P-3), Elementary (K-6) or Subject-Matter (P-12) Education majors via the internal transfer process;
3. Create an avenue for students who leave the program having completed most, if not all, of the courses in the proposed major including all required courses for the minor, to have an official designation for their work in Education.

Required courses for Minor in Education

SPED08.130	Human Exceptionality (Gen Ed)	3 s.h.
INCL02.210	Principles and Pedagogies in the Inclusive Classroom (or equivalent)	2 s.h.
READ30.280	Literacy Pedagogy I (Elementary Education)	3 s.h.
READ30.319	Teaching Reading and Writing in the Content Area (Subject Matter Education)	3 s.h.
SMED33.220	Educational Technology	1 s.h.
FNDS21.230	Characteristics of Knowledge Acquisition	3 s.h.
FNDS21.150	History of American Education	3 s.h.
PSY09.209	Child and Adolescent Development	3 s.h.
Total Semester Hours		18 s.h.

Department of Educational Services and Leadership

Monica Kerrigan, Ph.D.
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The Department of Educational Services and Leadership offers one undergraduate program and multiple post-baccalaureate and graduate programs that provide students with the knowledge, skills, and dispositions to bring about transformative leadership and change that promote highly effective educational institutions. The department is organized around what educational leaders and practitioners need to know and be able to do in order to foster learning organizations that are responsive to societal needs and demands regarding P-16 education. To this end students can enroll in programs that lead to a doctorate in educational leadership and master's degree and/or certificate programs in school counseling, school psychology, school nursing, school administration, school supervision, higher education administration, academic advising, and instruction. We offer a variety of modalities in our course offerings including accelerated programs, online and hybrid programs, as well as traditional on-campus classes. All of our programs are approved by the New Jersey Department of Education and the Council for the Accreditation for Educator Preparation (CAEP). In addition, the school psychology program is approved by the National Association of School Psychologists (NASP), and the school counseling program is approved by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The Department is housed in the College of Education and is located in James Hall. The Department's faculty is mindful of adult learning

needs and seeks to engage students academically, professionally and personally. We look forward to reviewing your application and providing you with the necessary information that will assist you in making an informed decision regarding your professional plans.

BACHELOR OF ARTS IN LEADERSHIP & SOCIAL INNOVATION

The Bachelor of Arts in Leadership & Social Innovation prepares students to work in newer industries by providing services for specific groups such as start-ups, foundations, not-for-profits, grass-roots organizations, community organizations and small technology firms as well as work with newer technologies in established markets such as business, government, and policy organizations. All students will be prepared to understand leadership and organizations, diversity, the design and evaluation of organizational initiatives, and grant acquisition and management. Students will also acquire the skills to lead within organizations, to work with diverse groups, to plan and evaluate organizational initiatives and to find, evaluate, secure and manage grants. The BA includes a year-long internship in which students gain skills and experience in organizations that align with their specialization area.

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Major Courses Required		18 s.h.
EDSU28.100	Leadership Theory	3.s.h.
EDSU28.205	Leadership Seminar I	3.s.h.
EDSU28.305	Leadership Seminar II	3.s.h.
EDSU28.110	Leading Among Diverse Perspectives	3.s.h.
EDSU28.120	Grant Acquisition and Management	3.s.h.
EDSU28.130	Designing and Evaluating Organization Initiatives	3.s.h.
Specialization Requirements		18 s.h.
(Each student must choose at least one sequence.)		
Access, Success, and Equity for Education Innovation (COE)		18 s.h.
FNDS21.150	History of American Education	3.s.h.
FNDS21.230	Characters of Knowledge Acquisition	3.s.h.
EDSU28.210	Educational Organizations	3.s.h.
EDSU28.211	Access, Success, and Equity in Education	3.s.h.
EDSU28.212	Education and Empowerment for Social Change	3.s.h.
	Free Elective	3.s.h.
African American Studies (CHSS)		18 s.h.
ECON04.225	Women in the Economy	3.s.h.
ECON04.360	Urban Economics	3.s.h.
ENGL02.354	African American Literature I	3.s.h.
ENGL02.355	African American Literature II	3.s.h.
HIST05.322	Civil War & Reconstruction	3.s.h.
HIST05.376	African American History to 1865	3.s.h.
HIST05.377	African American History since 1865	3.s.h.
HIST05.422	Women in American History	3.s.h.
LAWJ05.205	Minorities, Crime, & Justice	3.s.h.
MUSG06.220	The Music of African Americans	3.s.h.
MUSG06.115	Growth & Development of Jazz	3.s.h.
POSC07.324	Black Americans & American Politics	3.s.h.
POSC07.311	Women in American Politics	3.s.h.
POSC07.340	Civil Rights and Civil Liberties	3.s.h.
POSC07.323	Politics of Race, Poverty & Welfare	3.s.h.
PSY01.235	African American Psychology	3.s.h.
RTF03.280	African American Film History	3.s.h.
RTF03.272	Images/Women in Film	3.s.h.
THD08.311	African Influences in American Dance	3.s.h.
	Varies-Special Topics in African American Studies	3.s.h.
Asian Studies (CHSS)		18 s.h.
Choose one or two courses:		
CHIN07.101	Elementary Chinese I	3.s.h.
CHIN07.102	Elementary Chinese II	3.s.h.
CHIN07.201	Intermediate Chinese I	3.s.h.

CHIN07.211	Intermediate Chinese II	3.s.h.
ENGL02.112	Readings in Asian Literature	3.s.h.
INTR01.136	Gateway to Asia	3.s.h.
JAPA08.101	Elementary Japanese I	3.s.h.
JAPA08.102	Elementary Japanese II	3.s.h.
PHRE11.310	Introduction to Buddhism	3.s.h.
POSC07.350	Introduction to Asian Political Systems	3.s.h.
REL10.230	Religions of Asia	3.s.h.

Choose three or four courses:

ARHS03.231	Surveying Asian Art	3.s.h.
GEOG16.343	Geography of Asia	3.s.h.
HIST05.355	Modern China	3.s.h.
HIST05.351	Modern Japan	3.s.h.
HIST05.408	Chinese Cultural History	3.s.h.
PHIL09.231	Asian Thought	3.s.h.
PHRE11.330	Introduction to Daoism	3.s.h.

Choose one course: (must be an Asia-related topic and requires the writing of a research paper)

HIST05.429	Topics in History	3.s.h.
HIST05.492	Senior Seminar in History	3.s.h.
PHRE11.440	Selected Topics in Philosophy and Religion Studies	3.s.h.
PHRE11.490	Senior Seminar in Philosophy and Religion Studies	3.s.h.

Entrepreneurship Minor (RCOB) 18 s.h.

MKT09.200	Principles of Marketing	3.s.h.
ENT06.240	Entrepreneurship and Innovation	3.s.h.
ENT06.426	New Venture Development	3.s.h.
ENT06.342	Financing and Legal Aspects of Entrepreneurship	3.s.h.

Choose two courses:

ENT06.450	Technology Entrepreneurship	3.s.h.
ENT06.327	Strategic Issues in Family Business	3.s.h.
ENT06.328	Evaluating Franchising Opportunities	3.s.h.
ENT06.346	Social Entrepreneurship	3.s.h.
ENT06.344	Entrepreneurial Growth Strategies	3.s.h.

Jewish Studies (CHSS) 18 s.h.

Choose three courses:

HIST05.404	Arab-Israeli Conflict	3.s.h.
HIST05.406	Jewish Holocaust 1933-1945	3.s.h.
REL10.301	Introduction to Judaism	3.s.h.
REL10.214	Religions of the Western World	3.s.h.
SOC08.365	Contemporary Jewish Life	3.s.h.
SOC08.399	Sociology of the Holocaust	3.s.h.
SPAN05.440/HONR05.390	Christians, Jews, and Muslims in Medieval Spain	3.s.h.

Choose three courses:

HIST05.308	Modern Middle East	3.s.h.
or GEOG16.347	Geography of the Middle East	3.s.h.
or POSC07.345	Government and Politics of the Middle East	3.s.h.
REL10.100	Religions of the World	3.s.h.
REL10.240	Introduction to Bible	3.s.h.
SOC08.230	Minority Groups	3.s.h.
SOC08.322	Sociology of Religion	3.s.h.

Management and Leadership (RCOB) 18 s.h.

WA01.408	Writing as Managers	3.s.h.
MGT06.300	Organizational Behavior	3.s.h.
MGT06.310	Leadership and Supervision for Managers	3.s.h.
MGT06.304	Organizational Change and Development	3.s.h.
	Free Elective	3.s.h.
	Free Elective	3.s.h.

Mobile Application Development (CSM) 18 s.h.

Choose 4 courses in 1 of the 3 mobile technologies: (plus 2 electives)

Domain #1: **Android**

CS04.113	Introduction to Object Oriented Programming	3.s.h.
or CS04.171	Creating Android Applications	3.s.h.

CS04.371	Introduction to Android Programming	3.s.h.
CS04.372	Advanced Android Programming	3.s.h.
CS04.471	Topics in Mobile Programming	3.s.h.
	Free Elective	3.s.h.
	Free Elective	3.s.h.

Domain #2: **Windows**

CS04.103	Computer Science and Programming	3.s.h.
or CS01.104	Introduction to Scientific Programming	3.s.h.
or CS04.113	Introduction to Object Oriented Programming	3.s.h.
CS10.273	Intro to Windows Mobile Application Programming	3.s.h.
CS04.374	Advanced Windows Mobile Application Programming	3.s.h.
CS04.471	Topics in Mobile Programming	3.s.h.
	Free Elective	3.s.h.
	Free Elective	3.s.h.

Domain #3: **iOS**

CS04.103	Computer Science and Programming	3.s.h.
CS01.104	Introduction to Scientific Programming	3.s.h.
CS04.113	Introduction to Object Oriented Programming	3.s.h.
CS04.375	Introduction to iOS Application Programming	3.s.h.
CS04.376	Advanced iOS Application Programming	3.s.h.
CS04.471	Topics in Mobile Programming	3.s.h.
	Free Elective	3.s.h.
	Free Elective	3.s.h.

New Media (CCCA) 18 s.h.

RTF03.295	Introduction to New Media	3.s.h.
RTF03.394	New Medial Production	3.s.h.
INTR01.490	New Media Practicum	3.s.h.

Choose three courses:

CMS04.315	Participatory Media	3.s.h.
CMS04.316	Mediated Interpersonal Communication	3.s.h.
CMS04.317	Digital Communities	3.s.h.
JRN02.205	Journalism Principles & Practices	3.s.h.
JRN02.314	Photojournalism	3.s.h.
JRN02.319	Media Ethics	3.s.h.
JRN02.321	Online Journalism I	3.s.h.
JRN02.325	Online Journalism II	3.s.h.
JRN02.335	Media Law	3.s.h.
JRN02.411	Copyediting	3.s.h.
MAPR06.515	Online Public Relations	3.s.h.
RTF03.224	Sound Communication	3.s.h.
RTF03.275	Applied Media Aesthetics: Sight, Sound and Story	3.s.h.
RTF03.472	New Media Production 2	3.s.h.
WA01.301	Writing, Research, and Technology	3.s.h.
MAWR01.555	Writing Electronic Communities	3.s.h.
MAWR01.559	Visual Rhetoric and Multimodal Composition	3.s.h.
MAWR01.564	Information Architecture	3.s.h.
MAWR01.620	Internet and Writing Studies	3.s.h.

Social Justice and Social Change (CHSS) 18 s.h.

SOC08.221	Social Problems	3.s.h.
SOC08.330	Social Stratification (Prerequisite: SOC08.120)	3.s.h.
SOC08.230	Sociology of Minority Groups (Prerequisite: SOC08.120)	3.s.h.
SOC08.493	Gender Roles Seminar (Prerequisite: SOC08.220 and 6 hrs. in Soc/instructor permission)	3.s.h.
or SOC08.281	Sexuality and Society	
or SOC08.370	Sociology of Women in Society (Prerequisite: SOC08.120 or SOC08.220)	
SOC08.488	Critical Race Theory: Social Justice, Advocacy and Intervention (Prerequisite: SOC08.221/08230)	3.s.h.
	Free Elective	3.s.h.

Sustainable Urbanism (SEE)		18 s.h.
PLAN31.280	Intro to Planning and Environmental Design	3.s.h.
Choose any three courses:		
ENST94.102	Environmental Studies Social Perspectives	3.s.h.
ENST94.302	Technology and the Environment	3.s.h.
GEOG16.301	Economic Geography	3.s.h.
GEOG16.302	Urban Geography	3.s.h.
GEOG16.304	Population Geography	3.s.h.
GEOG16.312	Cultural Landscapes	3.s.h.
PLAN31.389	Environmental/Sustainable Planning	3.s.h.
PLAN31.486	Community Planning & Design	3.s.h.
	Free Elective	3.s.h.
	Free Elective	3.s.h.
Women and Gender Studies (CHSS)		18 s.h.
INTR01.130	Women and Gender in Perspective	3.s.h.
Choose any four courses:		
ANTH02.322	Sex and Sex Roles in Cross Cultural Perspective	3.s.h.
ARHS03.340	Survey of Women Artists	3.s.h.
CMS04.320	Communicating Gender	3.s.h.
CMS04.310	Images of Gender in Popular Culture	3.s.h.
ECON04.225	Women in Economy	3.s.h.
ENGL02.200	Women in Literature	3.s.h.
HIST05.417	Women in Islam	3.s.h.
HIST05.418	Women in Europe to 1700	3.s.h.
HIST05.419	Women in Modern Europe	3.s.h.
HIST05.422	Women in American History	3.s.h.
HIST05.425	History of Feminism	3.s.h.
HIST05.429	Pro-Seminar in History: Women in African History	3.s.h.
HIST05.455	Gender, Sexuality, and History	3.s.h.
INTR01.200	Issues in Women's Health	3.s.h.
LAWJ05.346	Women, Crime and Criminal Justice	3.s.h.
PHIL09.328	Philosophy and Gender	3.s.h.
PHIL09.346	Feminist Ethics (WI)	3.s.h.
POSC07.311	Women in American Politics	3.s.h.
PSY01.200	Psychology of Women and Cultural Experience	3.s.h.
RTF03.272	Images of Women in Film	
SOC08.370	Sociology of Women	
SOC08.493	Seminar on Gender Roles	
Choose one course:		
ANTH02.322	Sex and Sex Roles in Cross Cultural Perspective	
CMS04.320	Communicating Gender	
HIST05.425	History of Feminism	
HIST05.455	Gender, Sexuality, and History	
LAWJ05.346	Women, Crime and Criminal Justice	
PHIL09.328	Philosophy and Gender	
SOC08.370	Sociology of Women	
Free Electives		42 s.h.

Try to use at least 12 s.h. to build an area of expertise relevant to your program.

Total Hours Required for Graduation (with Gen Ed Courses) 120 s.h.

Students must earn a grade of at least a C- in each course under Core Requirements and Sequences. C- or above is required in all prerequisites to other courses.

Students must maintain a 2.5 GPA in their 39 credits of the major, and a 2.0 overall GPA to graduate with a B.A. in Leadership & Social Innovation. Transfer courses of 300 level or above that correlate with Rowan's courses will be accepted in the major.

Certificate of Undergraduate Study In Access, Success & Equity for Educational Innovation

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The Certificate of Undergraduate Study in Access, Success, & Equity for Educational Innovation develops graduates who can work in a variety of organizations and agencies related broadly to the educational purpose, including foundations, governmental and community agencies, charter and private schools, and non-profit as well as for profit organizations, among others. The curriculum includes the history of education, the teaching and learning process as well as the structure and function of organizations and their administration. Additionally, courses include a specific focus on the issues of access, success, and equity in education that remain stubbornly unimproved and the ways in which education and the educational process can be harnessed for social change and improvement. These courses will help participants develop their effectiveness in educational organizations and agencies, which ultimately is intended to improve the educational outcomes of learners.

Certificate of Undergraduate Study in Access, Success & Equity for Educational Innovation 15 s.h.

The requirements include the following five courses:

FNDS21.150	History of American Education
FNDS21.230	Characteristics of Knowledge Acquisition
EDSU28.210	Educational Organizations
EDSU28.211	Access, Success, and Equity in Education
EDSU28.212	Education and Empowerment for Social Change

To be awarded the CUGS in Access, Success, & Equity for Educational Innovation, students must complete all courses required for the CUGS in Access, Success, & Equity for Educational Innovation with at least a 1.70 (C-) average.

Department of Interdisciplinary and Inclusive Education

Herman D. James Hall
856.256.44500 x 53880

The Department of Interdisciplinary and Inclusive Education offers a variety of opportunities for caring and dedicated undergraduate, post-baccalaureate and graduate students to pursue initial certification as early childhood (P-3) or elementary (K-6) teachers, or add an endorsement as a Teacher of Students with Disabilities (P-12). In addition, the department offers graduate programs that provide advanced study in curriculum and teaching, including the M.Ed. in Teacher Leadership, the M.S.T. in Elementary Education and the Master of Arts in Special Education program. The Master of Arts in Learning Disabilities program is also offered for students interested in pursuing certification as a Learning Disabilities Specialist. The department is committed to fostering student growth as instructional leaders who have a developmental perspective, cooperative disposition, and reflective orientation and are committed to the principles of access, success, and equity for all students. All programs in the department are nationally accredited and have been approved by the New Jersey Department of Education.

BACHELOR OF ARTS IN EDUCATION, CONCENTRATION IN EARLY CHILDHOOD EDUCATION (P-3)

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The Bachelor of Arts in Education, with Concentration in Early Childhood Education (P-3) has four required strands of study: 1) General Education courses, 2) Rowan Experience courses, 3) the Professional Concentration Sequence, and 4) the dual major or free elective requirements, where Early Childhood Education Concentration candidates are required to complete major requirements in one of the following five areas: American Studies, Liberal Studies: Humanities/Social Sciences [with restriction], Liberal Studies: Literacy Studies, Writing Arts, or select the option for no dual major and complete the program with free electives.

Students accepted into the Concentration are expected to adhere to the prescribed sequence of courses and to consult with their advisors in Education at least once a semester. Early Childhood courses may not be offered every semester.

General Education

All students starting *before* Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Required Courses

SPED08.130	Human Exceptionality	3 s.h.
PSY09.209	Child Development	3 s.h.
ART09.110	Experiencing Art	3 s.h.
or MUSG06.218	Music and the Child	3 s.h.
MATH01.201	Structures of Mathematics I	3 s.h.
MATH01.204	Structures of Mathematics II	3 s.h.
FNDS21.150	History of American Education	3 s.h.
FNDS21.230	Characteristics of Knowledge Acquisition	3 s.h.
or PSY22.215	Educational Psychology	3 s.h
HLT00.103	Health and Wellness	3 s.h.
ECED23.220	Contemporary Child in the Family and Community	3 s.h.
INCL02.210	Principles and Pedagogies in the Inclusive Classroom	2 s.h.
ELEM02.210	Seminar: Principles and Pedagogies in the Inclusive Classroom	1 s.h.
SMED33.220	Educational Technology	1 s.h.
READ30.320	Language Development: Emergent Literacy	4 s.h.
ECED23.320	Building Brains: Competency and Resiliency	3 s.h.
ECED23.321	Effective learning environments for diverse children	3 s.h.
ECED23.322	Planning, Integrating and Adapting Curriculum: Math and Science	3 s.h.
ECED23.430	Observation, Assessment, and Evaluation of Diverse Learners	3 s.h.
ECED23.431	Planning, Integrating, and Adapting Curriculum: Across the Content	3 s.h.
ECED23.446	Clinical Practice in Early Childhood Education	10 s.h.
ECED23.447	Early Childhood Education Clinical Seminar	1 s.h.
SECD03.350	Teaching Students of Linguistic and Cultural Diversity	1 s.h.
	*Lab Science (Bio or Physical)	4 s.h.
	*Non-Lab Science (Bio or Physical)	3 s.h.
	Geography (any)	3 s.h.
	History (any)	3 s.h.
	Sociology (any) (Sociology of the Family Strongly Recommended)	3 s.h.
COMP01.111	College Composition I	3 s.h.
COMP01.112	College Composition II	3 s.h.
CMS04.205	Public Speaking	3 s.h.
	General Education Literature	3 s.h.
Total Semester Hours		120 s.h.

*Early Childhood Education students must have a physical science and a biological science; 1 lab and 1 non-lab science.

BACHELOR OF ARTS IN EDUCATION, CONCENTRATION IN ELEMENTARY EDUCATION (K-6)

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The Bachelor of Arts in Education, with Concentration in Elementary Education (K-6) has four required strands of study: 1) General Education courses, 2) Core Education courses, 3) the Professional Concentration sequence, and 4) the Dual Major requirements, where Elementary Education Concentration candidates are required to complete major requirements in one of ten certification-eligible dual majors, or select the option for no dual major and complete the program with electives required for a Certificate of Undergraduate Study. Students accepted into the Concentration are expected to adhere to the prescribed sequence of courses and to consult with their advisors in Education at least once a semester.

General Education

All students starting ***before*** Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Required Courses

COMP01.111	College Composition I	3 s.h.
COMP01.112	College Composition II	3 s.h.
CMS04.205	Public Speaking	3 s.h.
MATH01.201	Structures of Mathematics I	3 s.h.
SPED08.130	Human Exceptionality	3 s.h.
PSY09.209	Child and Adolescent Development	3 s.h.
MATH01.204	Structures of Mathematics II	3 s.h.
FNDS21.230	Characteristics of Knowledge Acquisition	3 s.h.
HIST05.150	History of American Education	3 s.h.
HLT00.103	Health and Wellness	3 s.h.
INCL02.210	Principles and Pedagogies in the Inclusive Classroom	2 s.h.
ELEM02.210	Seminar: Principles and Pedagogies in the Inclusive Classroom	1 s.h.
SMED33.220	Educational Technology	1 s.h.
READ30.311	Literacy Pedagogy I	3 s.h.
READ30.351	Literacy Pedagogy II	2 s.h.
INCL02.350	Instruction and Assessment in the Inclusive Classroom	3 s.h.
INCL02.310	STREAM I: Social Studies, ELA, & the Arts in the Inclusive Classroom	2 s.h.
INCL02.315	STREAM I Clinical Experience	1 s.h.
INCL02.330	Differentiating Instruction in the Inclusive Classroom	2 s.h.
INCL02.320	STREAM II: STEM & Health in the Inclusive Classroom	3 s.h.
INCL02.320	STREAM II: STEM & Health in the Inclusive Classroom	3 s.h.
INCL02.325	Mathematics Strategies in the Inclusive Classroom	2 s.h.
INCL02.335	STREAM II Clinical Experience	1 s.h.
ELEM02.448	Clinical Practice in Elementary Education	10 s.h.
INCL02.440	Diversity Seminar	2 s.h.
	Lab Science (Biological or Physical*)	4 s.h.
	Science (Biological or Physical*)	3 s.h.
	Geography (any)	3 s.h.
	U.S. History (any)	3 s.h.
	Sociology (any)	3 s.h.
	Literature (any General Education)	3 s.h.
	Artistic and Creative Experience Elective	3 s.h.

***For certification purposes**: Candidates must complete both a Biological and Physical Science course (one must be a 4 s.h. Lab).

Total Semester Hours **120-139 s.h. (Depending on Dual Major Requirements)**

Dual Major Requirements

Elementary Education majors may choose one of the following dual majors:

- American Studies
- Chemistry
- English
- Geography
- History
- Liberal Studies: Humanities/Social Science (See advising guide for restrictions.)
- Liberal Studies: Literacy Studies
- Mathematics
- Spanish
- Writing Arts
- No Dual Major – Certificate of Undergraduate Study

BACHELOR OF ARTS IN INCLUSIVE EDUCATION

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The Bachelor of Arts in Inclusive Education prepares future teachers to meet the needs of ALL students in the classroom, including those from diverse racial, cultural, linguistic, socioeconomic backgrounds as well as students with disabilities. Candidates will earn two state certifications in this 4-year program 120 credit hour program: 1) an initial license in Elementary Education, and 2) a Teacher of Students with Disabilities (TOSD) endorsement. Graduates of this program will be able to implement content-rich interdisciplinary learning experiences which address the learning needs of all students, utilizing a strengths-based perspective to differentiate and adapt instruction for individual learners. Graduates of this program will also be able to create communities of learning based on social justice and culturally relevant pedagogical practice.

General Education

All students starting ***before*** Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

READ30.320	Language Development, Emergent Literacy	4 s.h.
SMED33.220	Educational Technology	1 s.h.
SMED10.300	Picture Inquiry with Children	3 s.h.
SPED08.360	Positive Behavior Supports	3 s.h.
SPED08.307	Assessment of Students with ELNs	3 s.h.
INCL90.432	Working with Families and Communities	3 s.h.
ECED23.220	Contemporary Child in the Family and Community	3 s.h.
ECED23.320	Building Brains: Competency and Resiliency	3 s.h.
ECED23.321	Effective Learning Environments for Diverse Children	3 s.h.
ECED23.322	Planning, Integrating, and Adapting Curriculum: Math/Science	3 s.h.
SPED08.415	Specialized Instruction	3 s.h.
SPED02.340	Teaching Students with Autism Spectrum Disorders	3 s.h.
INCL02.223	Supporting and Teaching Bilingual Students	3 s.h.
ECED23.431	Planning Curriculum Across the Content Areas	3 s.h.
READ30.347	Phonics and Spelling in the Reading and Writing Classroom	3 s.h.
INCL02.315	Clinical Practice	5 s.h.

INCL02.440	Diversity Seminar	2 s.h.
SPED08.450	Clinical Practice Special Education	3 s.h.
SPED08.445	Clinical Seminar	2 s.h.
Core Courses Required for ELEMENTARY EDUCATION TRACK		64 s.h.
INCL02.215	Foundations of Inclusive Education	3 s.h.
READ30.311	Literacy Pedagogy I	3 s.h.
SMED33.220	Educational Technology	1 s.h.
INCL02.330	Differentiating Instruction in the Inclusive Classroom	2 s.h.
SPED08.360	Positive Behavior Supports	3 s.h.
SPED08.307	Assessment in Special and Inclusive Education	3 s.h.
BLED40.405	Current Policy & Practice in ESL and Bilingual Ed*	3 s.h.
INCL90.432	Working with Families and Communities	3 s.h.
COUN26.451	Trauma-Informed Practices*	3 s.h.
INCL02.351	Clinical Experience I in Inclusive Education	1 s.h
INCL02.322	Science Inqui4y & Methods for the Inclusive Classroom	3 s.h.
INCL02.323	Social Studies Methods for the Inclusive Classroom	1 s.h.
READ30.351	Literacy Pedagogy II	2 s.h.
INCL02.352	Clinical Experience II in Inclusive Education	1 s.h
SPED08.415	Specialized Instruction	3 s.h.
SPED02.340	Teaching Students with Autism Spectrum Disorders	3 s.h.
SPED08.308	Assistive Technology and Transition Planning	3 s.h.
INCL02.324	Advanced Math Methods for the Inclusive Classroom	3 s.h.
READ30.452	Advanced ELA Methods for the Inclusive Classroom (WI)*	3 s.h.
INCL02.325	Mathematics Strategies in the Inclusive Classroom	2 s.h.
INCL02.444	Clinical Practice I in Inclusive Education	2 s.h.
INCL02.445	Clinical Practice II in Inclusive Education	5 s.h.
INCL02.440	Diversity Seminar	2 s.h.
SPED08.450	Clinical Practice Special Education	3 s.h.
SPED08.315	Clinical Seminar	2 s.h.
Total Hours Required for Graduation (with Gen Ed Courses)		120 s.h.

Students must earn a grade of at least a B- in each course under Core Requirements and Sequences. B- or above is required in all prerequisites to other courses.

Students must maintain a 3.0 GPA in their credits of the major, and must pass the edTPA Assessment, Praxis CORE, and Praxis II Content Exams.

CERTIFICATE OF UNDERGRADUATE STUDY IN TEACHING IN URBAN AND DIVERSE SETTINGS

Corine Meredith Brown
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A Certificate of Undergraduate Study (CUGS) in Teaching in Urban and Diverse Settings will offer teacher candidates in the College of Education the opportunity to engage in critical analysis of their own personal and professional beliefs, as well as teaching practices, regarding issues in urban education related to instructional implementation in urban and diverse school settings. The Teaching in Urban & Diverse Settings Certificate will enhance teacher candidates' knowledge of learning, curriculum, and human development theories, and will be one of multiple CUGS offerings to enhance the B.A. in Inclusive Education and other degree programs.

Certificate of Undergraduate Study in Teaching in Urban and Diverse Settings 15 s.h.

The requirements include the following five courses, which are cross-listed for undergraduate students:

CASE90.530	Curriculum Theories in Urban Education
CASE90.531	Critical Consciousness: Sharing Power and Voice with Students
INCL90.432	Working With Families and Communities
CASE90.533	Critical Pedagogy
CASE90.534	Disability Studies
or BLED40.510	Issues of Language and Cultural Diversity in ESL/Bilingual Education

To be awarded the Certificate in Teaching in Urban and Diverse Settings, students must complete all courses required for the CUGS in Teaching in Urban and Diverse Settings with at least a 3.0 average. This CUGS is best suited for students majoring in Inclusive Education, Early Childhood, Elementary Education, and/or Subject Matter Education. It is highly recommended that students consult with their Education Advisor to plan for this Certificate.

TEACHER OF STUDENTS WITH DISABILITIES ENDORSEMENT

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The Department of Interdisciplinary and Inclusive Education offers the Teacher of Students with Disabilities Endorsement Program in two ways. A student can be enrolled as an undergraduate in one of the College of Education's initial endorsement programs. The other option is open to those who currently hold a bachelor's degree and are eligible for at least a certificate of eligibility (CE) in elementary education, early childhood education, subject matter education, or physical and health education. The Teacher of Students with Disabilities Endorsement is only granted when a student has successfully fulfilled all requirements for an initial teaching certification.

Students entering the program must have a 3.0 GPA and have a minimum of 3.0 GPA at the conclusion of the program to receive the endorsement with successful completion of all TOSD required coursework. Some course substitutions are permitted for certain education majors, however, students MUST consult with their advisors for detailed information. Required courses are listed below.

Required Courses

SPED08.130	Human Exceptionality (pre-requisite)	3 s.h.
READ30.311	Literacy Pedagogy I	3 s.h.
READ30.351	Differentiated Literacy Instruction (pre-requisite)	2 s.h.
SPED08.316	Differentiated Instruction in the Inclusive Classroom	2 s.h.
	Bundle I (6 credits must be taken together in Spring or Summer, NOT Fall)	
SPED08.360	Positive Behavioral Support Systems for Students with Exceptional Learning Needs	3 s.h.
SPED08.307	Assessment of Students with Exceptional Learning Needs	3s.h.
	Bundle II (6 credits must be taken together in Spring or Summer, NOT Fall)	
SPED08.308	Assistive Technology and Transition Planning	3 s.h.
SPED08.415	Specialized Instruction for Students with Exceptional Learning Needs	3 s.h.
SPED08.445	Clinical Seminar in Special Education	2 s.h.
SPED08.450	Clinical Practice in Special Education	3 s.h.

Note: Candidates for the Teacher of Students with Disabilities Certification must pass the Praxis II Specialty Area Test: Special Education: Core Knowledge and Applications prior to admission to Clinical Seminar/Clinical Practice.

Department of Language, Literacy, and Sociocultural Education

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The Department of Language, Literacy, and Sociocultural Education includes academic programs in, reading, English as a Second Language (ESL) education, bilingual/bicultural education, and subject matter teaching (English Social Studies, and world languages). Students in the programs represented by this department are encouraged to consider their roles as educators in a broad context, exploring the connection and tensions that exist among schools, cultures, and society.

The department offers many opportunities for individuals interested in pursuing exciting and fulfilling careers in educational settings, including courses that explore working in urban contexts. Our undergraduate and graduate programs are designed for students seeking in-depth preparation to teach in P-12 classrooms. The department offers many required language, reading and subject matter education courses for all undergraduate teacher education programs. In addition, the department offers an undergraduate endorsement program which leads to a Teacher of Reading instructional license, a major in Literacies Studies, and a post-baccalaureate endorsement program in reading. The department also offers graduate programs in Bilingual/Bicultural education, English Language Arts education (teacher certification), Social Studies education (teacher certification), world languages education (teacher certification), reading, and English as a Second Language (ESL) education.

The department has highly qualified faculty that seek to maximize students' educational experience at Rowan University. Its programs are nationally accredited by the Council for the Accreditation of Educator Preparation (CAEP) as well as other relevant professional organizations. All of our programs are approved by the New Jersey Department of Education. The department is also committed to serving the university and the community through its programs, partnerships and outreach. It is dedicated to improving the literacy of under prepared college students and as such offers remedial courses to incoming college students. The department also operates the Rowan Reading Clinic that serves P-12 children with reading difficulties in the greater south Jersey region.

BACHELOR OF ARTS IN LITERACY STUDIES

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The Bachelor of Arts in Literacy Studies offers Elementary and Early Childhood Education majors a dual degree option with a strong literacy and liberal studies focus. The major goals of this program are to prepare effective, highly qualified graduates who 1) have a broad knowledge base that spans the English/Language Arts Common Core State Standards, 2) use best instructional and assessment practices, 3) have content knowledge in Literacy, Math, Science and Social Studies, and 4) qualify for Certification as a Teacher of Reading in New Jersey.

General Education

All students starting *before* Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Core Required Courses

READ30.350	Using Children's Literature in the Reading/Writing Classroom	3 s.h.
READ30.347	Phonics and Spelling in the Reading and Writing Classroom	3 s.h.
READ30.421	School Reading Problems	4 s.h.
READ30.451	Supervised Clinical Practice in Reading	3 s.h.

ENGL02.101	Literary Studies for English Majors	3 s.h.
ENGL02.317	Children's Literature Texts and Contexts	3 s.h.
ENGL05.301	American English Grammar	3 s.h.
WA07.290	Creative Writing I	3 s.h.
or WA07.309	Writing Children's Stories	3 s.h.
WA01.301	Writer's Mind	3 s.h.
WA01.315	Writing with Technologies	3 s.h.
WA01.415	Situating Writing	3 s.h.
General education or Rowan Core/Rowan experience/other required courses		55 s.h.
Free Electives minimum		31 s.h.
Total Hours Required for Graduation (with Gen Ed or Rowan Core Courses): minimum of		120 s.h.

Acceptance into the certification programs with a minimum GPA of 3.0 and passing grades on Praxis Core tests (Mathematics, Reading, & Writing) are required. To graduate, candidates must achieve minimum content area GPA of 2.5 and achieve an overall GPA of at least 3.0 for education dual major.

BACHELOR OF ARTS IN EDUCATION, CONCENTRATION IN P-12 SUBJECT-MATTER EDUCATION

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The Bachelor of Arts in Education, with Concentration in P-12 Subject-Matter Education has four required strands of study:

1. General Education courses
2. Common Education Core courses
3. Professional Concentration Sequence
4. Dual major requirements, where P-12 Subject-Matter Education Concentration candidates are required to complete major requirements in one of eleven academic disciplines approved by the University for Certification

Faculty in Subject-Matter Education strive to transcend traditional rote forms of learning and model a more collaborative, interactive, and intellectually challenging pedagogy that is true to the richness and rigor of the academic disciplines they represent. As teacher candidates experience and participate in such learning environments in their Subject-Matter Education classes at Rowan, they develop the commitment, confidence, and ability to go into the field and create P-12 classroom environments in which students work actively with the teacher and with each other to investigate important and meaningful ideas in a particular academic discipline.

Admission to Rowan University does not guarantee admission to the Subject-Matter Education Program. For most majors, we are able to admit all qualified students but there is a cap each year. A minimum number of credits in the subject major and a passing score on the Praxis II must be completed satisfactorily prior to admission to senior full-year residency.

General Education

All students starting ***before*** Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Required Courses

SPED08.130	Human Exceptionality	3 s.h.
PSY09.210	Adolescent Development	3 s.h.
FNDS21.230	Characteristics of Knowledge Acquisition	3 s.h.
HLT00.103	Health and Wellness or Biology	3 s.h.
EDUC01.270	Teaching in Learning Communities I (or equivalent)	3 s.h.
EDUC01.272	Teaching in Learning Communities II (or equivalent)	3 s.h.

READ30.319	Teaching Reading and Writing in the Content Area	3 s.h.
SMED60.550	Schools & Society	3 s.h.
SELN10.576	Undergraduate Effective Inclusive Instruction	3 s.h.
SMED31.350	Teaching and Learning A: Elementary Art Methods	3 s.h.
or SMED32.329	Teaching and Learning Music A: Elementary General Music	
or SMED33.330	Teaching and Learning A: Mathematics	3 s.h.
or SMED34.330	Teaching and Learning A: Science	3 s.h.
or SMED50.330	Teaching and Learning A: English/Language Arts	3 s.h.
or SMED51.330	Teaching and Learning A: Foreign Language (Spanish)	3 s.h.
or SMED52.330	Teaching and Learning A: Social Studies	3 s.h.
SMED31.360	Teaching and Learning B: Secondary Art Methods	3 s.h.
or SMED32.330	Teaching and Learning B: Vocal Methods/Techniques	3 s.h.
or SMED32.331	Teaching and Learning B: Instrument Methods/Techniques	3 s.h.
or SMED33.331	Teaching and Learning B: Mathematics	3 s.h.
or SMED34.331	Teaching and Learning B: Science	3 s.h.
or SMED50.331	Teaching and Learning B: English/Language Arts	3 s.h.
or SMED51.331	Teaching and Learning B: Foreign Language (Spanish)	3 s.h.
or SMED52.331	Teaching and Learning B: Social Studies	3 s.h.
SMED60.562	Residency I	3 s.h.
SMED60.563	Residency II	6 s.h.
SMED60.564	Professional Seminar	
COMP01.105	College Composition I	3 s.h.
COMP01.112	College Composition II	3 s.h.
CMS04.205	Public Speaking	3 s.h.
	Math Elective	3 s.h.
	Lab Science	4 s.h.
	Literature	3 s.h.
	Artistic and Creative Experience	3 s.h.
Total Credits		**124 s.h.**

History Teachers Candidates must take:

ANTH/GEOG	Cultural Geography or Cultural Anthropology	3 s.h.
SOC08.120	Introduction to Sociology	3 s.h.
ECON	Intro to Macro or Micro Economics	3 s.h.
POSC07.110	American Government	3 s.h.
HIST05.100	Western Civilization to 1660	3 s.h.
HIST05.101	Western Civilization since 1660	3 s.h.
HIST05.120	World History after 1500	3 s.h.
HIST05.150	US History to 1865	3 s.h.
HIST05.151	US History Since 1865	3 s.h.
HIST05.306	Historical Methods (pre-req: Comp II)	3 s.h.
HIST05.492	History Seminar (pre-req: 90+ credits)	3 s.h.

English Teacher Candidates must take:

SOC08.120	Intro to Sociology	3 s.h.
HIST05.100	Western Civ to 1660	3 s.h.
HIST05.101	Western Civ since 1660	3 s.h.
ENGL02.116	Readings in Non-Western Lit	3 s.h.
ENGL02.101	Literary Studies for Eng. Majors	3 s.h.
ENGL05.301	American English Grammar	3 s.h.
ENGL02.309	British Lit I	3 s.h.
ENGL02.311	British Lit II	3 s.h.
ENGL02.313	US Lit I	3 s.h.
ENGL02.315	US Lit II	3 s.h.
ENGL02.345	Shakespeare I	3 s.h.

Spanish Teacher Candidates must take:

ENGL Literature Elective		3 s.h.
SPAN05.101	Spanish I	3 s.h.
SPAN05.102	Spanish II	3 s.h.
SPAN05.201	Spanish III	3 s.h.
SPAN05.211	Spanish Reading & Conversation	3 s.h
SPAN05.301	Appreciation of Hispanic Lit (SPAN05.212)	3 s.h.
SPAN05.320	Spanish Civilization and Culture (SPAN05.301)	3 s.h.
SPAN05.324	Spanish American Civilization & Culture (SPAN05.301)	3 s.h.
SPAN05.411	Advanced Spanish Conversation (SPAN05.301)	3 s.h.
SPAN05.302	Intro to Hispanic Linguistics (SPAN05.301)	3 s.h.

SPAN05.409	Advanced Spanish Grammar & Composition	3 s.h.

Dual Major Requirements

Dual Major requirements for each content-area Concentration can be obtained by contacting the program advisors or by visiting: www.rowan.edu/home/education/academics-overview

P-12 Subject Matter Education majors may choose one of the following dual majors:

- Art
- Biology
- Chemistry
- English
- Foreign Language (Spanish)
- History*
- Mathematics*
- Music
- Physical Science: Chemistry
- Physical Science: Physics
- Physics

CERTIFICATE OF UNDERGRADUATE STUDY (CUGS) in Bilingual Education

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This program enables students to gain the expertise and instructional certification to become educators in bilingual, P-12 settings. In bilingual classrooms in the US, all students have the same home language background (e.g., Spanish, Mandarin), and the teacher speaks both that language and English as a means of instruction. Bilingual education is currently a critical teaching shortage area both in NJ and across the US. Students in this program must already have an initial teaching license or must be enrolled concurrently in an initial teaching certification program in an area that can be taught in a bilingual setting (e.g., P-3; K-5; Mathematics; Social Studies; Health and PE; Music; Art; Science, etc.).

The requirements include the following five courses:

BLED40.405	Current Policy and Practice in ESL and Bilingual Education	3 s.h.
BLED40.412	Linguistics and Second Language Acquisition for Language Teachers	3 s.h.
BLED40.521	Teaching Bilingual/Bicultural Education: Process and Practice	3 s.h.
BLED40.522	Integrating Language, Literacy, and Content in ESL & Bilingual Classrooms	3 s.h.
BLED40.424	Biliteracies and Translanguaging in the Bilingual Education Classroom	3 s.h.

Recommended Elective: ENGL02.301 American English Grammar - 3 s.h.

To be awarded the CUGS in Bilingual Education, students must complete all courses required for the CUGS with at least a 3.0 GPA average and no grade lower than a B-.

To apply for NJ teaching certification, students must present evidence of passing oral and written language proficiency tests (OPI & WPT) in English and in the language of bilingual instruction. Information regarding these tests may be found on the Language Testing International website or by calling Language Testing International by phone at (914) 963-7110. (Exceptions: Candidates for certification who pass the Department-approved basic skills test may be exempt from taking the written English language proficiency test (WPT) requirement.)

CERTIFICATE OF UNDERGRADUATE STUDY (CUGS) in English as a Second Language (ESL) Education

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This program enables students to gain knowledge and skills in Teaching English to Speakers of Other Languages (TESOL), also known as English as a Second Language (ESL). The program is open to students in current College of Education teacher education programs who want to add an ESL certification; students with a teaching certification from another institution who want to gain expertise in ESL; and students from other majors who are not seeking P-12 certification, but who plan to teach English as a Foreign Language (EFL) abroad or ESL in US-based adult or community programs (e.g., for adults, in the workplace, etc.). Upon successful completion of the CUGS, students who already have another appropriate teaching license or who are concurrently seeking another initial teaching license (e.g., P-3; K-6; Subject Matter English, etc.) will be eligible

to apply for the NJ ESL P-12 certification.

The requirements include the following five courses:

BLED40.410	Current Policy and Practice in ESL and Bilingual Education	3 s.h.
BLED40.412	Linguistics and Second Language Acquisition for Teaching Languages	3 s.h.
BLED40.415	Understanding Immigrant, Bilingual, and English Learner Students	3 s.h.
BLED40.520	Planning, Teaching, and Assessment in ESL Classrooms	3 s.h.
BLED40.422	Integrating Language, Literacy, and Content in ESL & Bilingual Classrooms	3 s.h.

Recommended Elective: ENGL02.301 American English Grammar -3 s.h.

To be awarded the CUGS in ESL Education, students must complete all courses required for the CUGS in ESL Education with at least a 3.0 GPA average and no grade lower than B-. To apply for NJ teaching certification, students must present evidence of passing oral and written English language proficiency tests (OPI & WPT). Information regarding these tests may be found on the Language Testing International website or by calling Language Testing International by phone at (914) 963-7110. (Exceptions: Candidates for certification who pass the Department-approved basic skills test may be exempt from taking the written English language proficiency test (WPT) requirement.)

TEACHER OF READING ENDORSEMENT PROGRAM and POST BACCALAUREATE PROGRAM FOR TEACHER OF READING

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The Post Baccalaureate Program in Teacher of Reading is an endorsement program that leads to certification as a Teacher of Reading. It is available to students who have already been admitted to teacher certification programs or who already hold New Jersey teaching certificates. Reading certification is granted only when a student has fulfilled all requirements for an initial teaching certificate. To matriculate, students must complete an introductory reading course and satisfy the requirements listed below.

The program requires students to successfully complete 30 semester hours of coursework in reading and reading-related areas to obtain Teacher of Reading Certification. Students may fulfill the requirement for the New Jersey Teacher of Reading Endorsement with undergraduate coursework, graduate coursework, or a combination of the two.

Admissions Requirements

The Teacher of Reading Endorsement Program is available to students who are currently enrolled in the Bachelor of Arts in Education. The Post Baccalaureate Program in Reading is available to students who already hold New Jersey teaching certificates (CEAS or Standard).

Additional admissions criteria include:

- An overall GPA of 3.0 based on 30 semester hours of coursework
- Completion of Teaching Literacy or its approved equivalent
- A 3.0 GPA in reading courses completed prior to application
- Completion of an Application form with Passing Essay

Program Requirements

To complete the program, students must have an overall GPA of 3.0 based on 30 semester hours of coursework and pass the PRAXIS II Specialty Area Test, Introduction to the Teaching of Reading (also a New Jersey certification requirement).

Course Requirements

ELEMENTARY EDUCATION MAJORS

Area A: Reading Theory and Pedagogy

READ30.311	Literacy Pedagogy I	3 s.h.
READ30.351	Literacy Pedagogy II*	2 s.h.
INCL02.315	STREAM I Clinical Experience	1 s.h.
READ30.347	Phonics and Spelling Instruction	3 s.h.
READ30.350	Using Children's Literature in Reading/Writing Classroom	3 s.h.

Area B: Application through Tutoring (Two Courses)

READ30.421	School Reading Problems (Prerequisites READ 30.280, 30.351, 30.347)	4 s.h.
READ30.451	Supervised Clinical Practice (Prerequisite READ30.421)	3 s.h.

Area C: Core Supporting Courses (Maximum of 12 Semester hours)

FNDS21.230	Characteristics of Knowledge Acquisition	3 s.h.

SPED08.130	Human Exceptionality	3 s.h.
READ30.120	Literacies in Today's World	3 s.h.
WA01.358	Writing and Craft for Elementary Students	1 s.h.
WA01.301	Writer's Mind	3 s.h.

EARLY CHILDHOOD EDUCATION MAJORS

Area A: Reading Theory and Pedagogy

READ30.320	Language Development and Emergent Literacy*	4 s.h.
READ30.347	Phonics and Spelling Instruction	3 s.h.
READ30.350	Using Children's Literature in Reading/Writing Classroom	3 s.h.

Area B: Application through Tutoring (Two Courses)

READ30.421	School Reading Problems (Prerequisites 30.280, 30.351, 30.347)	4 s.h.
READ30.451	Supervised Clinical Practice (Prerequisites READ 30.421)	3 s.h.

Area C: Core Supporting Courses (Maximum of 12 Semester hours)

FNDS21.230	Characteristics of Knowledge Acquisition	3 s.h.
SPED08.130	Human Exceptionality	3 s.h.
READ30.120	Literacies in Today's World	3 s.h.
WA01.301	Writer's Mind	3 s.h.

SECONDARY/SUBJECT MATTER EDUCATION MAJORS

Area A: Reading Theory and Pedagogy

READ30.311	Literacy Pedagogy I	3 s.h.
READ30.310	Teaching Reading and Writing in Content Areas	3 s.h.
READ30.347	Phonics and Spelling Instruction	3 s.h.
READ30.350	Using Children's Literature in Reading/Writing Classroom	3 s.h.

Area B: Application through Tutoring (Two Courses)

READ30.421	School Reading Problems (Prerequisites 30.280, 30.351, 30.347)	4 s.h.
READ30.451	Supervised Clinical Practice (Prerequisites READ 30.421)	3 s.h.

Area C: Core Supporting Courses (Maximum of 12 Semester hours)

FNDS21.230	Characteristics of Knowledge Acquisition	3 s.h.
EDUC01.272	Teaching in Learning Communities II	3 s.h.
SPED08.130	Human Exceptionality	3 s.h.
READ30.120	Literacies in Today's World	3 s.h.
WA01.301	Writer's Mind	3 s.h.
WA01.358	Writing and Craft for Elementary Students	1 s.h.

POST BACCALAUREATE (Graduate Course Options)

Area A: Reading Theory and Pedagogy

READ30.515	Teaching Reading and Writing Across the Grades	3 s.h.
READ30.545	Using Multicultural Literature in the K-12 Reading and Writing Classroom	3 s.h.
READ30.520	Content Area Literacy	3 s.h.
READ30.530	Teaching Reading to Students with Disabilities	3 s.h.
READ30.535	Word Study: Phonics, Spelling, and Vocabulary Instruction	3 s.h.

Area B: Application through Tutoring (Two Courses) - Post Baccalaureate (Graduate Course Options)

READ30.550	Diagnosis of Remedial Reading Problems	3 s.h.
READ30.560	Correction of Remedial Reading Problems	3 s.h.
READ30.570	Clinical Experiences in Reading	6 s.h.

Area C: Core/Supporting Courses

FNDS21.230	Characteristics of Knowledge Acquisition	3 s.h.
SPED08.130	Human Exceptionality	3 s.h.
READ30.120	Literacies in Today's World	3 s.h.
EDUC01.272	Teaching in Learning Communities II	3 s.h.
SECD03.350	Teaching Students of Linguistic and Cultural Diversity	1 s.h.
PSY22.512	Educational Psychology	3 s.h.
PSY22.586	Psychology of Motivation and Learning	3 s.h.
WA01.301	Writer's Mind	3 s.h.
WA01.358	Writing and Craft for Elementary Students	1 s.h.

*Descriptions for courses at the 500-level can be found in the Graduate Catalog.

Department of Science, Technology, Engineering, the Arts, and Mathematics (STEAM)

Robert Wieman, Ph.D.
Chair
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"Teachers are more than any other class the guardians of civilization." -Bertrand Russell, British Philosopher and Writer

The Department of Science, Technology, Engineering, the Arts, and Mathematics Education (STEAM) offers a variety of opportunities for caring and dedicated undergraduate, post-baccalaureate and graduate students to pursue initial certification in the subject matter areas of Art, Math, Music, Science, and Health and Physical Education. The department offers a dual-major undergraduate program in Art, Music and Health and Physical Education culminating in a Bachelor degree in the content major, a Bachelor of Arts in Education degree and teaching certification with a concentration in each of these fields. In addition, it offers a graduate program in Science (includes Biology, Chemistry, Geology (Earth Science), Physics and Physical Science) and Math education culminating in a Master of Arts degree in STEM with a teaching certification. Finally, it offers a Combined Advanced Degree Program (CADP) which is a 4+1 pathway culminating in a Bachelor degree in Mathematics, Biology, Chemistry, Geology (Earth Science), Physics, or Physical Science with a Master of Arts in Teaching degree in Education. The department is committed to fostering the growth of innovative instructional leaders who have a social constructivist and developmental perspective, and are committed to the principles of access, success, and equity for all students through collaborative 21st- century educational practices in the arts and sciences. All programs in the department have been approved by the New Jersey Department of Education.

BACHELOR OF ARTS IN EDUCATION, CONCENTRATION IN SUBJECT MATTER EDUCATION - P-12 (ART)

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Students enrolled in this dual degree program satisfy the requirements for a Bachelor of Arts in Art; and a Bachelor of Arts in Education with a New Jersey Teacher Certificate in Art. Coursework prepares students to become Visual Art teachers by building a strong foundation in artistic knowledge and skills as artists pedagogical practices needed to teach the Visual Arts to students grades P-12. For more in-depth studio opportunities students enrolled in this program may choose to apply for the Bachelor of Fine Arts degree program at the end of their sophomore year.

Further information about this program can be obtained from the Department of STEAM Education, 856-265-5797 and/or Department of Art, 856-256-4010.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Art Major Requirements
Foundation Core

ART02.100	Drawing I (Representational)
ART02.200	Expressive Drawing
ART02.105	Color & Design - 2D
ART02.240	Intro to Sculpture - 3D
ART02.222	Studio Core Portfolio Review

Art History

ARHS03.103	Art History Survey I
ARHS03.104	Art History Survey II
	Art History Choice

Studio

ART09.301	Digital Media & Techniques
ART02.220	Introduction to Painting
	Intro level Art Studio choice
	Intermediate/Advanced Studio Elective
	Intermediate/Advanced Studio Elective
	Intermediate/Advanced Studio Elective
ART09.401	Senior Project Art

Other Required Courses

COMP01.111	College Composition I
COMP01.112	College Composition II
CMS04.205	Public Speaking
SPED08.130	Human Exceptionality
FNDS21.230	Characteristics of Knowledge Acquisition
PSY09.209	Child and Adolescent Development
FNDS21.150	History of American Education

3 additional s.h. from Broad-based Literature (LIT, WI)
3 additional s.h. from Mathematics (QNTL RCore)
4 additional s.h. from Science (with lab) (SCIL RCore)
3 additional s.h. from Artistic Literacy (ARTL RCore)
3 additional s.h. from Global Literacy (GLBL RCore)

Education Requirements

INCL02.210	Principles and Pedagogies in the Inclusive Classroom
ELEM02.210	Seminar: Principles and Pedagogies in the Inclusive Classroom
SMED01.282	Introduction to Instruction and Assessment Art
ART09.200	Theory & Analysis of Art Education
READ30.319	Teaching Reading/Writing in the Content Area
SMED33.220	Educational Technology
SMED31.350	Teaching & Learning A Art/Elem Art Methods
SECD03.330	Clinical Experience for T&LA Art
ART09.201	Community Art Education for Elementary through Middle Grades
SMED31.360	Teaching & Learning B Art/Secondary Art Methods
SECD03.332	Practicum B Art for T&LB Art
ART09.202	Community Art Education for Secondary Grades
SMED31.351	Clinical Practice I: Elem and Sec Art Education
SMED31.450	Clinical Practice II: Elem and Sec Art Education
SMED31.451	Clinical Practice II: Seminar for Art Education
SECD03.350	Teaching Students of Linguistic/Cultural Diversity

Program Total **120 s.h.**

BACHELOR OF ARTS IN EDUCATION, CONCENTRATION IN SUBJECT MATTER EDUCATION - HEALTH AND PHYSICAL EDUCATION (P-12)

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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Required Courses

To complete the program, students must have a minimum of 3.0 overall GPA, 3.0 GPA in the concentration, successfully complete the Praxis Core Academic Skills for Educators exam and the Health and Physical Education Praxis II exam. No grades less than a C - will be counted toward graduation.

MATH01.115	Contemporary Math	3 s.h.
COMP01.111	College composition I	3 s.h.
or COMP01.112	College Composition II	3 s.h.
NUT00.200	Basic Nutrition	3 s.h.
CMS04.205	Public Speaking	3 s.h.
HLT00.227	Consumer Health Decisions	3 s.h.
HES00.109	Adventure /Experiential Learning	2 s.h.
PSY09.209	Child Development	3 s.h.
or PSY09.210	Adolescent Development	
PHIL09.211	World Philosophy I	3 s.h.
*or*PHIL09.213	World Philosophy II	3 s.h.
*or*PHIL09.241	Philosophy and Society	3 s.h.
PHYS00.150	Physics	4 s.h.
or BIOL01.113	General Bio Human Focus	
or CHEM05.102	Chemistry of Everyday Life	
THD08.135	Elements of Dance	3 s.h.
INCL02.210	Principals of Pedagogies in Inclusive Classroom	2 s.h.
HPE02.210	Intro to Health and Physical Education	1 s.h.
HPE00.286	Foundations in Health and Physical Education	3 s.h.
READ30.319	Teaching Reading and Writing in the Content Areas	3 s.h.
FNDS21.150	History of American Education	3 s.h.
SPED08.130	Human Exceptionalities	3 s.h.
FNDS21.230	Characteristics of Knowledge Acquisition	3 s.h.
HES00.116	Safety, First Aid BSC UNDR of Athletic Injury	3 s.h.
HPE00.270	Technology in HPE	2 s.h.
HES00.241	Structure Function of the Human Body I (or A&P I)	3 s.h.
HES00.242	Structure Function of the Human Body II (or A&P II)	3 s.h.
HPE00.240	Motor Development and Motor Learning	3 s.h.
HES00.343	Kinesiology	3 s.h.
HES00.344	Exercise Physiology	3 s.h.
HPE00.252	Foundations of Fitness	3 s.h.
HPE00.316	Teaching Concepts of Dance in Physical Education	3 s.h.
HPE00.310	Teaching Concepts of Secondary Physical Education I	3 s.h.
HPE00.320	Teaching Concepts Secondary Physical Education II	3 s.h.
HPE00.325	Teaching Concepts HED I	3 s.h.
HPE00.326	Teaching Concepts HED II	3 s.h.
HPE00.453	School Health Program Planning	2 s.h.
HPE00.336	Teaching Concepts Elementary PE	3 s.h.
HPE00.452	Teaching Concepts of Adapted PE	3 s.h.
HPE00.342	K-12 Curriculum/Instruction	3 s.h.
HPE00.392	Clinical Experience in Health and Physical Education	1 s.h.
HPE00.457	Clinical Practice Elem Physical Education I	1 s.h.
HPE00.458	Clinical Practice Secondary Physical Education I	1 s.h.
HPE00.459	Assessment Seminar	2 s.h.
HPE00.465	Professional Seminar: HPE	1 s.h.
HPE00.460	Clinical Practice HPE II: Elementary	4 s.h.
HPE00.461	Clinical Practice HPE II: Secondary	4 s.h.
Free Elective		6 s.h.
Total Semester Hours		120 s.h.

Combined Advanced Degree Program (4+1): B.A./B.S. in Science (Biology, Chem, Geology or Physics) or Mathematics with a M.A. in STEM Education

Overview

This Combined Advanced Degree Program is a 4 +1 dual degree program that offers students an opportunity to earn a B.A./B.S. in any one of the Sciences (Biology, Chemistry, Geology or Physics) or Mathematics and an M.A. in STEM Education culminating with a teaching certification in either Math or the Science (Biology, Chemistry, Geology, Physics and Physical Science) subject areas within five years. Students (including transfers) may apply to the program during their junior year. If admitted, students need to continue to meet all the requirements of their science/math undergraduate major, pass the Praxis Core Academic Skill test and Praxis II exam relevant to their subject area with a cumulative GPA of 3.0 or above. Up to 12 graduate credits will be applied towards the senior year in the undergraduate program. Students in this program will save tuition through taking 12 credits of M.A. STEM courses as a senior at undergraduate tuition rates. Degrees (BA/BS and MA) will be awarded as the program is completed. Students intending to enroll in the program are encouraged to access the program guides (see: STEAM) and meet with CADP advisors.

CADP Science Undergraduate Program Requirements

For CADP (B.A. +MA STEM) Biology see: Bachelor of Arts in Biology

Required Major Courses Credits 120 s.h.

For CADP (B.S. +MA STEM) Biology see: Bachelor of Science Biology

Required Major Courses Credits 120 s.h.

For CADP (B.S.+ MA STEM) Chemistry see: Bachelor of Science in Chemistry/Biochemistry

Required Major Courses Credits 120 s.h.

For CADP (B.A.+MA STEM) Chemistry see: Bachelor of Arts in Chemistry/Biochemistry

Required Major Courses Credits 120 s.h.

For CADP (B.A. + MA STEM) Physics see: Bachelor of Arts in Physics

Required Major Courses Credits 120 s.h.

For CADP (B.S.+M.A. STEM) Physics see: Bachelor of Science in Physics

Required Major Courses Credits 120 s.h.

For CADP (B.A.+M.A. STEM) Geology see: Bachelor of Arts in Geology

Required Major Courses Credits 120 s.h.

CADP Math Undergraduate Program Requirements

CADP (B.A.+MA STEM) Math see: Bachelor of Arts Mathematics Education Concentrations with Core

Required Major Courses Credits 120 s.h.

CADP Science/Math Graduate Program Requirements

Required M.A. Courses taken as an Undergraduate CADP student 12 s.h.

STEM60.501	STEM: Teaching & Research Methods I	3 s.h.
STEM60.510	Teaching STEM in Diverse Settings	3 s.h.
READ30.520	Content Area Literacy	3 s.h.
SMED60.550	Schools & Society: Foundations for Secondary Teaching	3 s.h.

Required M.A. Courses taken as a Graduate CADP Student 21 s.h.

STEM60.502	STEM: Teaching & Research Methods II: Math	5 s.h.
OR STEM60.522	STEM: Teaching & Research Methods II: Science	5 s.h.
STEM60.512	STEM: Education Residency I	1 s.h.
SELN60.576	Inclusive Instruction in STEM Classrooms	3 s.h.
STEM60.503	STEM: Teaching & Research Methods III: Math	6 s.h.
OR STEM60.523	STEM: Teaching & Research Methods III: Science	6 s.h.
STEM60.513	STEM: Education Residency II	3 s.h.
STEM60.504	Professional Seminar for STEM Educators	3 s.h.

There are no Elective Graduate M.A. STEM courses taken during the graduate portion of the CADP Science/Math program.

Total Required Credits for the Graduate Portion of the Program 33 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire CADP Science/Math Program 153 s.h.

Requirements for Admission: Students (freshman and transfer) must announce their interest in the program upon entry to the university. Matriculation process into the program begins in the Fall of the junior year. Students must apply at that time with the help of their undergraduate science/math advisor.

Entry Requirements for Application into CADP Math/Science:

- Achieve and maintain Overall/ Cumulative GPA of 3.0 or above (nonnegotiable / non appealable)
- Grades C- or better in any education courses. Courses required for the MA in STEM Education may only be attempted twice.
- Passing score on Praxis Core Academic Skills for Educators
- Attend advising session with College of Education Advisor

Entry Requirements for Matriculation into the Graduate portion (MA STEM)

- Achieve and maintain Overall/ Cumulative GPA of 3.0 or above
- Grades C- or better in any education courses. Courses required for the MA in STEM Education may only be attempted twice. Any MA STEM graduate course taken at the undergraduate level must have a minimum of B-
- Praxis II in specific Subject Area (Biology, Chemistry, Geology (Earth Science) Mathematics, or Physics)
- Completed Full Year Residency application in the Tk20 system
- Submission of NJDOE criminal background check
- Submission of clear TB test

Requirements for Graduation: To graduate from the CADP Science/ Math dual degree program with a B.A./ B.S. and an M.A., students must:

- Complete all requirements for the B.A./ B.S. undergraduate degree of their specific subject area **prior to full entry** into the graduate portion (MA STEM) portion of the program. This includes:
  - All General Education and Rowan Experience requirements.
  - A coherent sequence of at least 30 credit hours of content specialization courses (12 of which are at the 300 level or higher).
  - Successful completion of education courses particularly courses that hold state equivalent to:
    - Educational Psychology or Characteristics of Knowledge Acquisition
    - Adolescent Psychology
    - Health & Wellness or Nutrition or Biology (human related preferable
- Complete all requirements for the M.A. STEM which includes:
  - Overall GPA of 3.0 or better (nonnegotiable / non appealable) at exit of the program with no MA STEM graduate course grade lower than B- and no Incompletes. Courses required for the MA in STEM Education may only be attempted twice.
  - Meet minimum expectations on all signature assignments
  - Successful submission and completion of NJDOE approved summative teacher performance project (edTPA). Cut score / passing score as determined by state
  - Final residency evaluation demonstrates "Basic" or higher on all Danielson Framework indicators and "Meets Expectations" or higher on all SPA addendum indicators as evidence by successful completion of STEM 60512 AND 60513
  - Successful completion and recommendation for certification from, Rowan University Residency supervisor and Program Coordinator.

Student Status: Students will be expected to maintain satisfactory progress through the program: maintain an overall 3.0 GPA, earn at least B- in all M.A. courses. Any student who fails to maintain satisfactory progress as described will be placed on probation within the program for one semester. If the student's performance still does not improve, he/she will be removed from the program. Students with documented extenuating circumstances may request an exception to this requirement by obtaining written approval of the M.A. Program Coordinator. Students enrolled in the CADP Science/Math program may take up to 12 credits of graduate courses at the undergraduate rate in their senior year providing they meet the criteria listed above. Beyond this, students will pay graduate tuition rates for their M.A. courses.

Contingency for Students who do not Complete the M.A. program: Students who are removed from the graduate program or choose not to complete the graduate portion of the CADP program may earn a B.A./B.S. in their specific subject content area of Science (Biology, Chemistry, Geology, or Physics) or Mathematics once they have completed all requirements for that undergraduate degree, achieved at least the relevant required undergraduate degree GPA, and earned at least 120 credits. Students may count up to 12 credits of their graduate courses towards their B.A./B.S. requirements; these courses will count as free electives towards the 120 credits required for a B.A./B.S.

Accelerated Dual Degree: B.A. in Geology and an M.A. in STEM Education

Overview

The Department of Geology and the Department of STEAM Education have created this accelerated program to provide a seamless transition between undergraduate and graduate coursework for students wishing to pursue teacher certification in Earth Science. The program will allow qualified students to complete both programs and earn their initial certification in five years.

3.5 + 1.5 UNDERGRADUATE PROGRAM REQUIREMENTS

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Bachelor of Science Program Requirements 89 s.h.

Geology Major Core Courses 37 s.h.

GEOL01.101	Physical Geology
GEOL01.102	Historical Geology
GEOL01.201	Mineralogy and Petrology
GEOL01.210	Invertebrate Paleontology
GEOL01.230	Paleoclimatology
GEOL01.240	Introduction to Field Methods
GEOL01.320	Sedimentology and Stratigraphy
GEOL01.340	Tectonics and Structural Geology
GEOL01.450	Senior Seminar in Geology
GEOL01.460	Current Research in Geology

Non-Program related

STAT02.260	Statistics I
CHEM06.100	Chemistry I
CHEM06.101	Chemistry II
PHYS00.210	Physics I
BIOL01.104	Introduction to Evolution and Scientific Inquiry
MATH01.123	College Algebra

Restricted Electives N/A

3.5 + 1.5 GRADUATE PROGRAM REQUIRMENTS 33 s.h.

SMED60.550	Schools & Society: Foundations for Secondary Teaching*	3 s.h.
STEM60.501	STEM Teaching & Research Methods I*	3 s.h.
READ30.520	Content Area Literacy*	3 s.h.
STEM60.510	Teaching STEM in Diverse Settings*	3 s.h.
SELN60.576	Inclusive Instruction in STEM Classrooms	3 s.h.
STEM60.504	Professional Seminar for STEM Educators	3 s.h.
STEM60.512	STEM Education Residency I	1 s.h.
STEM60.513	STEM Education Residency II	3 s.h.
STEM60.522	STEM Teaching & Research Methods: Science II	5 s.h.
STEM60.523	STEM Teaching & Research Methods: Science III	6 s.h.

Total Required Credits for the Entire 3.5 + 1.5 Program 141 s.h.

Graduate courses marked with * above are counted in the 120 s.h. undergraduate program.

Requirements for Admission:
Applicants to the Accelerated Degree program will submit applications for admission to the graduate program in the fall semester of their sophomore year of the undergraduate program. Application requirements are as follows:

- A minimum overall GPA of 3.0 in undergraduate coursework
- A complete online Rowan Global application, including a personal statement
- 2 recommendation forms

Upon reaching senior standing, students must have maintained a cumulative GPA of 3.0 to continue in the accelerated degree program. Students also must have earned a grade of at least "C-" in all geology courses. If the minimum GPA and geology overall courses grades are not met, the student will be removed from the accelerated degree program; s/he will be eligible to apply for readmission into the accelerated degree program upon earning a minimum cumulative GPA of 3.0. Students must also follow through with the prior noted application requirements. To ensure flexibility for students, they can apply through the spring of their junior year with the same requirements as indicated above. However, for those students who submit applications in their junior year, they will need to ensure that they address courses required to earn initial NJ certification to teach in the public schools: Adolescent Development (PSY 09.210); Characteristics of Knowledge Acquisition (FNDS 21.230) or Educational Psychology (PSY 22.215); Health and Wellness (HLTH 00103) or a Biology

course. Undergraduate benchmarks must also be met by the end of their senior year. These are:

- Cumulative GPA of at least 3.0
- No grades lower than C-in overall geology courses.
- Passing scores on Praxis Core Academic Skills for Educators (Reading—156; Writing—162; Math—150) or SAT, ACT, or GRE scores above the cut scores
- Passing score of 153 on Praxis II Earth Science: Content Knowledge (5571) and 152 on General Science Knowledge (5435) tests

Requirements for Graduation:

To graduate from the accelerated program students must have a 2.00 GPA per university guidelines for the B.A., then earn a 3.0 GPA and earn a "Basic" on all indicators of the Final Performance Evaluation in the Residency I and II courses. **Contingency for Students who do not Complete Master of Arts program:** Students who choose not to complete the Master's portion of the program will still be eligible to earn the B.A. in Geology.

Henry M. Rowan College of Engineering

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Mission

The Henry M. Rowan College of Engineering fosters an inclusive environment where impactful research and design are an integral part of educating critical thinkers and adaptive, creative problem solvers in a changing and challenged world.

Objectives

The objectives of the undergraduate engineering programs are to enable students to:

- Understand and apply the core science and mathematics principles that form the basis of engineering disciplines
- Work individually and in teams to identify and solve complex engineering problems and develop an understanding of interdisciplinary problem solving
- Understand and apply advanced technology (computers and laboratory equipment) to solve complex engineering problems
- Understand the importance of the humanities and social sciences as part of a well rounded education and the practice of engineering
- Have a strong sense of the importance of ethics in an engineering setting as well as other aspects of their lives
- Develop communication skills so that they can perform engineering functions effectively

Accreditation

Biomedical, Chemical, Civil, Electrical & Computer, and Mechanical are ABET accredited. ABET is a professional accrediting organization that is nationally recognized by the Council on Higher Education Accreditation (CHEA). In cooperation with its associated professional and technical societies, ABET has developed criteria, or standards, for the evaluation of educational programs.

The criteria require that the programs demonstrate that graduates have mastered the knowledge and skills required and that the institution has in place a process for continuous improvement. The Engineering Accreditation Commission (EAC) of ABET administers the criteria, conducts the evaluations and accredits the programs.

Programs Offered

The Henry M. Rowan College of Engineering has six programs leading to bachelor of science degrees in biomedical, chemical, civil, electrical & computer, engineering entrepreneurship and mechanical engineering. A GPA in the major of 2.0 or greater is required for graduation from all undergraduate programs. The undergraduate programs include technology focus areas throughout the curricula. The technology areas are monitored continuously to maintain a leading edge as technology advances. The flexibility inherent in this approach allows the College to respond quickly to changes in technology, and to be responsive to the needs of students, the region, industry, and the profession.

Undergraduate Degree Programs Offered

Engineering
BACHELOR OF ARTS IN CONSTRUCTION MANAGEMENT
CERTIFICATE OF UNDERGRADUATE STUDY IN CONSTRUCTION MANAGEMENT PRACTICES

Department of Biomedical Engineering
BACHELOR OF SCIENCE IN BIOMEDICAL ENGINEERING
MINOR IN BIOMEDICAL ENGINEERING

Department of Chemical Engineering
BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING
MINOR IN CHEMICAL ENGINEERING
MATERIALS CONCENTRATION
CERTIFICATE OF UNDERGRADUATE STUDY IN MATERIAL ENGINEERING
BIOLOGICAL ENGINEERING CONCENTRATION

Department of Civil and Environmental Engineering
BACHELOR OF SCIENCE IN CIVIL ENGINEERING
MINOR IN CIVIL AND ENVIRONMENTAL ENGINEERING
BACHELOR OF SCIENCE IN SURVEYING ENGINEERING TECHNOLOGY
CERTIFICATE OF UNDERGRADUATE STUDY IN ENVIRONMENTAL ENGINEERING
CERTIFICATE OF UNDERGRADUATE STUDY IN GEOTECHNICAL ENGINEERING
CERTIFICATE OF UNDERGRADUATE STUDY IN TRANSPORTATION ENGINEERING
CERTIFICATE OF UNDERGRADUATE STUDY IN WATER RESOURCES ENGINEERING

Department of Electrical and Computer Engineering
BACHELOR OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING
MINOR IN ELECTRICAL AND COMPUTER ENGINEERING
CERTIFICATE OF UNDERGRADUATE STUDY IN COMBAT SYSTEMS ENGINEERING
CERTIFICATE OF UNDERGRADUATE STUDY IN APPLIED MACHINE LEARNING

Department of Experiential Engineering Education (ExEED)
BACHELOR OF SCIENCE IN ENGINEERING ENTREPRENEURSHIP

Department of Mechanical Engineering
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING
CERTIFICATE OF UNDERGRADUATE STUDY IN ADVANCED MANUFACTURING
CERTIFICATE OF UNDERGRADUATE STUDY IN AEROSPACE ENGINEERING
MINOR IN BIOENGINEERING

Engineering

Bachelor of Arts in Construction Management

Program Coordinator/Advisor Contact Information
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Rowan University's Bachelor of Arts in Construction Management degree completion program provides those with an Associate's degree or at least 60 credits with the remaining credits necessary to complete a bachelor's degree in this growing field while taking classes online. Applicants with less than 60 credits may work with an enrollment counselor to explore

available options. This program is ideal for journeypersons and seasoned professionals in the construction industry as well as apprentices who are looking to develop leadership skills and advance their careers. The Bachelor of Arts in Construction Management degree prepares individuals to supervise, manage, and inspect construction sites, buildings, and associated facilities. Rowan University's program has received the endorsement of the **North America's Building Trades Unions**.

Upon completion of the program students will supplement construction experience with the managerial skills required to:

- Propose, plan, and implement construction projects.
- Develop safe and ethical practices efficiently and profitably.
- Communicate effectively with construction teams and community members.
- Develop effective project management strategies and techniques.
- Manage construction projects with scheduling software.
- Estimate quantity take-offs and costs with computers.
- Address issues related to construction law and project management.
- Understand materials and methods listed in the construction specification institute's Master Format.

Program Requirements

Rowan University requires the completion of 120 semester hours of approved general education and major coursework in order to graduate with a bachelor's degree. The following courses make up the B.A. in Construction Management program.

General Education Requirements: 31 s.h.

- Composition: 6 s.h.
- Science (Lab) & Mathematics: 7 s.h.
- Social and Behavioral Sciences: 6 s.h.
- History, Humanities & Language: 6 s.h.
- Non-Program: 6 s.h.

Rowan Experience Requirements: 15 s.h.

- Artistic and Creative Experience: 3 s.h.
- Literature: 3 s.h.
- Multicultural/Global: 3 s.h.
- Public Speaking: 3 s.h.
- Writing Intensive: 3 s.h.

Elective Coursework: 38 s.h.

General Education

All students starting ***before*** Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39.

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38.

Required Courses 30 s.h.

(s.h.: semester hours/credit hours)

CM01.301	Fundamentals of the Construction Industry I	3 s.h
CM01.302	Fundamentals of the Construction Industry II	3 s.h
CM01.303	Project Building Systems	3 s.h
CM01.304	Project Administration	3 s.h
CM01.305	Cons Cost Accounting, Estimating & Finance	3 s.h
CM01.306	Construction Project Planning & Scheduling	3 s.h
CM01.407	Advanced Leadership & Communication	3 s.h
CM01.408	Industrial Relations in the Construction Industry	3 s.h
CM01.409	Building Energy Systems for Cons Managers	3 s.h
CM01.410	Building Construction Systems & Codes	3 s.h
CM01.411	Construction Safety and Loss Prevention	3 s.h
CM01.412	Capstone Course	3 s.h.

Credit for Prior Learning In addition to transfers from other accredited colleges and universities, credit toward the degree may be awarded for prior work and experience. Students can convert into credits part of their working experience through Prior Learning Assessment (PLA). Rowan University accepts assessments of credits by external agencies including College Level Examination Placement (CLEP), Advanced Placement (AP), and through the New Jersey Prior Learning Assessment Network agreement, Thomas Edison State College. Rowan University is an American Council on Education (ACE) member institution and participates in the Credit for Prior Learning (CPL) program. For students seeking degree completion, students are referred to an academic department advisor for concurrence and academic advisement.

Foundation Courses

None

Graduation/Exit, Benchmark, and/or Thesis Requirements

None

Certificate of Undergraduate Study in Construction Management Practices (CUGS)

Program Coordinator/Advisor Contact Information
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The CUGS in Construction Management Practices program will allow students to increase the breadth and depth of their knowledge of construction industry fundamentals and project administration. Completion of the CUGS will provide apprentices, journeypersons, and seasoned professionals the opportunity to pursue construction management positions.

The CUGS in Construction Management Practices targets statewide workforce development priorities. The CUGS is intended to meet growing industry demand for advanced credentials among construction professionals and enables students to earn credentials incrementally at their own pace and to pause their education as needed or desired.

Program Requirements

Required Courses		6 s.h.
(s.h.: semester hours/credit hours)		
CM01.301	Fundamentals of the Construction Industry I	3
CM01.302	Fundamentals of the Construction Industry II	3
Elective Courses		6 s.h.
Choose two (2) from the following options.		
CM01.303	Project Building Systems	3
CM01.304	Project Administration	3
CM01.305	Construction Cost Accounting, Estimating and Finance	3
CM01.306	Construction Project Planning and Scheduling	3
CM01.410	Building Construction Systems and Codes	3
CM01.411	Construction Safety and Loss Prevention	3
Total Required Credits for the Program		12 s.h.

Foundation Courses

None

Graduation/Exit, Benchmark, and Thesis Requirements

None

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Biomedical engineering is at the intersection of engineering, medicine, and biology, with the focus on the improvement of health care systems. Rowan's BME program educates students to analyze and design innovative solutions with the goal of improving quality of life and effectiveness of patient care. The BME program features a hands-on, real world, project-based curriculum that has proven successful in developing the engineer of the future, and prepares students to contribute to health care solutions in an increasingly multidisciplinary environment.

Mission and Goals

Rowan's Biomedical Engineering program provides students with a firm grounding in engineering principles along with a background in life sciences, chemistry, and mathematics. Graduates of the program will possess the skills to be leaders in industry, to pursue further studies in graduate and medical school, and to contribute as a practicing engineer.

Rowan BME Program Educational Objectives

Rowan's BME program prepares students to be successful and productive members of the engineering profession through a rigorous program of study featuring continuous and increasingly challenging subject matter complemented with project-based learning, supervision, and mentoring. Therefore, graduates of Rowan's BME program will have demonstrated that they are able to solve current and evolving engineering needs and challenges of their chosen field of work.

The Biomedical Engineering Program has three program educational objectives:

1. Develop engineers who possess the unique set of skills and knowledge that constitute the core of biomedical engineering and can successfully apply these in a wide variety of fields.
2. Develop engineers who can function both independently and collaboratively to solve problems for their employer.
3. Develop engineers who engage in professional growth and responsible practice.

Rowan BME Program Student Outcomes

Student outcomes are technical and professional skills our students are expected to attain by the time of graduation. At the time of graduation, graduates of the Rowan BME program will have attained the following skills that are necessary for a successful engineer:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

BACHELOR OF SCIENCE IN BIOMEDICAL ENGINEERING

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General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
MATH01.235	Math for Engineering Analysis	4 s.h
COMP01.111	College Comp I	3 s.h.
CS01.104	Intro to Sci Programming	3 s.h.
or CS04.103	CS and Programming	4 s.h.
STAT02.284	Statistics for Biomed Sci	3 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory Electricity & Magnetism	4 s.h.
CHEM06.100	Chemistry I	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
MCB01.102	Foundations in Biology for BMS II	4 s.h
ENGR01.101	First Year Engineering Clinic I	2 s.h.
ENGR01.102	First Year Engineering Clinic II	2 s.h.
ENGR01.201	Sophomore Engineering Clinic I	4 s.h.
ENGR01.202	Sophomore Engineering Clinic II	4 s.h.
ENGR01.303	Junior Engineering Clinic	4 s.h.
ENGR01.403	Senior Engineering Clinic	4 s.h.
PHIL09.341	Biomedical Ethics	3 s.h.
ENT06.240	Entrepreneurship and Innovation	3 s.h.
BME11.302	Electrical Foundations in Biomedical Engineering	4 s.h.
BME11.201	Chemical Foundations in Biomedical Engineering	4 s.h.
BME11.303	Mechanical Foundations in Biomedical Engineering	4 s.h.
BME11.301	Physiological Foundations in Biomedical Engineering	4 s.h.
BME11.411	Modeling and Simulation for Analysis and Design in BME	4 s.h.
BME11.100	Biomed Eng Seminar	1 s.h.

Science and Engineering Electives

Must be approved by advisor. Total credit hours are 19 s.h.
15 s.h. - of approved CCF electives (either BME11.4xx or from approved list).
4 s.h. - Either Organic Chem 1 (CHEM07.200) or Human Anatomy & Physiology I (BIOL10.210) or Human Anatomy & Physiology II (BIOL10.212).

Total Credits in Program **120 s.h.**

Accelerated Dual Degree: B.S. in Biomedical Engineering and an M.S. in Biomedical Engineering

Overview

The Department of Biomedical Engineering created this accelerated degree program to provide a seamless transition between undergraduate and graduate coursework and research for students wishing to pursue a research-based Master of Science (M.S.) Degree with Thesis in Biomedical Engineering. The program will allow qualified students to complete both programs in five years.

4 + 1 UNDERGRADUATE PROGRAM REQUIREMENTS

General Education

All students starting ***before*** Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Bachelor of Science Program Requirements

MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
MATH01.235	Math for Engineering Analysis	4 s.h
COMP01.111	College Comp I	3 s.h.
CS01.104	Intro to Sci Programming	3 s.h.
or CS04.103	CS and Programming	4 s.h.
STAT02.284	Statistics for Biomed Sci	3 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory Electricity & Magnetism	4 s.h.
CHEM06.100	Chemistry I	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
MCB01.102	Foundations in Biology for BMS II	4 s.h
ENGR01.101	First Year Engineering Clinic I	2 s.h.
ENGR01.102	First Year Engineering Clinic II	2 s.h.
ENGR01.201	Sophomore Engineering Clinic I	4 s.h.
ENGR01.202	Sophomore Engineering Clinic II	4 s.h.
ENGR01.303	Junior Engineering Clinic	4 s.h.
ENGR01.403	Senior Engineering Clinic	4 s.h.
PHIL09.341	Biomedical Ethics	3 s.h.
ENT06.240	Entrepreneurship and Innovation	3 s.h.
BME11.302	Electrical Foundations in Biomedical Engineering	4 s.h.
BME11.201	Chemical Foundations in Biomedical Engineering	4 s.h.
BME11.303	Mechanical Foundations in Biomedical Engineering	4 s.h.
BME11.301	Physiological Foundations in Biomedical Engineering	4 s.h.
BME11.411	Simulation, Modeling & Control in Biomedical Systems	4 s.h.
BME11.100	Biomed Eng Seminar	1 s.h.

Science and Engineering Electives

Must be approved by advisor. Total credit hours are 19 s.h. 15 s.h. - of approved CCF electives (either BME11.4xx or from approved list). 4 s.h. - Either Organic Chem 1 (CHEM07.200) or Human Anatomy & Physiology I (BIOL10.210) or Human Anatomy & Physiology II (BIOL10.212).

Total Credits in Program 120 s.h.

4 + 1 GRADUATE PROGRAM REQUIRMENTS

BME11.5##	BME Core Competency Focus Courses taken at 500 level*	3 s.h.
BME11.5##	BME Core Competency Focus Courses taken at 500 level*	3 s.h.
BME11.5##	BME Core Competency Focus Courses taken at 500 level*	3 s.h.
MATH01.515	Engineering Applications of Analysis	3 s.h.
BME11.###	BME Graduate Core (500 or 600 level)	3 s.h.
BME11.###	BME Graduate Core (500 or 600 level)	3 s.h.
BME11.###	BME Graduate Core (500 or 600 level)	3 s.h.
ENGR01.599	Masters Research	3 s.h.
ENGR01.599	Masters Research	3 s.h.
ENGR01.599	Masters Research	3 s.h.

Total Credits in Program 30 s.h.

Total Required Credits for the Entire 4 + 1 Program 141 s.h.

Graduate courses marked with * above are counted in the 120 s.h. undergraduate program.

Requirements for Admission:

Applicants to the Accelerated Degree program will submit an application for admission to the graduate program in the Spring semester of their third year or equivalent of the undergraduate program. Application requirements are as follows:

- A minimum overall GPA of 3.0 in undergraduate coursework
- CV or detailed Resume

- Track record of excellence in undergraduate research
- Recommendation letter from faculty member who will be their MS Thesis Advisor

Requirements for Graduation:

To graduate from the accelerated program students must have a 2.00 GPA per university guidelines for the B.S., then earn a minimum 3.0 GPA in all M.S. coursework.

Contingency for Students who do not Complete Master of Science program: Students who choose not to complete the Master's portion of the program will still be eligible to earn the B.S. in Biomedical Engineering.

Accelerated Dual Degree: B.S. in Biomedical Engineering and an M.S. in Engineering with Concentration in Biomedical Engineering

Overview

The Department of Biomedical Engineering created this accelerated degree program to provide a seamless transition between undergraduate and graduate coursework for students wishing to pursue a Non-Thesis based Master of Science in Engineering (M.S. Engineering) focused in the area of Biomedical Engineering. The program will allow qualified students to complete both programs in five years.

4 + 1 UNDERGRADUATE PROGRAM REQUIREMENTS

General Education

All students starting ***before*** Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Bachelor of Science Program Requirements

MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
MATH01.235	Math for Engineering Analysis	4 s.h
COMP01.111	College Comp I	3 s.h.
CS01.104	Intro to Sci Programming	3 s.h
. *or* CS04.103	CS and Programming	4 s.h.
STAT02.284	Statistics for Biomed Sci	3 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory Electricity & Magnetism	4 s.h.
CHEM06.100	Chemistry I	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
MCB01.102	Foundations in Biology for BMS II	4 s.h
ENGR01.101	First Year Engineering Clinic I	2 s.h.
ENGR01.102	First Year Engineering Clinic II	2 s.h.
ENGR01.201	Sophomore Engineering Clinic I	4 s.h.
ENGR01.202	Sophomore Engineering Clinic II	4 s.h.
ENGR01.303	Junior Engineering Clinic	4 s.h.
ENGR01.403	Senior Engineering Clinic	4 s.h.
PHIL09.341	Biomedical Ethics	3 s.h.
ENT06.240	Entrepreneurship and Innovation	3 s.h.
BME11.302	Electrical Foundations in Biomedical Engineering	4 s.h.
BME11.201	Chemical Foundations in Biomedical Engineering	4 s.h.
BME11.303	Mechanical Foundations in Biomedical Engineering	4 s.h.
BME11.301	Physiological Foundations in Biomedical Engineering	4 s.h.
BME11.411	Simulation, Modeling & Control in Biomedical Systems	4 s.h.
BME11.100	Biomed Eng Seminar	1 s.h.

Science and Engineering Electives

Must be approved by advisor. Total credit hours are 19 s.h. 15 s.h. - of approved CCF electives (either BME11.4xx or from approved list). 4 s.h. - Either Organic Chem 1 (CHEM07.200) or Human Anatomy & Physiology I (BIOL10.210) or Human Anatomy & Physiology II (BIOL10.212).

Total Credits in Program 120 s.h.

4 + 1 GRADUATE PROGRAM REQUIRMENTS

BME11.5##	BME Core Competency Focus Courses taken at 500 level*	3 s.h.
BME11.5##	BME Core Competency Focus Courses taken at 500 level*	3 s.h.
BME11.5##	BME Core Competency Focus Courses taken at 500 level*	3 s.h.
MATH01.5##	Graduate MATH Core (500 or 600 level)	3 s.h.
#####.###	Approved Business Course (500 or 600 level)	3 s.h.
BME11.###	BME Graduate Core (500 or 600 level)	3 s.h.
BME11.###	BME Graduate Core (500 or 600 level)	3 s.h.
STAT11.5##	Graduate Core (500 or 600 level)	3 s.h.
#####.###	Technical Elective (500 or 600 level)	3 s.h.
#####.###	Technical Elective (500 or 600 level)	3 s.h.

Total Credits in Program 30 s.h.

Total Required Credits for the Entire 4 + 1 Program 141 s.h.

Graduate courses marked with * above are counted in the 120 s.h. undergraduate program.

Requirements for Admission:

Applicants to the Accelerated Degree program will submit an application for admission to the graduate program in the Spring semester of their third year or equivalent of the undergraduate program. Application requirements are as follows:

- A minimum overall GPA of 3.0 in undergraduate coursework
- CV or detailed Resume

Requirements for Graduation:

To graduate from the accelerated program students must have a 2.00 GPA per university guidelines for the B.S., then earn a minimum 3.0 GPA in the M.S. coursework.

Contingency for Students who do not Complete Master of Science program: Students who choose not to complete the Master's portion of the program will still be eligible to earn the B.S. in Biomedical Engineering.

CERTIFICATE OF UNDERGRADUATE STUDY IN BIOMATERIALS ENGINEERING

Mary Staehle, Ph.D.
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The Certificate of Undergraduate Study (CUGS) in Biomaterials Engineering provides a sequence of courses that combines expertise and concepts from various disciplines. This CUGS will provide directed, upper-level coursework in the topical area of Biomaterials Engineering.

Certificate of Undergraduate Study in Biomaterials Engineering 12-14 s.h.

For admittance into the CUGS, students must have completed CHEM07.200: Organic Chemistry I, 4 s.h. The requirements include four courses:

BME11.473	Principles in Biomaterials Engineering	3 s.h.
BME11.450	Biocompatibility and Immunoengineering	3 s.h.

Two additional electives from the following list of courses:

CHEM07.492	Pharmaceutical Chemistry	3 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
BIOL22.335	Advanced Genetics	4 s.h.
MCB22.450	Molecular Genetics	4 s.h.
	Additional electives may be approved by the advisor	3-4 s.h.

To be awarded the CUGS in Biomaterials Engineering, students must complete all courses required for the CUGS in Biomaterials Engineering.

CERTIFICATE OF UNDERGRADUATE STUDY IN ORGAN, TISSUE, AND CELL ENGINEERING: REGENERATIVE MEDICINE

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The Certificate of Undergraduate Study (CUGS) in Organ, Tissue, and Cell Engineering: Regenerative Medicine provides a sequence of courses that combines expertise and concepts from various disciplines. This CUGS will provide directed, upper-level coursework in the topical areas of Regenerative Medicine via Organ, Tissue, and Cell Engineering.

Certificate of Undergraduate Study in Organ, Tissue, and Cell Engineering: Regenerative Medicine 12-14 s.h.

For admittance into the CUGS, students must have completed CHEM07.200: Organic Chemistry I, 4 s.h. The requirements include four courses:

BME11.473	Principles in Biomaterials Engineering	3 s.h.
BME11.478	Tissue Engineering Fundamentals	3 s.h.

Two additional electives from the following list of courses:

CHEM07.492	Pharmaceutical Chemistry	3 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
BIOL22.335	Advanced Genetics	4 s.h.
MCB22.450	Molecular Genetics	4 s.h.
	Additional electives may be approved by the advisor	3-4 s.h.

To be awarded the CUGS in Organ, Tissue, and Cell Engineering: Regenerative Medicine, students must complete all required courses.

CERTIFICATE OF UNDERGRADUATE STUDY IN ORTHOPEDIC ENGINEERING

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The Certificate of Undergraduate Study (CUGS) in Orthopedic Engineering provides a sequence of courses that combines expertise and concepts from various disciplines. This CUGS will provide directed, upper-level coursework in the topical areas of Orthopedic Engineering.

Certificate of Undergraduate Study in Orthopedic Engineering 12-14 s.h.

For admittance into the CUGS, students must have completed either BIOL 10.210: Human Anatomy and Physiology I OR BIOL 10.212: Human Anatomy and Physiology II. The requirements include four courses:

BME11.470	Introduction to Biomechanics	3 s.h.
BME11.451	Mechanobiology	3 s.h.

Two additional electives from the following list of courses:

BIOL22.335	Advanced Genetics	4 s.h.
MCB22.450	Molecular Genetics	4 s.h.
ME10.443	Design for X	3 s.h.
	Additional electives may be approved by the advisor	3-4 s.h.

To be awarded the CUGS in Orthopedic Engineering, students must complete all required courses.

CERTIFICATE OF UNDERGRADUATE STUDY IN PHARMACEUTICAL ENGINEERING AND THERAPEUTIC DELIVERY

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The Certificate of Undergraduate Study (CUGS) in Pharmaceutical Engineering and Therapeutic Delivery provides a sequence of courses that combines expertise and concepts from various disciplines. This CUGS will provide directed, upper-level coursework in the topical area of Pharmaceutical Engineering and Therapeutic Delivery.

Certificate of Undergraduate Study in Pharmaceutical Engineering and Therapeutic Delivery 13-14 s.h.

For admittance into the CUGS, students must have completed CHEM07.200: Organic Chemistry I, 4 s.h. The requirements include four courses:

BME11.474	Fundamentals of Controlled Release	3 s.h.
BME11.450	Biocompatibility and Immunoengineering	3 s.h.

Two additional electives from the following list of courses:

CHEM07.492	Pharmaceutical Chemistry	3 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
BIOL22.335	Advanced Genetics	4 s.h.
MCB22.450	Molecular Genetics	4 s.h.
	Additional electives may be approved by the advisor	3-4 s.h.

To be awarded the CUGS in Pharmaceutical Engineering and Therapeutic Delivery, students must complete all courses required for the CUGS in Pharmaceutical Engineering and Therapeutic Delivery.

Department of Experiential Engineering Education (ExEEd)

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Engineering Entrepreneurship Program

Engineering Entrepreneurship integrates technical, business, and professional knowledge and skills to spur innovation and develop new products and processes. Engineering entrepreneurship requires creativity, business acumen, opportunity recognition, perseverance, and customer empathy with a firm technical engineering foundation. Importantly, students learn the knowledge, skills, and abilities associated with an entrepreneurial mindset in engineering contexts. Overall, the Engineering Entrepreneurship Program provides graduates with the interdisciplinary engineering and business knowledge needed to excel in management and leadership roles early in their career.

The Engineering Entrepreneurship program prepares students for a wide range of career opportunities in which technological innovation plays a central role, at established companies, new ventures, government or non-profit organizations, or graduate school.

Through the Engineering Entrepreneurship Program, students pursue the following educational objectives.

1. Recognize opportunities around them; leading to new or improved products and/or services
2. Utilize ideation best practices to generate a pool of ideas based on stakeholders' needs
3. Apply design thinking throughout their product and process development
4. Consider the broader context, including the real and potential impacts, of technological solutions in professional practice
5. Collaborate on interdisciplinary teams (both within engineering and outside of engineering)
6. Value failure as both positive and negative, depending on the scenario
7. Develop the communication, teamwork, project management, and leadership skills needed to excel professionally
8. Analyze legal, marketing, and financial knowledge needed to support new ventures

BACHELOR OF SCIENCE IN ENGINEERING ENTREPRENEURSHIP

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General Education

All students starting *before* Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses for all students starting before Fall 2020

Math and Science Courses	31 s.h.
Engineering Clinic Sequence	20 s.h.
Other Engineering Courses	34 s.h.
Business/Entrepreneurship Courses	27 s.h.
Total Hours Required for Graduation (with Rowan Core Courses)	128 s.h.

No more than 18 credits of discipline specific engineering courses may be counted toward a double major in another engineering discipline.

Required Courses for all students starting after Fall 2020

Math and Science Courses	32 s.h.
Engineering Clinic Sequence	20 s.h.
Other Engineering Courses	33 s.h.
Business/Entrepreneurship Courses	24 s.h.
Total Hours Required for Graduation (with Rowan Core Courses)	120 s.h.

No more than 18 credits of discipline specific engineering courses may be counted toward a double major in another engineering discipline.

Department of Chemical Engineering

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Chemical Engineering is the application of mathematics and sciences, with special emphasis on chemistry, in the development, design, and supervision of processes to manufacture useful products. Chemical engineers are part of numerous industries and technologies including petrochemicals, pharmaceuticals, biotechnology, food and consumer products, polymers, microelectronics, electronic and advanced materials, sustainable technologies, safety, health and environment.

Mission and Goals

The Rowan University Chemical Engineering Program is a student-centered, primarily undergraduate program that incorporates leading-edge educational methods and technology with engineering practice. We prepare students for careers in the global chemical process industry and related fields, and for advanced degree study. Our program provides students with a strong foundation in chemical engineering science and design, and emphasizes the development of effective communication and teaming skills, and professional responsibility in preparation for a career in a diverse global workforce.

Throughout the curriculum, students are exposed to chemical engineering methods using hands-on, state-of-the-art experiments, modern computer tools, and problem synthesis and solution approaches. The Chemical Engineering Program is committed to technical excellence, professional responsibility, and lifelong learning.

We use this mission statement along with the following three goals, to try to achieve the best possible learning environment for our students:

Goal 1 Develop engineers who are successfully using their chemical engineering expertise to adapt to the evolving technological challenges of a wide variety of professional fields.

Goal 2 Develop engineers who, within several years of graduation, are functioning independently and collaboratively in providing creative solution strategies to problems for their employer.

Goal 3 Develop engineers who engage in professional growth and responsible practice.

BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

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General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
MATH01.235	Math for Engineering Analysis	4 s.h.
CHEM06.100	College Chemistry I	4 s.h.
CHEM06.101	College Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
ENGR01.101	First-Year Engr Clinic I	2 s.h.
(This course also fulfills the Rowan Seminar requirement.)		
ENGR01.102	First-Year Engr Clinic II	2 s.h.
ENGR01.201	Sophomore Engineering Clinic I*	4 s.h.
(This course also fulfills the Rowan Core Communicative Literacy Requirement)		
ENGR01.202	Sophomore Engineering Clinic II*	4 s.h.
(This course also fulfills the Rowan Core Communicative Literacy Requirement)		
CHE06.201	Principles of Chemical Processes I	2 s.h.
CHE06.202	Principles of Chemical Processes II	2 s.h.
CHE06.241	Chemical Engineering Fluid Mechanics	2 s.h.
CHE06.309	Process Fluid Transport	2 s.h.
CHE06.311	Heat Transfer Processes	3 s.h.
CHE06.312	Separation Processes I	2 s.h.
CHE06.314	Separation Processes II	3 s.h.
CHE06.310	Chemical Engineering Thermodynamics I	3 s.h.
CHE06.315	Chemical Engineering Thermodynamics II	3 s.h.
ENGR01.303	Junior Engineering Clinic (must be taken twice for a total of 4 s.h.)	2 s.h.
CHE06.381	Chemical Engineering Materials	2 s.h.
CHE06.316	Chemical Reaction Engineering	4 s.h.
CHE06.385	Chemical Engineering Modeling	2 s.h.
CHE06.403	Unit Op Exp Design & Analysis	3 s.h.
CHE06.405	Process Dynamics and Control	3 s.h.

ENGR01.403	Senior Engineering Clinic (must be taken twice for a total of 4 s.h.)	2 s.h.
(This course also fulfills the Rowan Experience Writing Intensive requirement)		
CHE06.401	Chemical Process Component Design	3 s.h.
CHE06.406	Chemical Plant Design	3 s.h.
CHE06.407	Chemical Process Safety	2 s.h.
	Approved Chemical Engineering Electives I, II, III	9 s.h.
	Approved Adv. Chemistry Elective	3-4 s.h.
Total Credits in Program		120 s.h.

MINOR IN CHEMICAL ENGINEERING

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This Minor in Chemical Engineering (ChE) will offer students a foundation in material and energy balances, transport phenomena, and separation processes relevant to the manufacturing industry. The minor is designed for students from other engineering disciplines as well as students from science majors who may be interested in pursuing a career or graduate studies in chemical engineering. The minor is a minimum of 18 semester hour credits total of ChE courses. Students in the minor take 6 credits of required ChE courses and a minimum of 12 credits of course work chosen from banks of ChE courses. These courses provide the necessary fundamentals and allow a focus in an area of interest. Students must have a minimum of 2.0 GPA in the minor-specific courses. Admission requires the approval of the ChE Department Head. The applicant will need to have completed MATH01.130 Calculus I, MATH01.131 Calculus II, MATH01.230 Calculus III, MATH01.235 Mathematics for Engineering Analysis (or equivalent MATH 01.231 Ordinary Differential Equations and MATH01.210 Linear Algebra), CHEM06.100 College Chemistry I, CHEM06.101 College Chemistry II, and PHYS00.220 Introductory Mechanics (or equivalent Physics I – Calculus-based) before being considered for acceptance into the minor. A minimum cumulative GPA of 3.0 in the aforementioned courses is required for admission into the ChE minor. Current ChE students who transfer out of the major will be automatically eligible for admission into the ChE minor.

Required Courses 6 s.h.

CHE06.201	Principles of Chemical Processes I*	2 s.h.
CHE06.202	Principles of Chemical Processes II*	2 s.h.
CHE06.241	Chemical Engineering Fluid Mechanics	2 s.h.
or ENGR01.341	Fluid Mechanics	2 s.h.
or ENGR01.342	Engineering Fluid Mechanics	3 s.h.

*CHE06.203 Principles of Chemical Processes 4 s.h. may be substituted for both CHE06.201 Principles of Chemical Processes I and CHE06.202 Principles of Chemical Processes II

Elective Courses Choose 9 s.h. (minimum) from the following**

CHE06.309	Process Fluid Transport	2 s.h.
CHE06.310	Chemical Engineering Thermodynamics I	3 s.h.
CHE06.311	Heat Transfer Processes	3 s.h.
CHE06.312	Separation Processes I	2 s.h.
CHE06.314	Separation Processes II	4 s.h.
CHE06.315	Chemical Engineering Thermodynamics II	3 s.h.
CHE06.316	Chemical Reaction Engineering	4 s.h.

**Students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page. The ChE Department Head will review course equivalencies.

Chemical Engineering Senior Elective: Choose 3 s.h. minimum The Senior Electives are courses in the following range: CHE06.440 to CHE06.495

MATERIALS CONCENTRATION

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This concentration provides a mechanism to give students credit for their focused study in materials on their transcripts. Extending this opportunity to students is valuable to them because of growing industrial interest in these areas of chemical engineering.

In South Jersey, there are a number of local industries, such as Solvay Solexis, Metrologic, DuPont, and VWR Scientific, whose success is based on the application of materials science. Within the region, there are only a limited number of schools that can supply qualified people to meet the needs of their labor force. By providing skilled graduates, this project will ensure that these companies can meet these needs and allow them to expand their enterprises. The local economy has an ever-increasing pressure for well-trained technicians, scientists, and engineers.

Materials science is inherently multi-disciplinary, requiring of its practitioners a broad range of knowledge and a variety of skills. Students in the proposed program will be able to follow the complete cycle of materials science from concept to research design to synthesis, to measurement of and explanation for the physical properties of the material to successful application. Coupled with the organization of learning for chemical engineering students within the program comes a distinct and strong effort to motivate students to pursue careers in materials research. Ultimately, these efforts should help us retain a diverse pool of talented students in New Jersey instead of being lost to out-of-state institutions.

This concentration is a cohesive set of courses that focus on materials within chemical engineering. To obtain this concentration in materials, at least 12 semester hours of credit are required. The requirements to earn a concentration in materials are as follows:

Course Credits	12 s.h.
Chemical Engineering Materials (CHE06.381)	2 s.h.
Jr/Sr Clinic Materials-related project (ENGR01.301, 302, 401, 402)	4 s.h.
ChE or Chemistry Elective - from approved list	3 s.h.
Out of Discipline Elective - from approved list	3 s.h.

In order to earn the concentration in materials, students can earn four credits by working on an approved materials project in 2 semesters of Junior/Senior Engineering Clinic. These projects can be housed in any of the engineering disciplines, but must be approved by the Chemical Engineering faculty as having substantial materials content. Note that students can also fulfill the project requirement through independent study on materials-related projects (Independent Study in Engineering ENGR01.391).

Students earn the remaining six credits towards the concentration by taking one elective from each of the following lists. In order to underscore the diverse applications and multi-disciplinary nature of materials science, we will require students to take one chemistry or chemical engineering elective, and one materials elective outside of chemical engineering. Note that a chemistry course can be used to fulfill either requirement, but no one course can be used to fulfill both. Alternative courses to that given below must be approved by the concentration advisor.

Approved Materials Electives from ChE or Chemistry

CHE06.466	Polymer Processing	3 s.h.
CHE06.490	Approved Special Topics Course	3 s.h.
CHEM05.430	Approved Advanced Topics in Chemistry,	3 s.h.
CHEM07.405	Introduction to Polymer Chemistry	3 s.h.
CHEM07.475	Polymer Synthesis	4 s.h.
CHEM07.478	Polymer Characterization	4 s.h.

Approved Materials Electives from outside Chemical Engineering

CEE08.301	Civil Engineering Materials	2 s.h.
ME10.422	Introduction to Computational Fluid Dynamics	3 s.h.
CHEM05.430	Approved Advanced Topics in Chemistry	3 s.h.
CHEM07.405	Introduction to Polymer Chemistry	3 s.h.
CHEM07.475	Polymer Synthesis	4 s.h.
CHEM07.478	Polymer Characterization	4 s.h.
INTR01.486	Interdisciplinary Materials Science	3 s.h.

Faculty in chemical engineering and throughout the College routinely manage Junior/Senior Engineering Clinic projects in materials.

CERTIFICATE OF UNDERGRADUATE STUDY IN MATERIALS ENGINEERING

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The Certificate of Undergraduate Study (CUGS) in Materials Engineering seeks to provide recognition for students' completion of 12 credits in materials science and engineering-related courses. Proficiency in this area is a valuable credential, as graduating science and engineering students with materials expertise are in demand for jobs in academia, industry, government labs, and the non-profit arenas.

Certificate of Undergraduate Study in Materials Engineering 12 s.h.

The requirements include the following five courses:

CHE06.381	Chemical Engineering Materials	2 s.h.
	Jr/Sr Clinic Materials-related project (semester 1)	2 s.h.
	Jr/Sr Clinic Materials-related project (semester 2)	2 s.h.
	Chemical Engineering or Chemistry elective	3 s.h.
	Out of discipline elective	3 s.h.
Total		12 s.h.

Determination of which clinic projects count towards the CUGS in Materials Engineering is up to the discretion of the CUGS program advisor. Approval is granted based on an individual basis, following consultation with the clinic project manager. Clinic projects that involve components related to the discovery, design, or characterization of materials, with an emphasis on solids, will qualify for CUGS credit.

The two electives for the CUGS are chosen from an approved list. Available electives depend on the semester offering with Engineering and the Department of Chemistry and Biochemistry. Approval is up to the discretion of the CUGS program advisor and is determined based on the relevance of the course content. The following us a list of possible courses for the chemical engineering, chemistry, or out of discipline elective.

CHE06.466	Polymer Processing - CHEM ENG
CHEM07.470	Organic Spectroscopy Analysis - CHEM & BIOCHEM
CHEM08.410	Survey of Molecular Mod. and Methods - CHEM & BIOCHEM
CHEM07.405	Intro to Polymer Chemistry - CHEM & BIOCHEM
ENGR01.283	Mat Science and Manufacturing - MECH ENG

BIOLOGICAL ENGINEERING CONCENTRATION

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This concentration provides a mechanism to give students credit for their focused study in bioengineering. Extending this opportunity to students is valuable to them because of growing industrial interest in these areas of chemical engineering. In 1992, NIH defined "biomolecular engineering" as: *"Research at the interface of chemical engineering and biology with an emphasis at the molecular level."*

Recent trends in chemical engineering research, the decisions of government agencies, and the opinions of leading academics were taken as the platform for the development of the bio-related concentration.

Modern biology has emerged as an underlying fundamental science in chemical engineering. Advances in biology are prompting new discoveries in the biotechnology, pharmaceutical, medical technology, and chemical industries. Developing commercial-scale processes based on these advances requires that new chemical engineers clearly understand the biochemical principles behind the technology, in addition to developing a firm grasp of chemical engineering principles. Finally, New Jersey is a global and national leader in the biotechnology and pharmaceutical industries.

Instead of working at the "macro" scale, as traditional biochemical engineers have, there is a need for students to be able to work across scales - from the molecular level to the microscopic to the macroscopic. Traditional biochemical engineering focused on bioreactor design, agitation, and microbial cultures as a whole - macroscopic processes. Current and future applications will require students to be familiar with the molecular details of the product of interest, which help determine how to design and operate microscopic and macroscopic operations for production and purification. This concentration is a cohesive set of courses that focus on a biological engineering within chemical engineering and requires at least 12 semester hours of credit. The requirements to earn a concentration in biological engineering are as follows:

Course Credits 12 s.h.

Biology for Chemical Engineers (BIOL01.211)
Jr/Sr Clinic Bio-related project (ENGR01.301, 302, 401 and 402)

Electives - from approved list

The Biological Systems and Applications course is a required course in chemical engineering that was added as a response to the growing national interest in biochemical engineering. This course is prerequisite for all subsequent work towards a biological engineering concentration.

Junior/Senior Engineering Clinic is a required 2-credit course for students in all engineering disciplines. This course is a hallmark of the Rowan College of Engineering and provides undergraduate students with hands-on experience on practical engineering research and design problems, frequently in collaboration with local industrial sponsors. All engineering students are required to take four semesters (8 credits) of Junior/Senior Clinic. Students who wish to earn a concentration in biological engineering must select an approved Junior/Senior Clinic project for at least one of their four semesters. Note that students can also fulfill the project requirement through independent study on bio-related projects (Independent Study in Engineering ENGR01.391).

Because the department wishes to maintain a "depth and breadth" approach to the biological engineering concentration, a student will not be allowed to apply more than 4 credits worth of Junior/Senior Clinic to their concentration. Students must earn the balance of the 12 credits by taking any combination courses from the following list:

Approved list of electives - Chemical Engineering

CHE06.462	Bioprocess Engineering	3 s.h.
CHE06.472	Principles of Biomedical Processes	3 s.h.
CHE06.476	Principles of Bioseparation Processes	3 s.h.
CHE06.482	Principles of Food Engineering	3 s.h.
CHE06.483	Principles of Engineering Exercise Physiology	4 s.h.
CHE06.484	Fundamentals of Controlled Release	3 s.h.
CHE06.486	Membrane Processes	3 s.h.
CHE06.490	Approved Special Topics Course	3 s.h.

Approved list of electives - Other engineering disciplines

CEE08.412	Environmental Treatment Process Principles	3 s.h.
ECE09.404	Principles of Biomedical Systems and Devices	3 s.h.

Approved list of electives with bio focus

BIOL01.430	Cell Biology	4 s.h.
BIOL01.440	Special Topics in Biological Sciences	2 s.h.
BIOL11.405	Environmental Microbiology	4 s.h.
BIOL14.440	Intro to Biochemistry	3 s.h.
CHEM07.348	Biochemistry	4 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
CHEM08.305	Biophysical Chemistry	4 s.h.

The current chemical engineering curriculum requires students to take two advanced chemical engineering electives and one advanced chemistry elective. Consequently, the biological engineering concentration is readily attainable under the current chemical engineering curriculum: it requires a focused selection of project work and electives but no "additional" courses.

Department of Civil and Environmental Engineering

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Civil Engineering includes all aspects of the planning, design, evaluation, construction, and maintenance of the infrastructure of modern life. This includes buildings, bridges, highways, airports, water and waste treatment facilities, dams and flood control, off-shore structures, rocket launch pads, space stations, communication towers and many other engineering works. Civil Engineering is essential for global development and maintaining a good quality of life and has tremendous impact on humankind. The curriculum is designed to prepare students for a global marketplace and to obtain a strong understanding of green and sustainable practices while also emphasizing the societal impacts of design solutions.

The Civil Engineering Department strives to prepare students for professional careers by providing a broad-based civil engineering education through a rigorous curriculum including hands-on laboratory and design experiences integrated throughout. The department is committed to the integration of teaching, research, scholarly, and service activities within a collaborative project based educational environment as part of its students' preparation for both engineering practice and graduate school. The Civil Engineering department also places a strong emphasis on ethical engineering practices throughout its curriculum.

The program endeavors to produce graduates ready to communicate their ideas in a diverse and multidisciplinary workplace.

The CEE Program Educational Objectives (PEO) are as follows:

1. Graduates have a broad base of knowledge, are aware of emerging trends in their field, and understand the interrelationships between sub-disciplines that affect engineering projects.

2. Graduates are creative problem-solvers who consider technical, social, political, environmental and economic issues in developing realistic engineering solutions based on effective data collection and analysis.
3. Graduates conduct their professional lives in a manner that reflects positively on themselves, their employer and their alma mater and recognize the ethical, global, and social responsibility of their profession.
4. Graduates have the technical, communication and interpersonal skills to assume increasing responsibility and leadership roles within a diverse and multidisciplinary workplace.

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

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Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
MATH01.235	Math for Engineering Analysis I	4 s.h.
CHEM06.100	Chemistry I	4 s.h.
COMP01.111	Composition I	3 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
Computer Programming Elective (choose one):		
CS01.104	Introduction to Scientific Programming	3 s.h.
or CS04.103	Computer Science and Programming	4 s.h.
Science Elective (choose one):		
BIOL01.112	Gen Biology – Environmental Focus	
or BIOL01.113	Gen Biology - Human Focus	
or BIOL10.210	Human Anatomy and Physiology I	
or GEOG06.130	Earth Science Lab I	
or GEOL01.101	Physical Geology	
or MCB01.101	Foundations in Biology for Biomedical Sciences I	
or PHYS00.360	Biophysics II	
ENGR01.101	First-Year Engr Clinic I	2 s.h.
(This course also fulfills the Rowan Seminar requirement.)		
ENGR01.102	First-Year Engr Clinic II	2 s.h.
ENGR01.201	Sophomore Engineering Clinic I	4 s.h.
(This course also fulfills the General Education requirement College Composition II)		
ENGR01.202	Sophomore Engineering Clinic II	4 s.h.
(This course also fulfills the Rowan Experience Public Speaking requirement.)		
ENGR01.303	Junior Engineering Clinic (must be taken twice for a total of 4 s.h.)	2 s.h.
ENGR01.403	Senior Engineering Clinic (must be taken twice for a total of 4 s.h.)	2 s.h.
(This course also fulfills the Rowan Experience Writing Intensive requirement.)		
ENGR01.271	Statics	2 s.h.
ENGR01.272	Solid Mechanics	2 s.h.
ENGR01.281	Material Science	2 s.h.
ENGR01.291	Dynamics	2 s.h.
ENGR01.341	Fluid Mechanics I	2 s.h.
CEE08.382	Structural Analysis	3 s.h.
CEE08.383	Analysis and Design of Steel Frames	3 s.h.
CEE08.311	Environmental Engineering I	3 s.h.
CEE08.301	Civil Engineering Materials	2 s.h.
CEE08.342	Water Resources Engineering	3 s.h.
CEE08.351	Geotechnical Engineering	3 s.h.
CEE08.305	Civil Engineering Systems	3 s.h.
CEE08.361	Transportation Engineering	3 s.h.
CEE08.102	Engineering Graphics	2 s.h.

CEE08.103	Field Surveying	2 s.h.
CEE08.491	Civil Engineering Design Project I	2 s.h.
CEE08.492	Civil Engineering Design Project II	2 s.h.
CEE08.490	Civil Engineering Practice	1 s.h.
Civil Engineering Electives		12 s.h.
Rowan Core Artistic Literacy Elective		3 s.h.
Rowan Core Humanistic Literacy Elective		3 s.h.
Rowan Core Global Literacy Elective		3 s.h.
Rowan Experience Broad-based Literature Elective		3 s.h.
Total Credits in Program		120 s.h.

Students pursuing the Bachelors in Civil Engineering also have the option to obtain a concentration in one of five fields within Civil Engineering: Environmental Engineering, Geotechnical Engineering, Structural Engineering, Transportation Engineering and Water Resources Engineering. These concentrations allow students to increase the depth and breadth of knowledge in the respective concentration. The concentrations will be attractive to students who have fundamental knowledge in civil engineering, but desire additional skills and formal education in a specific field of environmental engineering.

CONCENTRATION IN ENVIRONMENTAL ENGINEERING 12 s.h.

Required (Mid-Level) Courses for the Environmental Engineering Concentration (6 s.h)

CEE08.311	Environmental Engineering
CEE08.312	Sustainable Civil and Environmental Engineering

Electives for the Environmental Engineering Concentration

Six (6) s.h. of electives from the following:

CEE08.412	Environmental Treatment Process Principles
CEE08.422	Site Remediation Engineering Principles
CEE08.431	Solid/Hazardous Water Management
CEE08.432	Pollutant Fate/Transport Principles
CEE08.433	Principles Integrated Solid Waste Management
CEE08.413	Introduction to Environmental Management
CEE08.438	Biological Treatment Processes for Engineers

CONCENTRATION IN GEOTECHNICAL ENGINEERING 13 s.h

Required (Mid-Level) Courses for the Geotechnical Engineering Concentration (7 s.h.)

CEE08.351	Geotechnical Engineering
GEOL01.101	Physical Geology

Electives for the Geotechnical Engineering Concentration

Six (6) s.h. of electives from the following:

CEE08.452	Foundation Engineering
CEE08.453	Earth Retaining Systems

CONCENTRATION IN STRUCTURAL ENGINEERING 12 s.h

Required (Mid-Level) Courses for the Structural Engineering Concentration (6 s.h.)

CEE08.382	Structural Analysis
CEE08.383	Analysis and Design of Steel Frames

Electives for the Structural Engineering Concentration

Six (6) s.h. of electives from the following:

CEE08.473	Advanced Structural Analysis for Seniors
CEE08.474	Structural Mechanics
CEE08.476	Portland Concrete Cement
CEE08.481	Reinforced Concrete Design
CEE08.483	Advanced Steel Design for Seniors
CEE08.484	Prestressed Concrete for Seniors
CEE08.485	Advanced Reinforced Concrete for Seniors
CEE08.486	Bridge Engineering for Seniors
CEE08.487	Design of Masonry and Wood Structures
ENGR01.410	Introduction to Finite Element Analysis

CONCENTRATION IN TRANSPORTATION ENGINEERING 12 s.h

Required (Mid-Level) Courses for the Transportation Engineering Concentration (6 s.h.)

CEE08.361	Transportation Engineering
CEE08.305	Civil Engineering Systems

Electives for the Transportation Engineering Concentration

Six (6) s.h. of restricted electives from the following:

CEE08.466	Introduction to Transportation System Modeling
CEE08.463	Transportation Planning and Demand Analysis

CEE08.464	Elements of Transportation Engineering for Seniors
CEE08.465	Pavement Analysis/Evaluation

CONCENTRATION IN WATER RESOURCES ENGINEERING 12 s.h

Required (Mid-Level) Courses for the Water Resources Engineering Concentration (6 s.h.)

CEE08.311	Water Resources Engineering
CEE08.312	Sustainable Civil and Environmental Engineering

Electives for the Water Resources Engineering Concentration

Six (6) s.h. of electives from the following:

CEE08.412	Water Resources Treatment Process Principles
CEE08.422	Site Remediation Engineering Principles
CEE08.431	Solid/Hazardous Waste Management
CEE08.432	Pollutant Fate/Transport Principles
CEE08.433	Principles Integrated Solid Waste Management
CEE08.413	Introduction to Water Resources Management

Minor in Civil and Environmental Engineering

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The Minor in Civil and Environmental Engineering (CEE) is designed to provide non-CEE majors knowledge of the topics common to a civil engineering degree. All courses in the minor are taught in the CEE major and therefore are taught in a manner consistent with the major's Program Goals, Student Learning Goals, and Student Learning Outcomes as presented for ABET accreditation. The CEE Minor consists of 18 or 19 credit hours, depending on the sequence pursued.

Students in the minor choose one of two sequences of courses within CEE. The sequences were selected in order to provide students the opportunity to obtain depth in sub-areas of civil engineering through selections of courses that follow a logical progression of prerequisites. All students in the minor must take the required course. The student then selects the structures sequence OR the Environmental/Water Resources Sequence. Admission requires approval of the CEE department head. Students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Completion of 18 or 19 credit hours following one of the recommended sequences of courses within the minor is required. Students must have a 2.0 GPA in the minor courses.

Required Course (2 credits)

ENGR01.271	Statics	2 s.h.

Structural Engineering Sequence (16 or 17 s.h.)

ENGR01.291	Dynamics	2 s.h.
ENGR01.272	Solid Mechanics	2 s.h.
or ENGR01.273	Strength of Materials	3 s.h.
CEE08.382	Structural Analysis	3 s.h.
CEE08.383	Analysis and Design of Steel Frames	3 s.h.

Two Civil Engineering Structures Electives selected with an advisor (6 s.h.)

Environmental/Water Resources Engineering Sequence (17 s.h.)

CEE08.305	Civil Engineering Systems	3 s.h.
ENGR01.341	Fluid Mechanics	2 s.h.
CEE08.311	Environmental Engineering I	3 s.h.
CEE08.342	Water Resources Engineering	3 s.h.

Two Civil Engineering Electives selected with an advisor (6 s.h.)

CERTIFICATE OF UNDERGRADUATE STUDY IN GEOTECHNICAL ENGINEERING

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The CUGS in Geotechnical Engineering will allow students to take courses specific to Geotechnical Engineering as well as courses that will establish a background in the related field of Geology. This will allow students to graduate from Rowan University better prepared for a career specifically in geotechnical engineering than they would with just the BS degree, and provide them with an additional credential beyond the BS, yet prior to earning a MS degree.

Certificate of Undergraduate Study in Geotechnical Engineering 12 s.h.

The requirements include the following four courses:

CEE08.452	Foundation Design for Seniors
CEE08.453	Earth Retaining Systems for Seniors
GEOL01.340	Minerals and Petrology

One Course from the Following List:

GEOL01.201	Sedimentology and Stratigraphy
GEOL01.320	Structural Geology

Prerequisites for admission to the CUGS are CEE08.351 Geotechnical Engineering and GEOL01.101 Physical Geology. These courses also serve as prerequisites for all of the required or elective course listed above.

CERTIFICATE OF UNDERGRADUATE STUDY IN ENVIRONMENTAL ENGINEERING

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The Certificate of Undergraduate Study (CUGS) in Environmental Engineering offers students an opportunity to obtain additional specialized coursework in Environmental Engineering and related disciplines beyond that allowed by the BS program in Civil Engineering. The coursework is designed to facilitate immediate transference to pollution prevention design applications in the United States.

Certificate of Undergraduate Study in Environmental Engineering 12-14 s.h.

The requirements include the following four courses:

CEE08.312	Sustainable Civil and Environmental Engineering

One Course from the Following List:

CEE08.412	Environmental Treatment Process Principles
CEE08.413	Introduction to Environmental Management
CEE08.422	Site Remediation Engineering Principles
CEE08.431	Solid and Hazardous Waste Management
CEE08.432	Pollutant Fate and Transport Principles
CEE08.433	Principles of Integrated Solid Waste Management
CEE08.438	Biological Treatment Processes for Engineers

Two Courses from the Following List:

CHEM06.101	Chemistry II
CHEM07.200	Organic Chemistry I
EVSC01.305	Contaminants in the Environment
EVSC01.350	Field Methods in Environmental Science
EVSC01.490	Advanced Special Topics in Environmental Science
BIOL02.410	Stream Ecology
BIOL20.425	Environmental Toxicology
ENST94.301	Environmental Ethics

CEE08.311 Environmental Engineering or CEE08.312 Sustainable Civil and Environmental Engineering are prerequisite for the program.

CERTIFICATE OF UNDERGRADUATE STUDY IN TRANSPORTATION ENGINEERING

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The CUGS in Transportation Engineering will allow students to increase the depth and breadth of knowledge in transportation engineering fundamentals during their undergraduate studies. This will allow students to graduate from Rowan University better prepared for a career specifically in Transportation Engineering than they would with just the BS degree, and provide them with an additional credential beyond the BS, yet prior to earning a MS degree.

Certificate of Undergraduate Study in Transportation Engineering 12 s.h.

The requirements include the following four courses:

Two Courses from the Following List:

CEE08.463	Transportation Planning and Demand Analysis

CEE08.464	Elements of Transportation Engineering for Seniors
CEE08.465	Pavement Analysis and Evaluation
CEE08.466	Introduction to Transportation System Modeling
CEE08.468	Introduction to Intelligent Transportation Systems

Two Courses from the Following List:

GEOG16.260	Fundamentals of Geographic Information Systems
GEOG16.307	Geography of Transportation
GEOG16.360	Applications of Geographic Information Systems
PLAN31.280	Foundations of Planning and Environmental Design

CEE08.361 Transportation Engineering and GEOG16.160 Introduction to Mapping and Geographic Information Systems are prerequisites for admission into the CUGS. CEE08.361 Transportation Engineering is a prerequisite for all of the CEE courses listed below. GEOG16.160 is a prerequisite for GEOG16.260 Fundamentals of Geographic Information Systems which in turn is a prerequisite for GEOG16.360 Applications of Geographic Information Systems.

BACHELOR OF SCIENCE IN SURVEYING ENGINEERING TECHNOLOGY

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The Bachelor of Science in Surveying Engineering Technology is a program designed to prepare students for the land surveying profession. The Bachelor of Science in Surveying Technology degree is offered as a joint program with Rowan College of South Jersey with all or most of the courses offered at the Sewell campus.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39.

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38.

Core Courses Required		67 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.210	Linear Algebra	3 s.h.
SET01.103	CADD I	3 s.h.
SET01.113	CADD II	3 s.h.
GEOG16.133	Meteorology	4 s.h.
GEOG16.131	Principles of Earth Science	3 s.h.
SET01.108	Introduction to Surveying	3 s.h.
SET01.206	Evidence and Procedures for Boundary Location	3 s.h.
SET01.208	Route and Construction Surveying	3 s.h.
GEOG16.160	Intro to Mapping and GIS	3 s.h.
GEOG16.260	Fundamentals of GIS	4 s.h.
PLAN31.280	Foundations of Planning and Environmental Design	3 s.h.
SET01.302	Adjustment Computations	4 s.h.
SET01.303	Boundaries and Adjacent Properties	3 s.h.
SET01.304	Digital Practices in Surveying	3 s.h
SET01.305	Boundary Line Analysis	3 s.h.
SET01.401	Geodetic Control Surveying	3 s.h.
SET01.402	Professional Practice in Surveying	2 s.h.
SET01.490	Capstone Project	4 s.h.
SET01.403	Fundamentals of Geodesy	3 s.h.
GEOG16.370	Drones, Planes, and Satellites	3 s.h.
Elective (Select one from)		3 s.h.
SET01.201	Codes Contracts and Specifications	3 s.h.
SET01.207	Hydraulics	3 s.h.
SET01.203	3-D Modeling	3 s.h.
Geospatial Elective (select one)		3 s.h.
GEOG16.261	Cartography	3 s.h.
GEOG16.361	Geovisualization	3 s.h.
GEOG16.365	Geospatial Measurement and Environmental Modeling	3 s.h.

Planning Elective (select one)		3 s.h.
PLAN31.386	Land Use and Conservation	3 s.h.
PLAN31.385	New Jersey Planning Practice	3 s.h.
PLAN31.389	Environmental/Sustainable Planning	3 s.h.
PLAN31.486	Community Planning and Site Design	3 s.h.
Non-Program Courses		21 s.h.
MATH01.122	Precalculus	4 s.h.
MATH01.130	Calculus I	4 s.h.
CS01.102	Introduction to Programming	3 s.h.
CS04.103	Computer Science and Programming	4 s.h.
STAT02.260	Statistics I	3 s.h.
PHIL09.150	Introduction to Ethics	3 s.h.
Free Electives/Rowan Core		23 s.h.
Total Hours Required for Graduation (with Gen Ed Courses)		120 s.h.

Department of Electrical and Computer Engineering

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Rowan's Electrical and Computer Engineering (ECE) curriculum combines electrical engineering topics such as electronics, control systems, digital signal processing, telecommunications, power systems, and alternative energy, with computer engineering topics such as computer hardware & software design, microprocessors, embedded systems, and internet of things, as well as emerging and cross-cutting topics such as machine learning and artificial intelligence, smart systems, virtual and augmented reality and systems engineering. The ECE curriculum also integrates these topics with hands-on project-based learning for a unique and innovative program. Electrical and Computer engineers have made some remarkable contributions to our world; they have pioneered the invention of smartphones, computers, digital cameras, GPS systems, radio-frequency ID tags, medical imaging devices, gaming systems, electrical and autonomous vehicles, just to name a few among seemingly countless technological innovations. ECEs also play a crucial and indispensable role in the design of cars, airplanes, spacecraft and extraterrestrial vehicles, home appliances, life-saving medical equipment such as medical imaging systems, forensics, cybersecurity and cyber-physical systems, machine learning and so many other technologies that we have come to rely on.

Core courses taken by all ECE students include such topics as circuits, electronics, electromagnetics, digital design, microprocessors, control systems, communication systems, digital signal processing, data structures, computer architecture, embedded systems and very large-scale integration (microelectronics). Advanced senior-level electives provide opportunities to specialize in areas such as nanotechnology, bioengineering, sustainable design, renewable energy systems, micro and smart grid, wireless and optical communications, aerospace systems, artificial intelligence and machine learning, digital image processing, bioinformatics, advanced visualization, radar systems, embedded systems, internet of things, systems engineering, among many others. All ECE courses have integrated laboratory and/or project components. Eight semesters of Engineering Clinics provide students with a team-oriented, multidisciplinary design and research experience, which is a unique opportunity to integrate the students' theoretical background into the solution of practical real-world engineering problems. The ECE program also fosters entrepreneurial spirit through the clinics, as well as a unique ECE Clinic Consultant class, which provides hands-on experience for becoming an effective technical consultant.

Rowan's Electrical and Computer Engineering program is designed to produce effective engineers who can excel in a broad spectrum of environments and challenges, and sustain productivity throughout their career. Through a rigorous program of study featuring continuous and increasingly challenging subject matter complemented with project-based learning, supervision, and mentoring, Rowan's ECE program prepares its students to be successful and productive members of the engineering profession.

Specifically, we prepare our graduates to become agile problem solvers, competent in essential engineering and ECE knowledge, who are also articulate, capable and effective communicators. We strive to instill an entrepreneurial spirit and facilitate trans-disciplinary discourse, while ensuring that our students are sensitive to and aware of contemporary issues.

Rowan ECE Program Educational Objectives

Program educational objectives are broad and long-term career accomplishments our students are expected to achieve *within 3-5 years of graduation.*

Therefore, within 3-5 years of graduation, graduates of Rowan's ECE program will have demonstrated that they are:

1. ***Proficient engineers,*** successful in solving current and evolving engineering needs and challenges of their chosen field of work, as evidenced by their continuous and gainful employment, career advancement to positions that come with

increased professional responsibilities, or through their entrepreneurial activities;

2. ***Continuing to learn,*** evidenced by development of their professional knowledge and skills by pursuing advanced degrees, certificates or through other continuing education opportunities in engineering or other professional areas;
3. ***Responsible professionals,*** actively serving their profession as evidenced by their active participation in professional societies, and/or their recognition of service to the profession or society.

Rowan ECE Program Student Outcomes

Student outcomes are technical and professional skills our students are expected to attain *by the time of graduation*.

At the time of graduation, graduates of the Rowan ECE program will have attained the following skills as required for an engineering program accredited by ABET (Accreditation Board for Engineering and Technology)

1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

BACHELOR OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING

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Program website: www.rowan.edu/ece

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
MATH01.235	Math for Engineering Analysis	4 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory Electricity & Magnetism	4 s.h.
CS04.103	Computer Science and Programming	4 s.h.
CS04.225	Principles of Data Structures	3 s.h.
ENGR01.101	First-Year Engr Clinic I	2 s.h.
ENGR01.102	First-Year Engr Clinic II	2 s.h.
ENGR01.201	Sophomore Engineering Clinic I	4 s.h.
ENGR01.202	Sophomore Engineering Clinic II	4 s.h.
ENGR01.303	Junior Engineering Clinic (must be taken twice for a total of 4 s.h.)	2 s.h.
ENGR01.403	Senior Engineering Clinic (must be taken twice for a total of 4 s.h.)	2 s.h.
ME10.320	Principles of Mechanical Engineering for ECE Majors	3 s.h.
ECE09.101	Electrical and Computer Engineering: Solving Tomorrow's Problems	2 s.h.
ECE09.203	Principles of Electric Circuit Analysis	4 s.h.
ECE09.241	Introduction to Digital Systems	2 s.h.
ECE09.243	Computer Architecture	3 s.h.

ECE09.303	Engineering Electromagnetics	3 s.h.
ECE09.311	Electronics I	3 s.h.
ECE09.321	Systems and Control I	3 s.h.
ECE09.341	Signals and Systems	2 s.h.
ECE09.342	Introduction to Embedded Systems	3 s.h.
ECE09.351	Digital Signal Processing	3 s.h.
ECE09.363	Modules in Electrical and Computer Engineering	1 s.h.
ECE09.414	Very Large Scale Integration Design	3 s.h.
ECE09.433	Electrical Communications Systems	3 s.h.
ECE09.461	Clinic Consultant in Electrical and Computer Engineering	1 s.h.
ECE09.498	Seminar: Engineering Frontiers	1 s.h.

One of the following science electives:

CHEM06.100	College Chemistry I	4 s.h.
or BIOL01.112	General Biology: Environmental Focus	4 s.h.
or BIOL01.113	General Biology: Human Focus	4 s.h.
or BIOL01.115	General Biology: Plants and People	4 s.h.
or BIOL10.210	Human Anatomy and Physiology	4 s.h.
or PHYS00.221	Intro Thermo, Fluids, Waves & Optics	4 s.h.
or PHYS00.300	Modern Physics	4 s.h.

Choose one of the following four business electives:

ECON04.102	Intro to Economics: Microeconomics	3 s.h.
or ECON04.101	Introduction to Economics Macroeconomics	3 s.h.
or ENT06.240	Entrepreneurship and Innovation	3 s.h.
or ENT06.326	Small Business Management	3 s.h.

Required Electives

Five approved Technical Electives	15 s.h.
Total Credits in Program	**128 s.h.**

MINOR IN ELECTRICAL AND COMPUTER ENGINEERING

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The Minor in Electrical and Computer Engineering (ECE) offers students majoring in disciplines other than ECE the opportunity to become familiar with principles and design practices used to meet the multidisciplinary needs of modern technology. This minor is offered by the faculty of the ECE program and is designed to serve students from other engineering disciplines as well as those students with majors outside of engineering. It is assumed that students who pursue the ECE minor will obtain a mathematics background that is comparable to that required for a major in engineering. The ECE minor stipulates 11 semester credit hours of required courses that provide a fundamental grounding in ECE knowledge and design. These courses include an overview of ECE as a field, an introduction to digital circuit design, theory-based courses in both analog circuits and modern electronics. In addition to these fundamental courses, 3 elective courses assure the students an opportunity to emphasize a particular area of interest.

Required Courses 11 s.h.

ECE09.101	Electrical and Computer Engineering: Solving Tomorrow's Problems	2 s.h.
ECE09.203	Principles of Electric Circuit Analysis	4 s.h.
ECE09.241	Introduction to Digital Systems	2 s.h.
ECE09.311	Electronics	3 s.h.

Elective Courses: Choose any three of the following*

ECE09.243	Computer Architecture	3 s.h.
ECE09.303	Engineering Electromagnetics	3 s.h.
ECE09.321	Systems and Control I	3 s.h.
ECE09.341	Signals and Systems	2 s.h.
ECE09.342	Introduction to Embedded Systems	3 s.h.
ECE09.351	Digital Signal Processing	3 s.h.
ECE09.414	Very Large Scale Integration Design	3 s.h.
ECE09.433	Electrical Communications	3 s.h.
ENGR01.403	Senior Engineering Clinic **	2 s.h.
ECE09.4XX	An approved ECE elective***	

*Students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page.

** If Senior Engineering Clinic is used as one of the ECE electives, the clinic must be strictly an ECE project, with an ECE faculty member serving as the project manager. Only one semester of clinic experience may be used as an elective.

*** Please see ECE Minor coordinator or ECE Department Head for determining which ECE electives offered in any given semester are approved for Minor. Only one ECE elective may be used towards the ECE Minor, and this must be in addition to any electives the student's major may require.

MINOR IN SYSTEMS ENGINEERING

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Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, proceeding with design synthesis and system validation while considering the complete problem that includes – operations, cost & schedule, performance, training & support, test, disposal, and manufacturing. Systems Engineering integrates all the disciplines and specialty groups into a team effort forming a structured development process that proceeds from concept to production to operation. Systems Engineering considers both the business and the technical needs of all customers with the goal of providing a quality product that meets the user needs. In addition, Systems Engineering incorporates concepts of "balanced design" – achieving a product design that meets requirements but does not exceed them, and does so within the constraints of cost, schedule & performance, including life cycle costs; and "risk assessment & management" – understanding the technical and other risks that may be involved and managing the design to effectively mitigate the risks.

para> Minor in Systems Engineering consists of a total 24 credits, 12 coming from required courses and 12 from electives as follows. Not all courses are offered in all semester, please check Section Tally and plan accordingly.

Required Courses (12 credits)		12 s.h.
Take both of the following two courses		
ECE09.421	Introduction to Systems Engineering	3 s.h.
ECE09.427	Model-Based Systems Engineering	3 s.h.
Then, take one of the following		
ENGR01.411	Engineering Optimization	3 s.h.
CS06.390	Introduction to Systems Simulation and Modeling	3 s.h.
and one of the following		
MKT09.375	Business Logistics	3 s.h.
MIS02.325	Project Management	3 s.h.
Elective Courses (12 credits)		
take any four of the following		
ECE09.321	Systems & Control	3 s.h.
ECE09.433	Electrical Communications Systems	3 s.h.
ECE09.402	Topics in ECE: Technology Focus Elective*	3 s.h.
ECE09.4xx	Approved ECE Elective**	3 s.h.
ENGR01.411	Introduction to Engineering Optimization***	3 s.h.
CS07.340	Design and Analysis of Algorithms	3 s.h.
CS07.321	Software Engineering I	3 s.h.
CS04.380	Object Oriented Design	3 s.h.
CS06.390	Introduction to Systems Simulation and Modeling***	3 s.h.
ME10.342	Quality & Reliability in Design and Manufacture	3 s.h.
ME10.343	Mechanical System Dynamics and Control	3 s.h.
ME10.443	Design for X	3 s.h.
CEE08.305	Civil Engineering Systems	3 s.h.
CHE06.405	Process Dynamics and Control	3 s.h.
EM01.511	Strategic Risk Management	3 s.h.
EM01.512	Quality in Engineering Management	3 s.h.
EM01.513	Engineering Decision Making	3 s.h.
MGT06.677	Management Skills for Engineers	3 s.h.
MIS02.325	Project Management***	3 s.h.
MKT09.375	Business Logistics ***	3 s.h.

** ECE 09.402 Topics in ECE is a special topics class, with a different course content presented each time it is offered. Therefore, check with ECE Department Head to verify that the specific ECE 09.402 you are interested will qualify as a Systems Engineering elective.

*** ECE 09.4XX ECE Department regularly offers senior electives on topics that are very relevant to Systems Engineering. Please check with ECE Department Chair for approved 400-level courses that can be used as a Systems Engineering elective.
***If not already taken as a required class

Graduation/Exit, Benchmark, and Thesis Requirements

Students must complete all required courses with at least a 2.0 grade point average.

For details regarding satisfactory academic progress and graduation requirements, please visit www.rowanu.com/policies.

CERTIFICATE OF UNDERGRADUATE STUDIES IN APPLIED MACHINE LEARNING IN ENGINEERING

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Machine learning has been one of the fastest growing fields in all sciences and engineering. Not a day goes by that we hear another story that talks about how machine learning has become part of our lives. The number of applications where machine learning systems make automated decisions in place of humans have grown exponentially. There is a significant demand in this area for qualified professionals, and these professionals have some of the highest starting salary of any profession.

The Certificate of Undergraduate Study (CUGS) in Applied Machine Learning in Engineering will be offered by the Henry M. Rowan College of Engineering, Department of Electrical and Computer Engineering and will consist of four (4) undergraduate-level courses as described below.

A unique aspect of this CUGS is the practical hands-on experience option it provides: the CUGS in Applied Machine Learning in Engineering features four classes all of which featuring their own major project components. This CUGS also provides unique access for non-engineering students to Rowan Engineering's signature hallmark, the Senior Engineering Clinic, where students work in multidisciplinary teams on real-world unsolved problems. If taken twice across two consecutive semesters (2 credits each, for a total of 4 credits), Senior Engineering Clinic will provide a yearlong experience, which can then be used to count towards one of the electives in the CUGS. To qualify, students will need to take one of several specific sections of Senior Engineering Clinic that focuses on machine learning related projects.

Hence, through this four-class sequence, the Applied Machine Learning in Engineering CUGS will provide breadth and depth in theoretical foundations of machine learning, as well as practical hands-on real-world project experience. As a result of this broad fundamental and practical experience we expect our students to be particularly marketable, attracting high paying salaries.

Program Requirements

Required Courses (6 credits)

Course #	Course Title	S. H.
ECE09.455	Machine Learning	3 s.h.
And choose one of the following two courses		
ECE09.458	Reinforcement Learning	3 s.h.
ECE09.495	Emerging Topics in Computational Intelligence, Machine Learning and Data Mining	3 s.h.
Elective Courses (6 or 7 credits) Choose any two of the following		
ECE09.454	Introduction to Artificial Neural Networks	3 s.h.
ECE09.466	Systems, Devices and Algorithms in Bioinformatics	3 s.h.
ECE09.458	Reinforcement Learning*	3 s.h.
ECE09.495	Emerging Topics in Computational Intelligence, Machine Learning and Data Mining*	3 s.h.
ENGR01.403	Senior Engineering Clinic (must be taken twice, 2 credits each)**	4 s.h.
ENGR01.411	Introduction to Engineering Optimization	3 s.h.
Total Required Credits		12-13 s.h.

* This course can be used as an elective, if not already taken as one of the required courses.

** In order to count towards one elective, Senior Engineering Clinic must be taken twice, in consecutive semesters. Only specific sections of Senior Engineering Clinic that focuses on machine learning topics will qualify. Please contact ECE Department Head for advising / information.

Graduation/Exit, Benchmark, and Thesis Requirements

Students must complete all required courses with at least a 2.0 grade point average.

For details regarding satisfactory academic progress and graduation requirements, please visit www.rowanu.com/policies.

CERTIFICATE OF UNDERGRADUATE STUDIES IN COMBAT SYSTEMS ENGINEERING

Program Coordinator/Advisor Contact Information
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The immediate region surrounding Rowan University is home to a large number of companies and agencies that serve the defense industry. Collectively, this industry hires more of the graduating Rowan Electrical and Computer Engineering (ECE) students than any other industry. The representatives of this industry have expressed a desire to provide additional knowledge and skills set – specifically as they relate to combat systems – that they would prefer their employees to have at the time of hiring.

The Certificate of Undergraduate Study (CUGS) in Combat Systems Engineering is a program designed to meet this need and consists of four (4) three-credit undergraduate level courses. The program allows students to increase the breadth and depth of their knowledge of complex systems with particular applications to combat systems and defense technologies. Completion of this CUGS will give students the necessary tools required by the defense industry in analysis, design, evaluation, and validation of combat systems. Students who complete this CUGS will be more marketable and ready to be imminently employed at graduation by the defense and related industry companies, not just in our immediate geographic area, but nationwide as well. This program is jointly developed by Rowan ECE and the defense industry representatives. All courses in this CUGS are taught by highly qualified faculty, including subject matter experts from the defense industry who have significant industrial experience and hence bring unique industry perspective.

The primary audience of this CUGS are

- students who are currently in the BS degree program in Electrical and Computer Engineering, who would like to focus on the combat systems engineering for employment in the defense industry (students may apply two of the required CUGS courses – ECE09.423 and ECE09.425 – towards the BS in ECE degree requirements).
- students in other related areas of engineering, who would like to focus on combat systems engineering for employment in the defense industry. These students may need to complete relevant prerequisites of the required courses.
- students at other institutions, or professionals already working in related industries, who are interested in expanding their knowledge and skillset in this area. Students in this group would be un-matriculated students.

This CUGS program is available to any student in a Bachelor's degree program in electrical / computer / systems engineering, or a related science / engineering discipline who is in good standing, or any professional with a bachelor's (or higher) degree in a relevant area.

A graduate version of this program, as a Certificate of Graduate Studies (COGS) in Combat Systems Engineering is also available to qualified students.

Program Requirements

Required Courses

(s.h.: semester hours/credit hours)

Course #	Course Title	S. H.
ECE09.423	Introduction to Radar Systems	3 s.h.
ECE09.424	Introduction to War Gaming and C4ISR	3 s.h.
ECE09.425	Introduction to Command and Control	3 s.h.
ECE09.426	Introduction to Weapon Systems	3 s.h.
Total Required Credits		12 s.h.

Foundation Courses (prerequisites to CUGS courses)
MATH01.201 Linear Algebra, MATH01.230 Calculus III, MATH01.231 Ordinary Differential Equations, ECE09.321 Systems and Control I (or similar/relevant work experience); ECE09.341 Signals & Systems (or similar/relevant work experience)

Graduation/Exit, Benchmark, and Thesis Requirements

Students must complete all required courses with at least a 2.0 grade point average.

For details regarding satisfactory academic progress and graduation requirements, please visit www.rowanu.com/policies.

CERTIFICATE OF UNDERGRADUATE STUDIES IN POWER SYSTEMS ENGINEERING

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The U.S. electricity grid is poised for a dramatic transformation, enabled by smart grid technologies, to address national and worldwide existential necessities: meeting the increasing electric energy needs, reducing the reliance on fossil fuels, and thus restoring and boosting the economy. The U.S. Department of Energy's (DoE) Quadrennial Energy Review (QER) found that 1.5 million new jobs across the energy sector will need to be filled over the next several years, with many of these positions paying 50 to 80 percent more than the average annual salary. However, achieving the goals of "Smart Grid" is hampered by a growing shortage of qualified electric power and energy engineers. According to the U.S. Senate Committee on Energy and Natural resources, 77% of energy companies find it difficult to hire qualified employees. This Certificate of Undergraduate Study (CUGS) in Power Systems Engineering in intended to meet this unmet demand in graduating qualified engineers.

The Certificate of Undergraduate Study (CUGS) in Power Systems Engineering consists of four (4) undergraduate courses laying a strong technical foundation in electric power systems focused on the operation of emerging systems. Through this four-class sequence, students will be able to articulate the core concepts of conventional system analysis, different renewable system analysis, electricity market and different smart grid enabling techniques. Power Systems Engineering CUGS will provide students with breadth and depth in theoretical foundations of emerging power systems, as well as practical hands-on project experience. As a result of this CUGS, we expect our graduates to be particularly marketable, attracting many employers looking to hire highly qualified smart-grid ready power engineers.

Additionally, this CUGS also provides access to non-engineering students, who are interested in pursuing this program, to Rowan Engineering's signature hallmark, the Senior Engineering Clinic (2 credits, to be taken twice over two semesters, for a total of 4 credits, providing year-long project experience, counting as one of the electives for the CUGS), where students work on real-world power systems problems under ECE faculty's supervision. The students will need to take one of several specific sections of Senior Engineering Clinic that focus on power systems related projects.

Program Requirements

Required Courses (6 credits)

Course #	Course Title	S. H.
ECE09.408	Power Systems Engineering	3 s.h.
ECE09.410	Alternate Energy Systems	3 s.h.

Elective Courses (6 or 7 credits)

Choose either two courses (strongly recommended) from Knowledge Area 1 OR choose one from Knowledge Area 1 and one from Knowledge Area 2 Knowledge Area 1 (Courses with immediate relevance to Power Systems)

ECE09.415	Fundamentals of Emerging Electricity Market	3 s.h.
ECE09.472	Smart Grid	3 s.h.
ECE09.473	Smart Sensors	3 s.h.

Knowledge Area 2 (supportive courses of relevance) – If only one course is taken from Knowledge Area 1, choose any one of the following. If you take two courses from Knowledge Area 1 (recommended), then the following is not required

ECE09.411	Electronics II	3 s.h.
ECE09.422	Systems and Control II	3 s.h.
ECE09.432	Wireless Communication	3 s.h.
ECE09.455	Machine Learning	3 s.h.
ECE09.485	Introduction to Engineering Cyber Security	3 s.h.
ENGR01.403	Senior Engineering Clinic (must be taken twice, 2 credits each)*	4 s.h.
Total Required Credits		12-13 s.h.

* Must be enrolled in one of the specific sections of Senior Engineering Clinic that focuses on power systems topics. The list of ENGR 01.403 sections that qualify as elective of this CUGS are announced each semester. ENGR 01.403 should be taken at least one semester later than ECE 09. 408 Power System Engineering. ENGR 01.403 must be taken twice over two semesters to provide a year-long major experience in solving real-world power systems related problems.

Sequence of Coursework: ECE 09.408 must be taken first which is the prerequisite of the second required course ECE09.410 Alternate Energy Systems, and other electives. Both of these two required courses provide the necessary background for the students to be successful in the following electives and Senior Engineering Clinic.

Admission Requirements / Foundation Courses (prerequisites to CUGS courses)

Students applying to this CUGS must have completed the following fundamental courses (or their equivalents) with a minimum GPA of 3.0 or must have relevant career or other experience that includes background in these areas. ECE09.203 Principles of Electric Circuit Analysis, MATH 01.235 Math for Engineering Analysis or (MATH 01.210 Linear Algebra and MATH 01.230 Calculus III/Ordinary Differential Equations); STAT 02.290 Probability and Statistical Inference for Computing Systems or STAT 02.360 Probability and Random Variables or STAT 02.286 Probability & Statistics for Electrical & Computer Engineering; and any prerequisites of the courses that make up this course sequence.

BIOMEDICAL ENGINEERING CONCENTRATION

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The ECE department's biomedical engineering (BME) concentration is designed to be as flexible as possible while ensuring a meaningful depth and breadth in biomedical engineering.

1. All ECE students are required to take two core science classes (from an approved list of science classes) outside of Engineering. The list currently includes the following courses. Therefore, students who wish to concentrate on BME are advised to take one of these courses towards their regular science requirements:

BIOL01.106	Introduction to Genetics
BIOL01.112	General Biology: Environmental Focus
BIOL01.113	General Biology: Human Focus
BIOL01.115	General Biology: Plants and People
BIOL01.203	Introduction to Cell Biology
BIOL01.204	Introduction to Ecology

2. Students need a minimum of 4 credits from an approved list of Biological Science Electives. The approved list of electives will be reviewed on a yearly basis depending on the courses offered on campus. In general, these courses are from the Anatomy/Physiology bank or from the Cellular, Molecular Biology bank of the Biology program, or from the Chemistry / Biochemistry program. The students are responsible for either obtaining the prerequisites, or making the necessary arrangements with the professor. The courses listed in (1) do count towards this requirement. In general, students need to satisfy this requirement during their sophomore or junior year.

3. No fewer than 2, no more than 4 credits of Junior / Senior clinic must come from BME related projects. Note that each Ju/Se clinic in ECE is 2 credits. Therefore, 1- 2 semesters of clinic experience must come from BME related projects. Every semester, there are a number of projects that are BME related. Those projects that qualify for this category will be announced every semester.

4. Minimum of 3 credits (one course) from an approved list of Bio-related ECE electives. The list currently includes:

ECE09.404	Principles of Biomedical Systems and Devices

Additional courses will be added to this bank. Note that every semester the ECE department offers electives under the title "Special Topics in ECE" (0909.402.xx). Some of these classes are BME related and will count towards this requirement. Interested student should contact Department Head to inquire which Special Topics courses qualify for BME concentration in any given semester. This course will be taken during the senior year.

5. Minimum of 3 credits from an approved list of Bio-related non-ECE engineering electives. Any course that is on the approved list of other engineering departments' BME bank (including the BME department) will count towards this requirement. This course will also be taken during the senior year. Students are encouraged to discuss their intention to specialize in biomedical engineering as early as possible with the BME advisor in the ECE department. The advisor will be able to guide students on the correct sequence of required courses.

Department of Mechanical Engineering

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Mechanical Engineering involves the design and building of machines and devices. This includes the conversion of energy from one form to another, the dynamics of mechanical devices, and the control systems for operation of machines. Design of thermal and mechanical systems are integrated into the curriculum.

The Rowan Mechanical Engineering Program develops effective engineers who are well prepared for the next phase of their career, whether in industry or government or in graduate school.

Our educational objectives are as follows:

1. ME graduates are well-rounded engineers who can apply knowledge and skills in their careers.
2. ME graduates consider the context and broader impacts of engineering solutions in professional practice.
3. ME graduates effectively communicate to a broad spectrum of audiences and have the teamwork and leadership skills to excel professionally.
4. ME graduates are flexible to adapt to changing technology and recognize the need for continuous improvement, self-study or further education.

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time First-year students starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
CHEM06.100	Chemistry I	4 s.h.
MATH01.235	Math for Engineering Analysis I	4 s.h.
MATH01.332	Intro Numerical Analysis	3 s.h.
PHYS00.220	Introductory Mechanics I	4 s.h.
PHYS00.222	Intro. Elect. & Magnetism	4 s.h.
CS01.104	Intro Scientific Program: Matlab/CAD	3 s.h.
ECE09.205	Principles and Applications of ECE for Nonmajors	3 s.h.
ENGR01.101	First-Year Engr Clinic I	2 s.h.
ENGR01.102	First-Year Engr Clinic II	2 s.h.
COMP01.111	College Comp I	3 s.h.
ENGR01.201	Sophomore Engineering Clinic I	4 s.h.
ENGR01.202	Sophomore Engineering Clinic II	4 s.h.
ENGR01.271	Statics	2 s.h.
ENGR01.273	Strength of Materials	3 s.h.
ENGR01.283	Materials Science and Manufacturing	3 s.h.
ENGR01.291	Dynamics	2 s.h.
ENGR01.303	Junior Engineering Clinic (must be taken twice for a total of 4 s.h.)	2 s.h.
ENGR01.403	Senior Engineering Clinic (must be taken twice for a total of 4 s.h.)	2 s.h.
ENGR01.410	Finite Element Analysis	3 s.h.
ME10.101	Introduction to Mechanical Design	3 s.h.
ME10.210	Manufacturing & Measurement Techniques	2 s.h.
ME10.301	Machine Design	4 s.h.
ME10.310	Intro Thermal-Fluid Sciences	4 s.h.
ME10.330	Fluid Mechanics for ME	3 s.h.
ME10.335	Heat Transfer for ME	3 s.h.
ME10.342	Quality and Reliability in Design and Manufacturing	3 s.h.
ME10.345	Dynamic Systems & Control	4 s.h.
	Approved Technical Electives	6 s.h.
	Business Elective	3 s.h.
	Ethics Elective	3 s.h.
	Rowan Core Electives	9 s.h.
Total Credits in Program		**120 s.h.**

CERTIFICATE OF UNDERGRADUATE STUDY IN ADVANCED MANUFACTURING

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The CUGS in Advanced Manufacturing will prepare graduates to gain employment in the advanced manufacturing sector both in New Jersey and nationwide. This CUGS will allow students to increase the depth and breadth of knowledge in the advanced manufacturing area, including additive manufacturing (3D printing). Students must complete four (4) courses (12

sch), of which no more than two (2) courses (6 sch) may be counted towards a degree or another certificate. Administrating program faculty may approve or add courses to the list.

Certificate of Undergraduate Study in Advanced Manufacturing 12 s.h.

ENGR01.283	Materials Science and Manufacturing	3 s.h.
ME10.342	Quality and Reliability	3 s.h.
ME10.440	Introduction to Advanced Manufacturing	3 s.h.
ME10.474	Introduction to Additive Manufacturing and Materials Characterization	3 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN AEROSPACE ENGINEERING

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The Aerospace Engineering CUGS will consist of four (4) courses or 12 cr. hrs, of which, no more than two (2) courses or 6 cr hr. may be also used as part of the major requirements from a list of approved courses. A list of courses may be updated in the future. Administrating program faculty may approve or add courses to the list. The current list of approved courses include:

Certificate of Undergraduate Study in Aerospace Engineering 12 s.h.

ECE courses

ECE09.402	Special Topics: Rocketronics
ECE09.425	Command and Control
ECE09.423	Radar Systems
ECE09.456	Embedded Software Design

ME Courses

ME10.480	Intro to Aerospace Vehicles
ME10.482	Intro to Flight Dynamics
ME10.453	Analytical Dynamics
ME10.446	Automotive Engineering – Vehicle Dynamics
ME10.411	Combustion

CERTIFICATE OF UNDERGRADUATE STUDY IN MECHATRONICS

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The Certificate of Undergraduate Study (CUGS) in Mechatronics provides a sequence of courses that will offer the students an opportunity to increase their breadth and depth of knowledge on Mechatronics, a fast-evolving field that has wide applications in all disciplines of engineering. This CUGS will allow them to take additional specialized coursework related to the field of Mechatronics beyond the 120 Credits demanded by the undergraduate program. This CUGS will be attractive to students who may have fundamental knowledge in Mechanical Engineering, Electrical Engineering, or Computer Science/Engineering, but may need additional skills and formal education in the field of Mechatronics.

Certificate of Undergraduate Study in Mechatronics 12-13 s.h.

The requirements include the following five courses in three banks (unless specified, all courses are 3 s.h.):

One course from:

ME10.345	Dynamic Systems & Control	4 s.h.
ECE09.205	Principles and Applications of ECE for Nonmajors*	
ECE09.351	Systems & Control I**	

One Required Course:

ME10.442	Mechatronics

Any two courses from:

ME10.456	Introduction to Special Topics in Mechatronics
ME10.401	Introduction to Computer Integrated Manufacturing and Automation
ME10.460	Introduction to Soft Robotics
CS07.310	Robotics*
CS06.420	Embedded Systems Programming*
ECE09.342	Introduction to Embedded Systems**
ECE09.404	Principles of Biomedical Systems and Devices**

ECE09.473	Smart Sensors**

** These courses are primarily for students pursuing the CS major. Students may need to take additional courses to satisfy pre-requisite requirements of these courses.*

*** These courses are primarily for students pursuing the ECE major. Students may need to take additional courses to satisfy pre-requisite requirements of these courses.*

To be awarded the CUGS in Mechatronics, students must complete all courses required for the CUGS in Mechatronics with at least a 2.0 average. The pre-requisites for the courses make this CUGS best suited for students majoring in Mechanical Engineering (ME), Electrical and Computer Engineering (ECE), and Computer Science (CS). No more than two courses can be double-counted toward a degree or another certificate.

CERTIFICATE OF UNDERGRADUATE STUDY IN SOFT ROBOTICS

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The CUGS in Soft Robotics offers students an opportunity to learn the concepts, principles, systems, and applications of soft robotics. Soft robotics, a fast-growing subfield under robotics, focuses on robots made of soft materials. Many innovations in soft robotics have been inspired by elements and systems in nature, especially animals' soft structures. In comparison to the traditional rigid-body robots, soft robots can better adapt to unpredictable environments to perform challenging tasks due to their inherent flexibility. This CUGS allows students to take additional specialized coursework related to the field of Soft Robotics.

Certificate of Undergraduate Study in Soft Robotics 12 s.h.

Students will be required to complete one required course (3 s.h.):

ME10.466	Introduction to Soft Robotics

Students will complete two courses (6-7 s.h.) from the following list:

ME10.345	Dynamic Systems & Control
ME10.442	Mechatronics
ECE09.321	Systems and Control I*
ECE09.342	Introduction to Embedded System*

Students will complete one course (3 s.h.) from the following list:

ME10.456	Advance Topics in Mechatronics
ME10.470	Introduction to Biomechanics
CS07.310	Robotics
ECE09.455	Machine Learning*
ECE09.456	Embedded Software Design*
ECE09.473	Smart Sensors*
ECE09.486	Introduction to Portable Platform Development*

** These courses are primarily for students pursuing the ECE major. Students may need to take additional courses to satisfy pre-requisite requirements of these courses.*

*** No more than two courses can be double-counted towards a degree or another certificate.*

CERTIFICATE OF UNDERGRADUATE STUDY IN AUTOMOTIVE ENGINEERING

Krishan Bhatia
Advisor
Rowan Hall 135
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This CUGS will offer students the chance to increase their knowledge beyond the standard 120 credit Mechanical Engineering curriculum in the rapidly growing fields of automotive engine design, alternative vehicle powertrains, vehicle dynamics, and vehicle manufacturing. The program is particularly relevant with recent advancements in gasoline, diesel, hybrid electric, and battery electric powertrains, as well as in active suspensions, active vehicle dynamics/safety systems, and autonomous vehicles. This CUGS will be attractive to students who already have fundamental knowledge in Mechanical Engineering.

Certificate of Undergraduate Study in Automotive Engineering 12 s.h.

Students will be required to complete three required courses (9 s.h.):

ME10.444	Automotive Engineering 1 – Internal Combustion Engines*
ME10.445	Automotive Engineering 2 – Powertrains*
ME10.446	Automotive Engineering 3 – Vehicle Dynamics*

Students will complete one course (3 s.h.) from the following list:

ME10.401	Introduction to Computer Integrated Manufacturing and Automation
ME10.411	Introduction to Combustion
ME10.422	Introduction to Computational Fluid Dynamics
ME10.440	Introduction to Advanced Manufacturing
ME10.442	Mechatronics
ME10.462	Intro to FEA with ANSYS
ME10.443	Design for X
ENGR10.413	Introduction to Renewable Energy

Note: Program entry requires PHYS00.220. Up to 2 of the 4 courses in the CUGS may be applied towards the BS in Mechanical Engineering degree.

***Pre-requisites for required courses:**

ME10.444, Internal Combustion Engines – ENGR01.291, ME10.301

ME10.445, Powertrains – ME10.301

ME10.446, Vehicle Dynamics – ENGR01.291

CERTIFICATE OF UNDERGRADUATE STUDY IN ADVANCED ENGINEERING MATERIAL

Wei Xue
Advisor
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The CUGS in Advanced Engineering Materials will allow students to increase the depth and breadth of knowledge in materials for engineering, especially mechanical engineering, applications. The CUGS will offer students an opportunity to learn critical material properties, processes, characterization, and applications in engineering materials. It will allow students to learn in-depth knowledge of a wide variety of materials such as composites, nanomaterials, energy materials, and the latest materials used in additive manufacturing. This CUGS will allow students to take additional specialized coursework related to the field of Advanced Engineering Materials beyond the 120 credits mandated by the undergraduate program in Mechanical Engineering.

Certificate of Undergraduate Study in Advanced Engineering Material 12 s.h.

Students must choose and complete two classes (6 s.h.) from the following "required" courses:

ENGR01.283	Materials Science and Manufacturing
ENGR10.412	Introduction to Nanotechnology
ME10.460	Introduction to Composite Materials

Students will complete two classes (6 s.h.) from the following "elective" courses:

ENGR10.413	Introduction to Renewable Energy
ME10.440	Introduction to Advanced Manufacturing
CHE06.466	Polymer Processing
MSE00.510	Structure, Symmetry and Properties of Materials
	Other approved engineering materials-related courses by the advisor

College of Performing Arts

Richard Dammers
Dean
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Melanie Stewart
Associate Dean
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History

The College of Performing Arts (formerly, the School of Fine and Performing Arts at Glassboro State College) was founded in 1971. In 1997, during the transition from Glassboro State College to Rowan University, the School became the College of Fine and Performing Arts. The College was renamed the College of Performing Arts in 2012. Today, the College is comprised of the departments of Music (including the Maynard Ferguson Institute of Jazz Studies) and Theatre & Dance. The College offers baccalaureate degrees in the fields of Dance, Music, Music Industry, Theatre, a post baccalaureate certificate in Music Therapy, and graduate degrees in Music and Arts Administration.

In addition to more than 250 performances on campus each year, the faculty, staff and students collaborate in scholarly and artistic activities at the international, national and regional levels.

Mission

The College of Performing Arts at Rowan University develops artists and audiences of the future and promotes the arts as vital to humanity. Through rigorous professional preparation and liberal arts programs, the College educates students in the disciplines of dance, music, and theatre and challenges them to develop a conceptual, critical and creative perspective within the contemporary world. The College creates, illuminates, and inspires audiences and community through public performances and artistic practice for the university and broader region.

Accreditation

Specialized, national arts accreditation has been granted by the following organizations:

- The National Association of Schools of Music
- The National Association of Schools of Theatre

Programs Offered

The College offers rigorous professional and liberal degree programs that develop technical and creative abilities of the student to the highest level to prepare them for a wide range of careers in the contemporary marketplace and creative industries.

A program of study in the College can lead to:

- A professional career in the performing arts or music industry
- A teaching career in Dance, Music, or Theatre
- Graduate study in Music, Music Therapy, or Arts Administration
- Other career options not tied fully to the performing arts, but which draw on the knowledge and rigor inherent in them

Central to a productive environment for the study of the arts is a vital community of arts professionals, including faculty and student artists, scholars, educators and performers whose careers are dedicated to the creative pursuit and advancement of the performing arts and music industry, in terms of their own individual creation and, also, in relation to the audience. The performing arts faculty at Rowan consists of some of the finest arts professionals in the nation, all dedicated to fostering a creative, productive atmosphere in which all of the performing arts can flourish.

Programs Majors and Minors

Major programs

Bachelor of Arts in Dance

Bachelor of Arts in Theatre Arts

Bachelor of Arts in Music

Bachelor of Arts in Music Education

Bachelor of Arts in Music Performance

Bachelor of Music - Jazz Studies

Bachelor of Music - Composition

Bachelor of Music - Music Therapy

Bachelor of Music Education

Bachelor of Science in Music Industry

Minor and Concentration programs

Minor in Dance

Minor in Theatre

Minor in Music

Dual Majors in Teaching

Music majors can apply for a dual major in Education. Students must complete the general education and other requirements specified by the appropriate departments within the College of Education. Theatre majors interested in teaching can apply to the graduate MST in Subject Matter Education: Theatre Education upon successful completion of the BA in Theatre.

4+1 Degree Programs

Undergraduates may apply to complete their undergraduate and graduate degrees in 5 years. The Department of Theatre and Dance offers the MST in Theatre Education and the Masters in Arts Administration offers these options to students who apply by their junior year.

Requirements

At Rowan, we recognize and embrace the importance of the general education curriculum in all academic programs.

Obtaining the Bachelor of Arts degree in an arts area broadens the background of the student, establishing a foundation for further study in many diverse areas. Of the 120-135 semester hours to be completed for the Bachelor of Arts, at least 45 shall be at the 300 or 400 level and at least 90 shall be in courses using the A-F grading system.

Core Foundation Courses in each major are specified within each department.

Departments

The College Performing Arts consists of two departments: Music and Theatre & Dance.

Department of Music

Bryan Appleby-Wineberg
Chair
Wilson Hall
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applebywineberg@rowan.edu

Mission

The Department of Music at Rowan University is a vibrant, creative community of performers, scholars, and educators that prepares students to be leaders in the music profession. Rowan's music programs enrich the lives of all students by offering courses and performances designed to inform, enlighten and elevate their creative sensibilities which, additionally, serve the broader community through performances, scholarship, and artistic offerings that inspire and touch the souls of its citizens.

Degrees

The undergraduate study of music can lead to a career as a performing musician, a career as music educator, graduate study in music, as well as a broader cultural knowledge appropriate for many other career options. The Department of Music offers a Bachelor of Music degree with program options in Composition, Jazz Studies, Music Therapy, and Performance, designed to provide the initial preparation for careers as performers, composers, scholars, music therapists, and college teachers. The Bachelor of Music - Education Concentration, taken as a dual major with the Bachelor of Arts in Education -Subject Matter Education, is designed to prepare students for a career in teaching music in the public schools and leads to a K-12 Music Teaching Certificate in the State of New Jersey. Students choose a concentration in instrumental, jazz, or vocal music education. The Bachelor of Arts in Music is a liberal arts program with a focus in music, designed for students who want to combine a broad academic background with sufficient musical training for further study in fields such as musicology, music criticism or music therapy. This program is for those who want a career outside of music performance or teaching. The Bachelor of Science in Music Industry program is program designed to prepare students for careers in the commercial music industry. This program has two concentrations: technology and music business. The Minor in Music is a flexible sequence of music courses, taken with a separate major outside music.

General Information

Department of Music offerings for music majors and minors include: applied instruction in composition, brass (trumpet, horn, trombone, euphonium, tuba), guitar, jazz improvisation, keyboard (piano, organ, accordion), percussion, woodwinds (flute, clarinet, oboe, bassoon, saxophone), harp, and voice. For admission to any of the Bachelor of Music, Bachelor of Arts,

or the music minor degrees, an applicant must demonstrate, by audition, a high level of proficiency in some area of music performance. For admission to the Bachelor of Science in Music Industry, an applicant submits an essay, including links to relevant works or projects. A performance audition is not required for the Bachelor of Science in Music Industry program. Each semester, participation in ensembles and attendance at master classes and departmental recitals is required of all Bachelor of Arts/Bachelor of Music students. All Bachelor of Music students present a senior recital. Requirements for the Bachelor of Music in Performance and Jazz Studies include a junior recital as well. Students in other disciplines are invited and encouraged to take part in ensembles and other activities within the Department of Music. The Department of Music is a fully accredited member of the National Association of Schools of Music and sponsors chapters of Grammy U, the National Association for Music Education (NAfME), Pi Kappa Lambda, Phi Mu Alpha Sinfonia, and Sigma Alpha Iota.

BACHELOR OF ARTS IN MUSIC

Alexandria Funkhouser, MA
Senior Academic Advisor
Wilson Hall 141
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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements

MUS01.103	Major Applied Instrument 1
MUS01.104	Major Applied Instrument 2
MUS01.203	Major Applied Instrument 3
MUS01.204	Major Applied Instrument 4
MUS01.303	Major Applied Instrument 5
MUS01.304	Major Applied Instrument 6

or

MUS01.109	Major Applied Voice 1
MUS01.110	Major Applied Voice 2
MUS01.209	Major Applied Voice 3
MUS01.210	Major Applied Voice 4
MUS01.309	Major Applied Voice 5
MUS01.310	Major Applied Voice 6
MUS97.100	Piano Class I
MUS97.101	Piano Class II
MUS04.103	Music Theory I
MUS04.104	Music Theory II
MUSG06.102	General Music History
MUSG06.447	Music in World Cultures
or MUSG06.448	Music in World Cultures
or MUSG06.115	Growth and Development of Jazz
MUS01.050-MUS01.057	Student Recitals (6 semesters)
Ensembles	(6 credits, as assigned by audition)

Choose two (2)

MUSG06.214	Hist/Lit Western Music Repertories I
MUSG06.215	Hist/Lit Western Music Repertories II
MUSG06.335	Hist/Lit Western Music Repertories III

Choose five (5) credits:

MUS04.110	Sight Singing and Ear Training
MUS04.118	Music Fundamentals
MUS04.216	Music Theory III
MUS04.217	Music Theory IV
MUS97.200	Piano Class III
MUS04.221	Computer Technology and Music I
MUS04.222	Computer Technology and Music II

Total Program **120 s.h.**

BACHELOR OF MUSIC - MUSIC EDUCATION

Alexandria Funkhouser, MA
Senior Academic Advisor
Wilson Hall 141
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Teacher Certification P-12 with concentrations: Instrumental, Vocal, Jazz

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

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Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements 64-75 s.h.

SPED08.130	Human Exceptionality
FNDS21.230	Characteristics of Knowledge Acquisition
FNDS21.150	History of American Education
READ30.319	Teaching Reading and Writing in the Content Area
SMED01.120	Foundations of Music Education
SECD03.350	Teaching Students of Ling. & Cult. Diversity
INCL02.210	Principles and Pedagogies in the Inclusive Classroom
ELEM02.210	Seminar: Principles and Pedagogies in the Inclusive Classroom
SMED01.284	Introduction to Instruction and Assessment for the Music Educator
SMED03.313	Residency I: Elementary
SMED03.314	Residency I: Secondary
SMED32.412	Clinical Practice Seminar in Music
SMED32.413	Residency II: Elementary Music
SMED32.414	Residency II: Secondary Music
SMED32.329	Teaching/Learning Music A: Elem. General Music
SMED33.420	Educational Technology
MUSG06.215	Hist/Lit Western Music Repertories II
MUSG06.335	Hist/Lit Western Music Repertories III
MUS04.103	Music Theory I
MUS04.104	Music Theory II
MUS04.216	Music Theory III
MUS04.217	Music Theory IV
MUS97.100	Piano Class I
MUS97.101	Piano Class II
MUS97.200	Piano Class III (except jazz track)
MUS97.201	Piano Class IV (except jazz track)
MUS04.050 - MUS01.057	Student Recitals (seven semesters)
Ensembles	Eight credits, as assigned by audition. For vocal track only, one credit must be Opera Company.
MUS32.219	Piano Pedagogy (keyboard majors only)
MUSG06.120	Keyboard Literature (keyboard majors only)

Vocal Track Only

SMED32.330	Teaching/Learning Music B: Vocal Methods and Tech
MUS01.109	Major Applied Voice 1
MUS01.110	Major Applied Voice 2
MUS01.209	Major Applied Voice 3
MUS01.210	Major Applied Voice 4
MUS01.309	Major Applied Voice 5
MUS01.310	Major Applied Voice 6
MUS01.409	Major Applied Voice 7
MUSG06.214	Hist/Lit Western Music Repertories I
MUS97.400	Voice Class (except voice studio majors)
MUSG06.303	Choral Literature

MUS04.201	Intro to Diction and IPA: English and Latin
MUS97.213	Choral Conducting I
MUS97.313	Choral Conducting II
Instrumental Methods	2 credits total

Jazz Track Only

SMED32.331	Teaching/Learning Music B: Inst. Methods and Tech
MUS01.103	Major Applied Instrument 1
MUS01.104	Major Applied Instrument 2
MUS01.203	Major Applied Instrument 3
MUS01.204	Major Applied Instrument 4
MUS01.303	Major Applied Instrument 5
MUS01.304	Major Applied Instrument 6
MUS01.403	Major Applied Instrument 7
MUS01.105	Secondary Applied Instrument 1 (jazz improvisation)
MUS01.106	Secondary Applied Instrument 2 (jazz improvisation)
MUS01.205	Secondary Applied Instrument 3 (jazz improvisation)
MUS01.206	Secondary Applied Instrument 4 (jazz improvisation)
MUS01.105	Secondary Applied Instrument 1 (jazz piano)
MUS01.106	Secondary Applied Instrument 2 (jazz piano)
MUS04.333	Stage Band Rehearsal Techniques
MUS04.361	Arranging for Large/Small Jazz Ensembles
MUS97.212	Instrumental Conducting I
MUS97.312	Instrumental Conducting II
Instrumental Methods	8-8.5 credits

Instrumental Track Only

MUS01.103	Major Applied Instrument 1
MUS01.104	Major Applied Instrument 2
MUS01.203	Major Applied Instrument 3
MUS01.204	Major Applied Instrument 4
MUS01.303	Major Applied Instrument 5
MUS01.304	Major Applied Instrument 6
MUS01.403	Major Applied Instrument 7
SMED32.331	Teaching/Learning Music B: Inst. Methods and Tech
MUSG06.214	Hist/Lit Western Music Repertories I
MUS97.212	Instrumental Conducting I
MUS97.312	Instrumental Conducting II
Instrumental Methods	8-8.5 credits

BACHELOR OF MUSIC - PERFORMANCE

Alexandria Funkhouser, MA
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Keyboard, Instrumental, or Vocal 120 s.h.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements 74-78 s.h.

MUSG06.214	Hist/Lit Western Music Repertories I
MUSG06.215	Hist/Lit Western Music Repertories II
MUSG06.335	Hist/Lit Western Music Repertories III
MUS04.103	Music Theory I
MUS04.104	Music Theory II
MUS04.216	Music Theory III
MUS04.217	Music Theory IV

MUS97.100	Piano Class I
MUS97.101	Piano Class II
MUS01.050 - MUS01.057	Student Recitals
Ensembles	Two ensembles per semester as assigned by audition. For vocal concentration only, one of the two must be Opera Company.
MUS04.329	Junior Recital
MUS04.430	Senior Recital

Instrumental Concentration Only

MUS01.122	Performance Applied Instrument 1
MUS01.123	Performance Applied Instrument 2
MUS01.201	Performance Applied Instrument 3
MUS01.202	Performance Applied Instrument 4
MUS01.301	Performance Applied Instrument 5
MUS01.302	Performance Applied Instrument 6
MUS01.401	Performance Applied Instrument 7
MUS01.402	Performance Applied Instrument 8
MUS97.200	Piano Class III
MUS97.201	Piano Class IV
MUS97.212	Conducting - Instrumental I
MUS97.312	Conducting - Instrumental II
MUS04.450	Form and Analysis

Keyboard Concentration Only

MUS01.101	Professional Applied Instrument 1
MUS01.102	Professional Applied Instrument 2
MUS01.201	Professional Applied Instrument 3
MUS01.202	Professional Applied Instrument 4
MUS01.301	Professional Applied Instrument 5
MUS01.302	Professional Applied Instrument 6
MUS01.401	Professional Applied Instrument 7
MUS01.402	Professional Applied Instrument 8
MUS04.450	Form and Analysis
MUSG06.120	Keyboard Literature
MUS32.219	Piano Pedagogy

Vocal Concentration Only

MUS01.107	Professional Applied Voice I
MUS01.108	Professional Applied Voice II
MUS01.207	Professional Applied Voice III
MUS01.208	Professional Applied Voice IV
MUS01.307	Professional Applied Voice V
MUS01.308	Professional Applied Voice VI
MUS01.407	Professional Applied Voice VII
MUS01.408	Professional Applied Voice VIII
MUS01.105	Secondary Applied Instrument I (Piano)
MUS01.106	Secondary Applied Instrument II (Piano)
MUS04.202	Language Through Vocal Repertory (Italian)
MUS04.203	Language Through Vocal Repertory (French)
MUS04.204	Language Through Vocal Repertory (German)
MUS32.218	Vocal Pedagogy
MUSG06.210	Vocal Literature

BACHELOR OF MUSIC - JAZZ STUDIES

Alexandria Funkhouser, MA
Senior Academic Advisor
Wilson Hall 141
856.256.5183
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Jazz Studies Curriculum **120 s.h.**

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements 80 s.h.

MUS01.117	Instrumental Techniques Lab A
MUS01.118	Instrumental Techniques Lab B
MUS01.119	Instrumental Techniques Lab C
MUS01.120	Instrumental Techniques Lab D
MUS01.121	Instrumental Techniques Lab E
MUS01.113	Jazz Improvisation 1
MUS01.114	Jazz Improvisation 2
MUS01.213	Jazz Improvisation 3
MUS01.214	Jazz Improvisation 4
MUS01.313	Jazz Improvisation 5
MUS01.314	Jazz Improvisation 6
MUS01.413	Jazz Improvisation 7
MUS01.414	Jazz Improvisation 8
MUS04.103	Music Theory I
MUS04.104	Music Theory II
MUS04.216	Music Theory III
MUS04.217	Music Theory IV
MUS97.100	Piano Class I
MUS97.101	Piano Class II
MUS01.105	Secondary Applied Instrument 1 (jazz piano)
MUS01.106	Secondary Applied Instrument 2 (jazz piano)
Ensembles	4 semesters of Jazz Band or Lab Band, plus 8 semesters of Small Group Jazz
MUS01.050 - MUS01.057	Student Recitals (eight semesters)
MUS40.122	Computer Technology and Music I
MUS40.121	Audio Recording I
MUS40.221	Audio Recording II
MUS40.111	The Business of Music
MUS04.333	Stage Band Rehearsal Techniques
MUSG06.335	Hist/Lit Western Music Repertories III
MUS04.363	Writing in Traditional and Contemporary Styles
MUS04.361	Arranging for Large/Small Jazz Ensembles
MUSG06.115	Growth and Development of Jazz

BACHELOR OF MUSIC - COMPOSITION

Alexandria Funkhouser, MA
Senior Academic Advisor
Wilson Hall 141
856.256.5183
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Music Composition 120 s.h.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements 78 s.h.

MUSG06.214	Hist/Lit Western Music Repertories I
MUSG06.215	Hist/Lit Western Music Repertories II
MUSG06.335	Hist/Lit Western Music Repertories III
MUS04.125	Music Composition I
MUS04.126	Music Composition II
MUS04.225	Music Composition III
MUS04.226	Music Composition IV
MUS04.325	Music Composition V
MUS04.326	Music Composition VI
MUS04.425	Music Composition VII
MUS04.426	Music Composition VIII
MUS04.103	Music Theory I
MUS04.104	Music Theory II
MUS04.216	Music Theory III
MUS04.217	Music Theory IV
Ensembles	One ensemble for four semesters, as assigned by audition, plus three semesters of:MUS08.156 - MUS08.163 Contemporary Music Ensemble
MUS97.100	Piano Class I
MUS97.101	Piano Class II
MUS97.200	Piano Class III
MUS97.201	Piano Class IV
MUS01.105	Secondary Applied Instrument I
MUS01.106	Secondary Applied Instrument II
MUS01.205	Secondary Applied Instrument III
MUS01.206	Secondary Applied Instrument IV
OR	
MUS01.111	Secondary Applied Voice I
MUS01.112	Secondary Applied Voice II
MUS01.211	Secondary Applied Voice III
MUS01.212	Secondary Applied Voice IV
MUS01.217	Improvisation in Music
MUS08.227 - MUS08.234	Composition Workshop (eight semesters)
MUS01.050 - MUS01.057	Student Recitals (eight semesters)

Elective courses (12 s.h. to be selected from the following):

MUS97.212	Conducting - Instrumental I
MUS97.213	Conducting - Choral I
MUS04.450	Form and Analysis
MUS04.404	Orchestration
MUS40.122	Computer Technology and Music I
MUS04.455	Counterpoint
MUS04.403	Choral Arranging
MUS04.222	Computer Technology and Music II

MUS40.331	Game Audio
MUS40.322	Audio for Video
MUS04.363	Written in Traditional and Contemporary Styles
MUS04.361	Arranging for Small/Large Jazz Ensembles
MUS40.343	Songwriting

BACHELOR OF MUSIC - MUSIC THERAPY

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Wilson Hall 141
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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Non-Program Courses		13 s.h.
PSY03.200	Abnormal Psychology	3 s.h.
	Any Lab Science (biology or Physical)	4. s.h.
PSY01.107	Essentials of Psychology (Satisfies Humanistic Literacy)	3 s.h.
PSY09.305	Developmental Psychopathology	3 s.h.
Major Requirements		73 s.h.
MUS01.103	Major Applied Instrument I	2 s.h.
or MUS01.109	Major Applied Voice I	2 s.h.
MUS01.104	Major Applied Instrument II	2 s.h.
or MUS01.110	Major Applied Voice II	2 s.h.
MUS01.203	Major Applied Instrument III	2 s.h.
or MUS01.209	Major Applied Voice III	2 s.h.
MUS01.204	Major Applied Instrument IV	2 s.h.
or MUS01.210	Major Applied Voice IV	2 s.h.
MUS01.050-01.057	Student Recitals (Register in conjunction with each semester of applied study)	0 s.h.
MUS97.100	Piano Class I	1 s.h.
MUS97.101	Piano Class II	1 s.h.
MUS08.103 - 08.250	Assigned Ensemble	1 s.h.
MUS08.103 - 08.250	Assigned Ensemble	1 s.h.
MUS08.103 - 08.250	Assigned Ensemble	1 s.h.
MUS08.103 - 08.250	Assigned Ensemble	1 s.h.
MUS97.212	Instrumental Conducting I	2 s.h.
or MUS97.213	Choral Conducting I	2 s.h.
MUS04.103	Music Theory I	4 s.h.
MUS04.104	Music Theory II	4 s.h.
MUS04.216	Music Theory III	4 s.h.
MUS04.217	Music Theory IV	4 s.h.
Choose two		
MUSG06.214	Hist/Lit Western Music Repertories I	3 s.h.
MUSG06.215	Hist/Lit Western Music Repertories II	3 s.h.
MUSG06.335	Hist/Lit Western Music Repertories III	3 s.h.
Choose one		
MUSG06.447	Music in World Cultures I	3 s.h.
MUSG06.448	Music in World Cultures II	3 s.h.
MUSG06.115	Growth and Development of Jazz	3 s.h.
MUS98.101	Foundations of Music Therapy	3 s.h.
MUS98.108	Psychology of Music	3 s.h.
MUS98.301	Principles of Music Therapy I	3 s.h.

MUS98.401	Principles of Music Therapy II	3 s.h.
MUS98.110	Music Therapy Research Methods	3 s.h.
MUS98.103	Music Therapy Practicum I	1 s.h.
MUS98.403	Music Therapy Practicum II	1 s.h.
MUS98.404	Music Therapy Practicum III	1 s.h.
MUS98.105	Clinical Piano Skills I	2 s.h.
MUS98.112	Clinical Piano Skills II	2 s.h.
MUS98.106	Clinical Guitar Skills	2 s.h.
MUS98.107	Music Applications to Music Therapy I	1 s.h.
MUS98.113	Music Applications to Music Therapy II	1 s.h.
MUS98.115	Music Applications to Music Therapy III	1 s.h.
MUS98.409	Therapeutic Principles	1 s.h.
MUS98.410	Residency in Music Therapy (repeated, 2 semesters required; 4 s.h. total)	2 s.h.
Total Hours Required for Graduation (with Gen Ed Courses)		**120 s.h.**

Students must receive a grade of C- or better in all courses satisfying Major requirements.

BACHELOR OF SCIENCE IN MUSIC INDUSTRY

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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Non-Program Courses		**18 s.h.**
JRN02.210	Journalistic Writing	
Foundational Courses		**37 s.h.**
MUS40.111	Business of Music I	
MUS40.121	Audio Recording I	
MUS40.122	Computer Technology And Music I	
MUS40.223	Survey of Record Production	
MUS40.113	Business of Music II	
MUS97.102	Piano I For Non-Music Majors	
or MUS97.229	Guitar Class I	
MUS04.110	Sight Singing and Ear Training	
MUS04.118	Music Fundamentals	
MUS04.103	Music Theory I	
MUS40.201	History of Popular Music	
MUS40.202	Introduction to Music Performance	
MKT09.200	Principles of Marketing	
Pick one		
ENT06.426	New Venture Development	
ART09.301	Digital Media and Techniques	
ACC03.405	Foundations of Accounting	
Mid-Level Courses		18 s.h.
MUS40.211	Music Industry Internship I	
ENT06.342	Financing & Legal Aspects of Entrepreneurship	
ENT06.240	Entrepreneurship and Innovation	
	Music Elective Any course with a MUS or MUSG prefix	
	Music Elective Any course with a MUS or MUSG prefix	
	Music Elective Any course with a MUS or MUSG prefix	
Upper-Level Courses		8 s.h.
MUS40.412	Capstone Project in Music Industry I	
MUS40.413	Capstone Project in Music Industry II	

MUS40.311	Music Industry Internship II	
	Music elective Any course with a MUS or MUSG prefix	

Choose Concentration

Music Business Concentration		**15 s.h.**
MUS40.212	Music Publishing	
MUS40.213	Touring and Concert Promotion	
MUS40.315	Entrepreneurship in the Music Industry	
MUS40.314	Artist Services I	
MUS40.414	Artist Services II	
MUS40.415	Artist Services III	

OR

Music Technology Concentration		**15 s.h.**
MUS40.221	Audio Recording II	
MUS40.222	Computer Technology And Music II	
MUS40.322	Audio for Video	
MUS40.323	Sound Reinforcement I	
MUS40.321	Producing the Record	
Free Electives		15 s.h.
Total Program		**120 s.h.**

MINOR IN MUSIC

Alexandria Funkhouser, MA
Senior Academic Advisor
Wilson Hall 141
856.256.5183
daniels@rowan.edu

Music Minor *(for Non-Music Majors)*		20 s.h.
Core Requirements		13 s.h.
MUS01.105	Secondary Applied Instrument 1	
MUS01.106	Secondary Applied Instrument 2	
MUS01.205	Secondary Applied Instrument 3	
MUS01.206	Secondary Applied Instrument 4	

or

MUS01.111	Secondary Applied Voice 1
MUS01.112	Secondary Applied Voice 2
MUS01.211	Secondary Applied Voice 3
MUS01.212	Secondary Applied Voice 4

and

MUS01.050 - MUS01.057	Student Recitals (2 semesters, 0 s.h.)
MUS04.118	Music Fundamentals
MUS04.110	Sight Singing
	Ensembles (4 credits, assigned by audition)

Electives *Choose 7 s.h. from the following:*

Ensemble (up to 3 credits, assigned by audition)

MUSG06.214	Hist/Lit Western Music Repertories I
MUSG06.215	Hist/Lit Western Music Repertories II
MUSG06.335	Hist/Lit Western Music Repertories III
MUSG06.447	Music in World Cultures: Asia & Oceania
MUSG06.448	Music in World Cultures: Africa India, Near & Middle East
MUS40.221	Computer Technology Music I
MUSG06.115	Growth and Development of Jazz
MUS04.103	Music Theory I
MUS01.305	Secondary Applied Instrument 5
MUS01.306	Secondary Applied Instrument 6
MUS01.405	Secondary Applied Instrument 7
MUS01.311	Secondary Applied Voice 5
MUS01.312	Secondary Applied Voice 6
MUS01.411	Secondary Applied Voice 7
MUSG06.102	General Music History
MUS97.100	Piano Class I

Department of Theatre and Dance

Paule Turner
Chair
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The Department of Theatre and Dance educates students in all aspects of the contemporary practice of theatre and dance. Our programs offer a path to intellectual and artistic growth and development by providing a broad-based, rigorous, and innovative education in theatre and dance. We offer a diverse selection of productions each year in our annual 6 show mainstage season and regularly highlight new or devised work created in collaboration with world-class professional artists. Undergraduate students from other majors may also participate in our interdisciplinary activities by choosing to minor in theatre or dance. Entrance into the Bachelor of Arts programs requires an audition.

A **Bachelor of Arts in Theatre** consists of 22.5 core credits in our major, 16.5 credits in a selected concentration (Acting, Musical Theatre, Pre-Teaching, Design/Technical), 42 related general education and non-program elective credits, and 39 credits of free electives that can be used to take advanced, specialized seminar and performance classes in the major, or in the pursuit of a double major or non-program minor. This flexible, dynamic, movement-driven program is accredited by the National Association of Schools of Theatre.

A full range of theatre and dance production opportunities complements coursework and allows students to develop performance and production skills by creating live theatre. All students may participate in the department's annual faculty directed mainstage and/or student productions. These projects provide students with practical experience as performers, directors, designers and technicians, and enhances skills learned in the classroom.

The **Bachelor of Arts in Dance** consists of 40.5 credits in the major, 42 related general education and non-program elective credits, and 37.5 credits of free electives that can be used to take advanced, specialized technique and performance classes in the major, or in the pursuit of a double major or non-program minor. The Bachelor of Arts in Dance is a performance degree that integrates the study of dance within a liberal arts curriculum. Dance majors move, think, and create. The BA in Dance provides multiple opportunities for students to develop technical and creative skills and express themselves as diverse and informed artists. Our theoretical and practical approaches to the study of dance stimulate physical, emotional, intellectual, and spiritual growth while preparing students for professional careers (in dance). Dance majors at Rowan University are immersed in a cross-disciplinary program that requires creating and collaborating with dancers, designers, artists, musicians, and the University community at large, embracing all aspects of the Liberal Arts experience.

The Department of Theatre and Dance is currently housed in Wilson Hall, Bunce Hall, and Memorial Hall. Bunce Hall contains the historic 375-seat Tohill Theatre, a well-equipped costume and scene shop, prop and costume storage, a computer-equipped design studio, and acting studios. Memorial Hall houses our two dance studios and Wilson Hall contains a 900-seat proscenium theatre, smart classrooms, faculty offices, and an acting studio.

Admission to the department requires an on-campus interview and audition or portfolio review. Students applying for the Bachelor of Arts in Dance must take a master class and be interviewed by faculty. Students auditioning for the Acting Concentration and Pre-Teaching Concentration must present two contrasting one-minute monologues. Students auditioning for the Musical Theatre Concentration must present 16 bars from two contrasting musicals and a monologue. Students seeking admission to the Design/Technical Concentration will present a portfolio or complete an interview demonstrating their experience and ability. For specific information on the interview or audition requirements, visit www.rowan.edu/theatredance, or call or email the Department of Theatre and Dance. In order to gain the maximum benefit from the academic flexibility of these degree options, students must arrange for regular and careful academic advisement.

The **Minor in Theatre** consists of 19 semester hours of study: 10 semester hours of required courses, plus 9 hours of electives. It provides students study in the practical and scholarly aspects of theatrical art. Students in any program are eligible for the Minor in Theatre but must take and pass the Rowan general education course, Experiencing Acting, and obtain a letter of approval from the instructor to declare the Minor in Theatre.

The **Minor in Dance** provides a flexible program of study that combines technique with theory courses. The minor consists of 18-24 hours of study: the core course, Elements of Dance, plus 6-12 hours of technique and 6-12 hours of theory.

The **Theatre Design Minor** provides non-majors with sufficient coursework to obtain positions as a set, lighting designer and/or general theatrical technician. Currently not accepting students

The **Master of Science in Teaching Theatre** is a program in the College of Education that offers K-12 teaching certification in Theatre Arts and can be taken as a fifth-year option.

The **Master of Arts in Arts Administration** is an intensive online program taught by working professionals in the field that provides students the administrative, business and marketing skills needed to start their own company or secure positions in regional and national arts organizations.

BACHELOR OF ARTS IN THEATRE

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The Rowan Bachelor of Arts in Theatre features four distinct concentrations in Acting, Musical Theatre, Theatre Education/Pre-Teaching, and Design/Technical Theatre, which prepare students to work in the professional field or to pursue graduate study.

General Education 42 s.h.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major sequence of required courses 39 s.h.

Foundational Courses all Concentrations **22.5 s.h.**

THD07.111	Colloquium I
THD07.112	Colloquium II
THD07.113	Colloquium III
THD07.114	Colloquium IV
THD07.115	Colloquium V
THD07.116	Colloquium VI
THD07.201	Introduction to Theatre and Dance (RS)
THD07.230	Stagecraft Fundamentals
THD07.105	Introduction to Performance
THD07.460	Senior Project in Theatre Arts

Choose one (1) of the following:

THD07.107	Introduction to Design for Performance
THD07.203	Costuming I

Any three (3) of the following courses:

THD07.339	History of the Theatre to 1700
THD07.340	History of the Theatre from 1700 to 1956
THD07.440	Contemporary World Theatre (WI) (Lit)
THD08.436	Dance History
THD07.360	Musical Theatre

The **Acting Concentration** provides rigorous, inclusive training of the body and voice along with in-depth script analysis and Objective-Based acting techniques. Acting training is based in the late-Stanislavsky method of Physical Actions. Physical and Vocal practices are our core focus and include Fitzmaurice and Roy Hart Vocal Techniques, Physical Theater and Viewpoints, Dance-Theater, and other interdisciplinary and culturally diverse practices. Study of Theatre History and Theory informs and enriches our performance practices. Training in directing and creating original work is core to our practice as we prepare graduates to produce their own work in addition to pursuing a career as a working actor.

Acting Concentration 16.5 s.h.

THD08.140	Dance Improvisation I
THD07.202	Script Analysis
THD07.103	Voice for the Stage
THD08.126	Movement for the Actor
THD07.235	Acting I

Plus one (1) of the following:

THD07.236	Acting II
THD07.430	Directing I

The **Musical Theatre Concentration** trains physically aware singing actors by offering rigorous acting training, private vocal lessons every semester, a wide range of intensive dance training and physical theater techniques, the study of performance theory and history, directing, and creating original work. We train well-rounded performers who can have careers in all forms of theater. Our intensive training includes twice-per-year vocal juries (which will require one Italian, one German, and one French aria/art song as well as MT selections), voice lessons, voice coaching, lyrical examination, and public performance of musicals and devised cabarets.

Musical Theatre Concentration 16.5 s.h.

THD08.140	Dance Improvisation I
THD07.103	Voice for the Stage
THD07.235	Acting I
THD07.363	Singing for the Actor
THD08.222	Dance for the Musical Theatre
MUS01.111	Private Voice Lessons
MUS01.112	Private Voice Lessons
MUS01.211	Private Voice Lessons

The Pre-Teaching Concentration provides a breadth of knowledge in acting, theatre history, dramatic literature, directing, technical theatre, and children's theatre, to prepare students with the requisite, well-rounded background in theatre needed to teach K-12 and/or become professional teaching artists. Pre-Teaching students are expected to be expert practitioners of theater and take advanced technique classes alongside all theatre majors. This concentration prepares students to apply for the Rowan University's Master of Science in Teaching (MST) program in the College of Education. The theatre courses in this Concentration are aligned to New Jersey Department of Education's requirements. All students who complete the Pre-Teaching Concentration can apply to Rowan's MST teacher certification program if they pass the Praxis I (Core subject matter) and Praxis II (Theatre subject matter) national tests to enter the program.

Pre-Teaching Concentration 16.5 s.h.

THD07.202	Script Analysis
THD07.103	Voice for the Stage
THD07.235	Acting I
THD07.250	Children's Theatre
THD07.430	Directing I
Plus one (1) of the following:	
THD07.203	Costuming I
THD07.107	Intro to Design for Performance

Design/Tech Concentration: Stemming from historical, critical, and performative skills learned in the Theater Dance core, the Concentration in Design and Technology expands the core experiences to include drawing, rendering, and design techniques. Concentration classes are project-based with the goal of creating a portfolio of collected work. Skills are further reinforced through practical application on the department productions. We are committed to providing our students leadership and responsibility in all aspects of the production process; from running crew and stage management through full design opportunities for the Main Stage productions. One-on-one mentorship opportunities and concentrated activities immerse students in the concepts of design and their applications in the entertainment industry, preparing them for individualized career success.

Design/Tech Concentration 16.5 s.h.

THD07.202	Script Analysis
THD07.231	Stagecraft II
THD07.232	Stagecraft III
THD07.233	Stagecraft IV
THD07.310	Foundations of Theatrical Design
THD07.300	Drawing & Rendering
Plus one 3.0 credit of the following:	
THD07.350	Scene Design Studio
THD07.353	Stage Lighting Design
THD07.356	Costume Design
THD07.234	Stagecraft V & THD07.335 Stagecraft VI

Total Credits in Bachelor of Arts Degree in Theatre **120 s.h.**

MINOR IN THEATRE

Dr. Anthony Hostetter
Advisor
Wilson Hall
856.256.4500, ext. 53394
hostettera@rowan.edu

The Minor in Theatre provides students practical and scholarly courses in Theatrical Arts. Students interested in declaring a Minor in Theatre must take and pass the Rowan general education course, Experiencing Acting, and obtain a letter of approval from the instructor.
The Minor in Theatre Arts consists of 19 semester hours of study: 10 semester hours of required courses, plus 9 hours of electives.

Required Courses		10 s.h.
THD07.111	Colloquium I	
THD07.112	Colloquium II	
THD07.130	The Living Theatre	
THD07.215	Experiencing Acting	
THD07.230	Stagecraft Fundamentals	
or THD07.203	Costuming I	
and THD07.205	Costuming II	
Electives Choose two (2) of the following:		6 s.h.
THD07.250	Children's Theatre	
THD07.360	Musical Theatre	
THD07.350	Scene Design Studio	
THD07.353	Stage Lighting	
THD07.103	Voice for the Stage	
THD07.235	Acting I	
THD07.430	Directing I	
THD07.365	Theatre Management	
THD07.356	Costume Design	
THD07.310	Foundations of Design	
THD07.435	Creative Dramatics	
THD08.135	Elements of Dance	
THD07.105	Introduction to Performance (based on permission of the instructor)	
THD08.126	Movement for the Actor	
THD07.405	Seminar in Theatre	
THD07.103	Voice for the Stage	
THD07.231	Stagecraft II	
THD07.232	Stagecraft III (1.5)	
THD07.233	Stagecraft IV (1.5)	
History/Literature Elective Choose one (1) of the following:		3 s.h.
THD07.339	History of the Theatre to 1700	
THD07.340	History of the Theatre 1700 to 1956	
THD07.440	Contemporary World Theatre (WI)	

THEATRE DESIGN MINOR

Thomas Fusco
Advisor
Tohill Theatre
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fusco@rowan.edu

This minor provides non-theatre majors with sufficient coursework in theatre design to seek a position as a set and/or lighting designer or general theatrical technician.

Program Requirements

Courses		18 s.h.
Required		12 s.h.
THD07.310	Foundations of Theatrical Design (3 s.h.)	
THD07.230	Stagecraft Fundamentals (3 s.h.)	
THD07.203	Costuming I (1.5 s.h.)	
THD07.205	Costuming II (1.5 s.h.)	
THD07.232	Stagecraft III (1.5 s.h.)	
THD07.233	Stagecraft IV (1.5 s.h.)	
Elect 3 s.h. of the following graphics electives:		
THD07.300	Drawing & Rendering (3.s.h.)	
THD07.305	Drafting & Model Making (3 s.h.)	
Elect 3 s.h. of the following design electives:		
THD07.350	Scene Design (3 s.h.)	
THD07.353	Lighting Design (3 s.h.)	
THD07.356	Costume Design (3 s.h.)	

The courses, THD07.130 The Living Theatre or THD07.201 Introduction to Theatre and Dance are recommended in order to give the student a broad introduction and background in the art of theatre.

BACHELOR OF ARTS IN DANCE

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Rachel Budmen
Advisor
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The Bachelor of Arts in Dance is a performance degree that integrates the study of dance within a liberal arts curriculum. Dance majors move, think, and create. The BA in Dance provides multiple opportunities for students to develop technical and creative skills and express themselves as diverse and informed artists. Our theoretical and practical approaches to the study of dance stimulate physical, emotional, intellectual, and spiritual growth while preparing students for professional careers (in dance). Dance majors at Rowan University are immersed in a cross-disciplinary program that requires creating and collaborating with dancers, designers, artists, musicians, and the University community at large, embracing all aspects of the Liberal Arts experience.

General Education 42 s.h.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major sequence of required courses 39 s.h.

Dance Technique			15 s.h
THD08.140	Improvisation I	1.5	
THD08.140	Improvisation II	1.5	
THD08.237	Modern I	3.0	
THD08.377	Modern II	3.0	
THD08.378	Modern III	3.0	
THD08.410	Advanced Styles	3.0	
Creative Studies			9 s.h.
THD08.225	Dance Composition	3.0	
THD08.337	Choreography	3.0	
THD08.437	Dance Theater Workshop	3.0	
Theory			10.5 s.h.
THD08.436	Dance History	3.0	
THD08.465	Dynamics of Human Movement	3.0	
THD07.230	Stagecraft Fundamentals	3.0	
Select one of the following:			
THD07.107	Introduction to Design	1.5	
or THD07.203	Costuming I	1.5	
Performance and Capstone			6 s.h.
THD07.241	Practicum Production	0.5	
THD07.241	Practicum Production	0.5	
THD07.241	Practicum Production	0.5	
THD07.241	Practicum Production	0.5	
THD07.241	Practicum Production	0.5	
THD07.241	Practicum Production	0.5	
THD07.345	Rehearsal and Performance	0.5	
THD07.345	Rehearsal and Performance	0.5	
THD07.460	Senior Project	2.0	

Free Electives 37.5 s.h.

Additional technique courses in the major and/or non-program double major/minor

Total Credits in Bachelor of Arts Degree in Dance **120 s.h.**

MINOR IN DANCE

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Advisor
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856.256.4055
elkins@rowan.edu

The Minor in Dance provides a flexible program of study that combines technique with theory. The Minor in Dance consists of 18-24 hours of study: the core course Elements of Dance, plus 6-12 hours of dance technique and 6-12 hours of dance theory.

Required		3 s.h.
THD08.135	Elements of Dance	
Electives — Technique		6-12 s.h.
THD08.146	World Dance Forms	
THD08.202	Fundamentals of Tap	
THD08.203	Advanced Tap Dance	
THD08.236	Modern Dance I	
THD08.237	Modern Dance II	
THD08.377	Modern Dance III	
THD08.246	Fundamentals of Ballet Dance	
THD08.247	Advanced Ballet	
THD08.256	Fundamentals of Jazz Dance	
THD08.257	Advanced Jazz Dance	
THD08.222	Dance for the Musical Stage	
THD08.142	Contact Improvisation	
Electives — Theory		6-12 s.h.
THD08.225	Dance Composition I	
THD08.337	Choreography	
THD08.436	Dance History	
THD08.315	Creative Dance for Children	
THD08.465	Dynamics of Human Movement	
THD08.126	Movement for the Actor	
THD07.338	Touring the Theatre Production	
THD08.270	Lecture/Dem. Production	

Dual Degree (4 +1 program): B.A. in Theatre and M.A in Arts Administration

Victoria Dolceamore
Director
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Overview

This 4 +1 accelerated dual degree program offers students an opportunity to earn a BA in Theatre and an MA in Arts Administration in five years. Students must complete the audition process and be admitted into the BA in Theatre program to be eligible to apply for this accelerated program. Students may apply to the program after earning 60 credits. The 12 graduate credits will be applied towards the undergraduate program as well as the graduate program, i.e. students only need to earn 108 undergraduate credits. In addition to earning an MA more quickly, students in this program will save tuition through taking 12 credits of MA courses as a senior at undergraduate tuition rates.

4 + 1 Undergraduate Program Requirements

Required Foundational Courses for all Concentrations in the BA in Theatre Program

GENERAL EDUCATION REQUIREMENTS:		total 42 s.h.
Communicative Literacy		9 s.h.
COMP01.111	College Composition I	3 s.h.
COMP01.112	College Composition II	3 s.h.
CMS04.205	Public Speaking	3 s.h.
Artistic Literacy		3 s.h.
RTF03.294	Elements of Dance or Choice	3 s.h.
Global Literacy		3 s.h.
ANTH02.202	Contemporary International Cinema or Choice	3 s.h.
Humanistic Literacy		3 s.h.

Essentials of Psychology or Choice		3 s.h.
Quantitative Literacy		3 s.h.
Contemporary Math or Choice		3 s.h.
Scientific Literacy		3 s.h.
Introduction to Astronomy or Choice		3 s.h.
NON-PROGRAM CHOICES		18 s.h.

ROWAN EXPERIENCE REQUIREMENTS: Check off as requirements are satisfied.

__ (LIT) Broad-Based Literature – Contemporary World Theatre (THD07.440) or Choice

__ (RS) Rowan Seminar—Introduction to Theatre and Dance (THD07.201) or Choice

__ (WI) Writing Intensive Course – Contemporary World Theatre (THD08.436) or Choice

THEATRE SPECIALIZATION:

Foundation Courses:		22.5 s.h.
THD07.111	Colloquium Theatre I	0.5 s.h.
THD07.112	Colloquium Theatre II	0.5 s.h.
THD07.113	Colloquium Theatre III	0 s.h.
THD07.114	Colloquium Theatre IV	0 s.h.
THD07.115	Colloquium Theatre V	0 s.h.
THD07.116	Colloquium Theatre VI	0 s.h.
THD07.201	Introduction to Theatre and Dance [RS]	3 s.h.
THD07.105	Introduction to Performance	3 s.h.
THD07.230	Stagecraft Fundamentals	3 s.h.
THD07.460	Senior Project	2 s.h.
Select one of the following:		
THD07.107	Intro to Design for Performance	
or		
THD07.203	Costuming I	1.5 s.h.
Select three of the following courses:		
THD07.339	Theatre History I	3 s.h.
THD07.340	Theatre History II	3 s.h.
THD07.440	Contemporary World Theatre [WI], [LIT]	3 s.h.
THD08.436	Dance History	3 s.h
THD07.360	Musical Theatre	3 s.h
CHOOSE ONE CONCENTRATION		16.5 s.h.
Acting Concentration:		
THD08.140	Dance Improvisation I	1.5 s.h.
THD07.202	Script Analysis	3 s.h.
THD07.103	Voice for the Stage	3 s.h.
THD08.126	Movement for the Actor	3 s.h.
THD07.235	Acting I	3 s.h.
Select one of the following:		
THD07.236	Acting II	3 s.h.
THD07.430	Directing I	3 s.h.
Design/Tech Concentration:		
THD07.203	Script Analysis	3 s.h.
THD07.231	Stagecraft II	1.5 s.h.
THD07.232	Stagecraft III	1.5 s.h.
THD07.233	Stagecraft IV	1.5 s.h.
THD07.301	Foundations of Theatrical Design	3 s.h.
THD07.300	Drawing and Rendering for the Theatre	3 s.h.
Select 3 s.h. from the following electives:		
THD07.350	Scene Design Studio	
THD07.353	Stage Lighting Design	
THD07.356	Costume Design	3 s.h.
THD07.345	Stagecraft V	1.5 s.h.
and		
THD07.335	Stagecraft VI	1.5 s.h.
Musical Theater Concentration:		
THD08.140	Dance Improvisation I	1.5 s.h.

THD07.103	Voice for the Stage	3 s.h
THD07.235	Acting I	3 s.h.
THD07.363	Singing for the Actor	3 s.h.
THD08.222	Dance for Musical Theatre	
MUS01.111	Private Voice Lessons	1 s.h
MUS01.112	Private Voice Lessons	1 s.h.
MUS01.211	Private Voice Lessons	1s.h.

Pre-Teaching Concentration:

THD07.202	Script Analysis	3 s.h.
THD07.103	Voice for the Stage	3s.h.
THD07.235	Acting I	3 s.h.
THD07.235	Directing I	3 s.h.
THD07.250	Introduction to Theatre Education	3 s.h.
THD07.203	Costuming I	
or		
THD07.107	Intro to Design	1.5 s.h.

FREE ELECTIVES: 27 s.h.

MA IN ARTS ADMINISTRATION CREDITS TAKEN SENIOR YEAR: 12 s.h.

Four approved graduate-level MA courses may substitute for any of the free elective courses. No more than 12 graduate credits total may be used to replace undergraduate coursework

TOTAL SEMESTER HOURS 120 s.h.

Total Required Credits for the Undergraduate Portion of the Program 120 or 108** s.h. total **The first number is the official number of credits required for the undergraduate degree; however, the second number reflects the actual number of credits students will take through undergraduate coursework since 12 of the graduate credits are completed in the senior year and count towards both the undergraduate and graduate degrees.

4 + 1 Graduate Program Requirements

Required MA in Arts Administration Courses

Courses below are offered on rotational basis, 6 credits each semester. No pre-reqs. Students may take the 12 credits in rotation during their senior year.

THD07.530	Arts Administration Leadership	3 s.h
THD07.532	Arts Planning: An Elegant Process	3 s.h
THD07.533	Audience Development	3 s.h
THD07.531	Producing & the Arts	3 s.h
THD07.534	Education & Outreach	3 s.h
THD07.535	Curatorial Practice	3 s.h
THD07.536	Fundraising & Development for the the Arts	3 s.h
THD07.537	Arts Advocacy & Policy	3 s.h
THD07.505	Graduate Independent Study	
Capstone:		
THD07.515	Internship in the Arts	
Or		
THD07.515	Arts Administration Project	

Total Required Credits for the Graduate Portion of the Program 30 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 138 s.h.

Requirements for Admission:

Students may be admitted to this program as early as the summer after their sophomore year (60 credits). Students are encouraged to apply as early as possible to ensure timely completion of the program, but assuming they've taken the required courses, they may apply at a later point. Transfer students with at least 60 credits may apply after they have earned at least 15 credits at Rowan, i.e. in their second semester at Rowan.

Sophomore Admission: After completing their sophomore year or 60 credits, students who meet the criteria listed below may apply to this program:

- Minimum overall GPA of 3.3 in undergraduate coursework; Junior Admission: After earning 60 credits, students who apply to the program must meet the criteria listed below:
- Minimum overall GPA of 3.3 in undergraduate coursework; Requirements for Graduation: To graduate from this accelerated dual degree program with a BA and an MA, students must:
- Complete all requirements for the BA in Theatre including General Education and Rowan Experience requirements;

Complete all requirements for the MA, which is a level III program at Rowan. In level III programs, students must achieve a 3.0 overall GPA with no grade lower than C and no more than two Cs.

Student Status:

Students will be expected to maintain satisfactory progress through the program: maintain an overall 3.3 GPA, and meet the level III criteria in the MA program, i.e. achieve a 3.0 overall GPA with no grade lower than C and no more than two Cs. Any student who fails to maintain satisfactory progress as described above will be placed on probation within the program for one semester. If the student's performance still does not improve, he/she will be dropped from the accelerated program. Students with documented extenuating circumstances may request an exception to this requirement by obtaining written approval of the MA in Arts Administration Director.

Students enrolled in this accelerated BA/MA program may take up to 12 credits of graduate courses at the undergraduate rate in their senior year providing they meet the criteria listed above. Beyond this, students will pay graduate tuition rates for their MA courses.

Contingency for Students who do not Complete the MA program: Students who are dropped from the graduate program or choose not to complete the BA/MA program may earn a BA in Theatre once they have completed all requirements for that undergraduate degree, achieved at least a 2.0 GPA, and earned at least 120 credits. Students may count up to 12 credits of their graduate courses towards their B.A. requirements; these courses will count as free electives towards the 120 credits required for a BA.

College of Humanities and Social Sciences

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Mission

1. Empower students to create innovative academic pathways so that they may become successful and adaptable leaders and innovators with a lasting impact on society.
2. Faculty and students engage with local and global communities to conduct transformative research that mobilizes knowledge to benefit society.
3. Grow and develop mutually beneficial connections among students, faculty, and community partners to reimagine the future.

Vision

Empower. Transform. Engage.
Creating connections in teaching, research, and service to advance society.

Departments

The College of Humanities & Social Sciences (CHSS) has seven departments--English, History, Law and Justice Studies, Philosophy and World Religions, Political Science and Economics, Sociology and Anthropology, and World Languages—as well as a Center for Interdisciplinary Studies.

Services

Center for Professional Success

The Center for Professional Success (CPS) is a comprehensive resource center that supports the academic and career development of College of Humanities & Social Sciences (CHSS) students. The CPS provides a variety of services including internship placement through the CHSS Match Internship Program, which allows students from any college to earn up to 12 credits through approved internship experiences, networking events, travel funding, and career development workshops.

Hollybush Institute for Global Peace and Security

This institute builds on the legacy of the 1967 Glassboro Summit by promoting scholarly research, educational activities, and community outreach related to the history and practice of international dialogue to promote global security, peace, and the rule of law. Imbued with the "Spirit of Glassboro," as President Lyndon Johnson called it, the Institute builds bridges between the humanities and the arts and sciences to inspire innovative global thinking.

The Museum of Anthropology at Rowan University (MARU)

The Museum of Anthropology at Rowan University serves the academic mission of the university as a unit for teaching and learning that contributes to academic excellence. Its collections, public service programs, and research serve to enhance the public understanding and appreciation of the human experience.

Rowan Center for the Study of Holocaust, Genocide, and Human Rights

The Rowan Center for the Study of Holocaust, Genocide, and Human Rights (RCHGHR) is a leading center in New Jersey for teaching about the Holocaust and other genocides. The RCHGHR offers a range of programs each semester dedicated to combatting bias, prejudice, and anti-Semitism by highlighting human rights and the dignity of every person.

Rowan University Center for Social Science Research

The Rowan University Center for Social Science Research (RCSSR) conducts empirical social science research, data collection and evaluation. RCSSR provides skills, trainings, resources, and support for faculty, students, staff and the

community at large who need to use social science methods to carry out systematic, evidence-based, and collaborative research, evaluation and grant writing.

Social-Behavioral, Security and Law Enforcement Cannabis Center (SSLC)

Passage of voter-driven marijuana laws for recreational use signals a societal shift in attitudes for cannabis use in New Jersey. As part of the Rowan University Institute for Cannabis Research, Policy, & Workforce Development, the College of Humanities and Social Sciences houses the hub focusing on the Socio-Behavioral Impact and Enforcement of Legalized Cannabis. Our goal is to become the reference to New Jersey and other states for cannabis research and training for social science research, law enforcement and other criminal justice agencies, and public policy.

The Steve Sweeney Center for Public Policy

The Sweeney Center was created to fill the need for an independent bipartisan public policy center to conduct research and develop pragmatic solutions to complex policy issues based on data-driven analysis, rigorous academic research, and convening working groups that bring together policy experts, stakeholders, and advocates to reach consensus.

Programs Offered

The College provides expert faculty who have distinguished themselves in their disciplines through research, scholarship, and other professional activities. Our faculty help students learn both in the classroom, through engaging lectures and interactive pedagogical approaches, and outside of the classroom, through research projects and experiential learning, which is incorporated into every CHSS program. CHSS faculty care genuinely about the success of our students and make themselves available for mentoring and academic discussion. The College also houses the Exploratory Studies program for students who have not yet declared a major, including the pre-Business program for students interested in business, and provides Rowan Core courses in the humanities and the social sciences that give students a breadth of knowledge while developing skills in oral and written communication, critical thinking, and research.

The College offers the following degree and non-degree programs:

Bachelor of Arts (B.A.)

Africana Studies

American Studies

Anthropology

Area Studies

- *Concentration in Asian Studies*
- *Concentration in European Studies*
- *Concentration in Latin American Studies*

Disaster Preparedness & Emergency Management

Economics

- *Concentration in Public Policy*

English

- *Concentration in English for Future Educators*
- *Concentration in Multiethnic Literatures of the United States*
- *Concentration in Shakespeare Studies*

History

- *Concentration in European/Ancient History*
- *Concentration in Global History*
- *Concentration in United States History*

Human Services

- *Concentration in Administration*
- *Concentration in Criminal Justice*
- *Concentration in Direct Services*

International Studies

- *Concentration in Asian Studies*
- *Concentration in European & Russian Studies*
- *Concentration in Global & Comparative Perspectives*
- *Concentration in Global Health*
- *Concentration in International Business & Economics*
- *Concentration in Latin American & Iberian Studies*
- *Concentration in Middle East & African Studies*

Law & Justice Studies
- *Concentration in Community Corrections*

Liberal Studies: Humanities/Social Science

Modern Languages & Linguistics
- *Concentration in Arabic*
- *Concentration in Chinese*
- *Concentration in French*
- *Concentration in German*
- *Concentration in Italian*
- *Concentration in Japanese*
- *Concentration in Russian*
- *Concentration in Sign Language*
- *Concentration in Spanish*

Philosophy

Political Science
- *Concentration in Politics of Race, Class & Gender*
- *Concentration in Public Policy*

Sociology
- *Concentration in Anthropology*
- *Concentration in Applied Sociology*
- *Concentration in Medical Social Sciences*

Spanish
- *Concentration in Applied Spanish*
- *Concentration in Peninsular Spanish Literature and Culture*
- *Concentration in Spanish American Literature and Culture*
- *Concentration in Spanish Translation and Interpretation*

World Religions

Bachelor of General Studies (B.G.S.)

Minors

African-American Studies
American Studies
Anthropology
Arabic Studies
Asian Studies
Economics
English
Ethics
French
German Studies
History
International Studies
Italian Studies
Jewish Studies
Latin American Studies
Law & Justice Studies
Medical Social Science
Philosophy
Political Science
Romance Languages
Sociology
Spanish

Urban Studies
Women's & Gender Studies
World Religions

Certificates of Undergraduate Studies (CUGS)
Applied Spanish
Ancient Egyptian Studies
Arabic
Asian Philosophy and Religion
Blockchain Applications
Borders, Port of Entry, and Emergency Response
Chinese
Community Corrections
Counterterrorism and Emergency Response Operations
Crime Mapping and Crime Analysis
Disaster Public Health Preparedness and Emergency Response Operations
Diversity and Inclusion in Professional Settings
Environmental Justice
Environmental Policy and Economics
Ethics
Forensic Studies
Foundations of Literature
French
German
Global Health Studies
Health Services Administration
Health Services Criminal Justice
Health Services Direct Care
Italian
Japanese
Jewish Studies
Medical Social Sciences
Middle East Studies
Multiethnic Literatures of the United States
Peninsular Spanish Literature & Culture
Philosophy
Public History
Public Policy
Qualitative Research
Russian
Shakespeare Studies
Sign Language
Social Justice & Social Change
Social Studies for Middle School Educators
Spanish
Spanish American Literature & Culture
Spanish Translation and Interpretation
Urban and Community Studies
Women, Gender, and Media
Women, Gender, and Society
World Religions

Exploratory Studies

Amy Ruymann
Office of Academic Support Services
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Exploratory Studies provides an academic home for students with less than 60 credits who have not yet selected a major. Students in the Exploratory Studies Program are housed within the College of Humanities and Social Sciences. Exploratory Studies students receive professional academic advising from the University Advising Center, and support from the Office of Academic Support Services and many other offices on campus. First-year students in the Exploratory Studies Program will be enrolled in the Exploratory Studies Workshop in their first semester to familiarize them with Rowan's many resources and to begin the process of exploring majors, careers, and their own strengths and interests. Students may remain in Exploratory Studies until they have completed 60 credits (including all transfer credits). Students who have not selected a major at that time will be placed in the Liberal Studies: Humanities/Social Science major. However, most students select a major well before 60 credits. For more information, please visit: https://sites.rowan.edu/atsp/first-year-programs/esp/.

Department of English

Catherine Wilcoxson
Chair
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The BA in English offers a comprehensive and rigorous grounding in the US, British, and global Anglophone literary traditions. Students in our program are trained in a range of critical methodologies and analyze the works of both traditional and emerging canons. In the course of the major, they engage with texts written over thousands of years and in a wide variety of cultural contexts, and they develop the interpretive and analytical skills necessary to become adept, insightful readers and writers. The BA in English prepares students to succeed in careers that demand sophisticated communication skills, incisive analytical ability, intellectual curiosity, and the capacity for imaginative, responsible engagement with the world. Popular career paths for majors include teaching, publishing, journalism, law, library and information science, government, public service, business, and many more.

BACHELOR OF ARTS IN ENGLISH

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience Requirements

All students must complete the Rowan Experience requirements as described on page 4

Non-Program Requirements

All students must complete the following Non-Program requirements:

Required

- *One of the following courses:*

HIST05.100	Western Civilization to 1660
OR	
HIST05.150	US History to 1865
OR	
	3 semester hours (s.h.) of a world language

- *And one of the following courses:*

HIST05.101	Western Civilization since 1660
OR	
HIST05.151	US History since 1865
OR	
	3 semester hours (s.h.) of a world language

- *And one course from the following bank of experiential learning courses:*

AFST11.350	Topics in Africana Studies: Model African Union
ECED23.320	Building Brains: Resilience and Competency
INCL02.310	STREAM 1: Social Studies, ELA, & the Arts in the Inclusive Classroom
INTR01.470	Semester Abroad
INTR20.390	Interdisciplinary Case Studies in the Liberal Arts

INTR20.395	Experiential Learning in the Humanities & Social Sciences
INTR20.399	Internship in the Applied Liberal Arts
IS25.350	Special Topics in International Studies: Model United Nations
SMED40.450	Schools and Society

Major Requirements 36 s.h.

Required

ENGL02.101	Critical Methods I for English Majors
ENGL02.202	Critical Methods II for English Majors
ENGL02.309	British Literature I
ENGL02.311	British Literature II
ENGL02.313	US Literature I
ENGL02.315	US Literature II
ENGL02.345	Shakespeare I
ENGL02.499	Senior Seminar

- Four English electives (12 s.h.), at least two of which must be at the 300-level or above.
- At least one of the English electives must be chosen from the English Department's own designated Diversity and Inclusion course bank, which includes:

ENGL02.200	Gender, Sexuality, and Literature
ENGL02.218	Multiethnic Literatures of the United States
ENGL02.231	World Mythologies
ENGL02.354	African American Literature I
ENGL02.355	African American Literature II
ENGL02.360	Asian American Literature
ENGL02.362	Native American Literature
ENGL02.365	US Latino/a Literature
ENGL02.470	Special Topics in Multiethnic American Literatures
ENGL02.473	Global Modernisms: [subtitle]
ENGL02.475	Special Topics in Global Literatures in English

Total Credits in Program 120 s.h.

- C- is the minimum grade for each English course
- The minimum overall GPA within the major is 2.0

CONCENTRATION IN ENGLISH FOR FUTURE EDUCATORS (available to English majors only)

The Concentration in English for Future Educators is designed for students interested in teaching English. It is a useful Concentration for majors interested in pursuing a Masters of Science in Teaching (MST) after completing their BA.

Concentration Coursework 12 s.h.

ENGL05.301	American English Grammar

- *One genre course from the following list:*

ENGL02.234	Genre Studies: Drama
ENGL02.235	Genre Studies: Poetry
ENGL02.228	Genre Studies: Short Fiction
ENGL02.270	English Novel
ENGL02.285	American Novel
ENGL02.424	American Drama

- *One English elective designated Diversity and Inclusion (D/I) from the following list:*

ENGL02.200	Gender, Sexuality, and Literature
ENGL02.218	Multiethnic Literatures of the United States
ENGL02.231	World Mythologies
ENGL02.354	African American Literature I
ENGL02.355	African American Literature II
ENGL02.360	Asian American Literature
ENGL02.362	Native American Literature
ENGL02.365	US Latino/a Literature
ENGL02.470	Special Topics in Multiethnic American Literatures
ENGL02.473	Global Modernisms: [subtitle]
ENGL02.475	Special Topics in Global Literatures in English

- *And*

ENGL02.445	Shakespeare II

Additional Requirements in English Major (see above): 24 s.h.

CONCENTRATION IN MULTIETHNIC AMERICAN LITERATURES (available to English majors only)

The Concentration in Multiethnic American Literatures offers majors the opportunity to study, in-depth, key texts and contexts of ethnic American literatures. Students will cultivate a critical awareness of the ways in which mutually constitutive categories of ethnicity, race, indigeneity, class, gender, and sexuality inform the evolution of African American, Asian American, Latino/a, and Native American literary canons.

Concentration Coursework 12 s.h.

ENGL02.360	Asian American Literature
ENGL02.362	Native American Literature
ENGL02.365	US Latino/a Literature

• *And one of the following courses:*

ENGL02.354	African American Literature I
ENGL02.355	African American Literature II

Additional Requirements in English Major (see above): 24 s.h.

CONCENTRATION IN GLOBAL LITERATURES IN ENGLISH (available to English majors only)

The Concentration in Global Literatures in English is designed for students interested in English as a global language encompassing diverse perspectives, histories, and literary traditions. It will prepare students for careers in fields that value intercultural fluency and global understanding.

Concentration Coursework 12 s.h.

ENGL02.202	Critical Methods II for English Majors

• *And any three of the following courses:*

ENGL02.231	World Mythologies
ENGL02.475	Special Topics in Global Literatures in English
ENGL02.417	Special Topics in Literature (with a global focus)
ENGL02.473	Global Modernisms: [subtitle]
ENGL02.499	Senior Seminar (with a global focus)

Additional Requirements in English Major (see above): 24 s.h.

CONCENTRATION IN SHAKESPEARE STUDIES (available to English majors only)

The Concentration in Shakespeare Studies allows majors to complete a focused, intentional course of advanced study in the works of William Shakespeare and the literature of the early modern era in which he wrote. The Shakespeare Studies Concentration offers majors a thorough grounding in the literary and historical contexts of Shakespeare's era, and the opportunity to critically engage at an advanced level with his works and the works of his peers, predecessors, and immediate successors.

Concentration Coursework 12 s.h.

ENGL02.309	British Literature I
ENGL02.345	Shakespeare I
ENGL02.445	Shakespeare II

• *And one of the following courses*

ENGL02.441	English Renaissance Literature
ENGL02.430	Anglo-Saxon and Medieval Literature
ENGL02.440	Chaucer
ENGL02.499	Senior Seminar (early modern or medieval topic focus)

Additional Requirements in English Major (see above): 24 s.h.

MINOR IN ENGLISH

ENGL02.101	Critical Methods I for English Majors
ENGL02.309	British Literature I
ENGL02.311	British Literature II
ENGL02.313	US Literature I
ENGL02.315	US Literature II

Two English electives (6 s.h.) as follows:

- At least one of the two English electives must be at the 200-level or higher.
- Recommended: ENGL02.202, Critical Methods II for English Majors
- At least one of the two English electives must be chosen from the English Department's own designated Diversity and Inclusion course bank, which includes:

ENGL02.123	Topics in Literature: Asian Literature
ENGL02.116	Introduction to Global Literatures in English
ENGL02.200	Gender, Sexuality, and Literature
ENGL02.218	Multiethnic Literatures of the United States

ENGL02.231	World Mythologies
ENGL02.354	African American Literature I
ENGL02.355	African American Literature II
ENGL02.360	Asian American Literature
ENGL02.362	Native American Literature
ENGL02.365	US Latino/a Literature
ENGL02.470	Special Topics in Multiethnic American Literatures
ENGL02.473	Global Modernisms: [subtitle]
ENGL02.475	Special Topics in Global Literatures in English

Total semester hours to complete the English minor 21 s.h.

- C- is the minimum grade for each English course
- The minimum overall GPA within the major is 2.0

CERTIFICATE OF UNDERGRADUATE STUDY IN FOUNDATIONS OF LITERATURE

Christine Larsen-Britt
Advisor
856.256.4068
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The Certificate of Undergraduate Study (CUGS) in Foundations of Literature allows non-majors to earn a credential in English by taking four literature courses. Reading canonical and non-canonical texts in the US, British, and world literary traditions, students will broaden and deepen their cultural fluency and knowledge in discussion-based classes. They will also develop their analytic and communication skills while being introduced to a range of critical methodologies and literary theories.

Certificate of Undergraduate Study in Foundations of Literature 12 s.h.

The requirements include:

- One Rowan Core English (ENGL) course
- ***Either*** another Rowan Core English course ***or*** a 200-level English elective
- ENGL02.101 Critical Methods I for English Majors
- One upper-level English course from the following bank:

ENGL02.309	British Literature I
ENGL02.311	British Literature II
ENGL02.313	US Literature I
ENGL02.315	US Literature II
ENGL02.305	Contemporary Children's Literature for Non-Majors
ENGL05.301	American English Grammar

To earn a CUGS in Foundations of Literature, students must earn a C- or above in each of the four courses (12 s.h.).

CERTIFICATE OF UNDERGRADUATE STUDY IN MULTIETHNIC AMERICAN LITERATURES

Christine Larsen-Britt
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The Certificate of Undergraduate Study (CUGS) in Multiethnic American Literatures offers non-majors the opportunity to study, in-depth, key texts and contexts of ethnic American literatures. Students will cultivate a critical awareness of the ways in which mutually constitutive categories of ethnicity, race, indigeneity, class, gender, and sexuality inform the evolution of African American, Asian American, Latino/a, and Native American literary canons.

Certificate of Undergraduate Study in Multiethnic American Literatures 12 s.h.

The requirements include:

- One of the following courses:

ENGL02.101	Critical Methods I for English Majors
ENGL02.218	Multiethnic Literatures of the United States

- Three of the courses listed below. Note: students who choose to study African American literature may take only one of the two course offerings in this area (either ENGL02.354 or ENGL02.355).

ENGL02.360	Asian American Literature
ENGL02.362	Native American Literature
ENGL02.365	US Latino/a Literature
ENGL02.354	African American Literature I

ENGL02.355	African American Literature II

To earn a CUGS in Multiethnic America Literatures, students must earn a C- or above in each of the four courses (12 s.h.).

CERTIFICATE OF UNDERGRADUATE STUDY IN GLOBAL LITERATURES IN ENGLISH

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The Certificate of Undergraduate Study (CUGS) in Global Literatures in English is designed for students interested in English as a global language encompassing diverse perspectives, histories, and literary traditions. It will prepare students for careers in fields that value intercultural fluency and global understanding.

Certificate of Undergraduate Study in Global Literatures in English 12 s.h.

The requirements include:

- Both of the following courses:

ENGL02.101	Critical Methods I for English Majors
ENGL02.202	Critical Methods II for English Majors

- Two of the following courses:

ENGL02.116	Introduction to Global Literatures in English
ENGL02.231	World Mythologies
ENGL02.475	Special Topics in Global Literatures in English
ENGL02.417	Special Topics in Literature (with a global focus)
ENGL02.473	Global Modernisms: [subtitle]

To earn a CUGS in Global Literatures in English, students must earn a C- or above in each of the four courses (12 s.h.).

CERTIFICATE OF UNDERGRADUATE STUDY IN SHAKESPEARE STUDIES

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The Certificate of Undergraduate Study (CUGS) in Shakespeare Studies is designed for non-majors interested in completing a focused and comprehensive study of the works of William Shakespeare. The CUGS in Shakespeare Studies will offer students a thorough grounding in the literary and historical contexts of Shakespeare's era, and the opportunity to critically engage with his works at an advanced level.

Certificate of Undergraduate Study in Shakespeare Studies 12 s.h.

The requirements include:

- One of the following courses:

ENGL02.101	Critical Methods I for English Majors
THD07.202	Script Analysis

- One of the following courses:

ENGL02.309	British Literature I
THD07.339	Theater History I

- Both of the following courses:

ENGL02.345	Shakespeare I
ENGL02.445	Shakespeare II

Department of History

Dr. Janet Moore Lindman
Chair
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With faculty specialties ranging from ancient to modern history, covering U.S, Europe, Latin America, East Asia, Africa, Russia, and the Middle East, the History Department offers students the opportunity both to develop an understanding of broad currents in history and to specialize in a particular area. Students learn how to do historical research, analyze and synthesize information, and present their ideas orally and in writing. Majors are also required to take six semester hours of a foreign language.

Students considering a major in history are urged to consult a history advisor early in their academic program in order to build a logical program leading to their goal, be it graduate school, professional school, or post-baccalaureate employment. In addition, students are encouraged to earn up to 15 credits in a semester abroad program sponsored by the University. For further clarifications regarding the program, they may consult the department chairperson.

History majors must have a minimum 2.0 overall G.P.A. to qualify for graduation. Students must earn at least a C- in all 300-400 level History courses.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All History majors must complete the Rowan Experience requirements as described on page 4

BACHELOR OF ARTS IN HISTORY

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Associate Chair and Advisor
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856.256.4500, x3972

Program Requirements

Non-Program Courses 18-24 s.h.

ECON04.101	Introduction to Economics: Macroeconomics
or	
ECON04.102	Introduction to Economics: Microeconomics (satisfies Humanistic Literacy)
ENGL02.116	Introduction to Global Literature in English
or	
ENGL02.112	Readings in Asian Literature (satisfies LIT requirement)
	Foreign Language I Foreign Language II (must take two courses in the same language in consecutive order)
	Any Political Science course
	Any Geography or Anthropology course (satisfies Global Literacy (or former M/G requirement))

Experiential Learning

Must choose one course from the bank of experiential learning courses below.

AFST11.350	Topics in Africana Studies: Model African Union
ANTH02.290	Museum Studies
ECED23.320	Building Brains: Resilience and Competency
EDPA02.490	Public Service Internship
HIST05.378	Special Topics: History of Camden
HIST05.495	Internship in History
INCL02.310	STEAM I: Social Studies, ELA, & the Arts in the Inclusive Classroom
INTR01.470	Semester Abroad
INTR20.390	Interdisciplinary Case Studies in the Liberal Arts
INTR20.395	Experiential Learning in the Humanities & Social Sciences
INTR20.399	Internship in the Applied Liberal Arts
IS25.350	Special Topics in International Studies: Model United Nations
SMED40.450	Schools and Society

Core Courses 12 s.h.

HIST05.100	The West in the World to 1660
HIST05.101	The West in the World Since 1660
or HIST05.120	World History Since 1500
Any Level History Elective*	
or HIST05.150	United States to 1865
or HIST05.151	United States Since 1865
HIST05.306	Historical Methods (WI) (required before taking 400 upper level electives)

* We recommend that history students take additional 100-level courses as free electives to fill prerequisites for some upper-level history courses.

Upper Level History Electives 15 s.h.

All students most complete Composition II (COMP01.112) to enroll in 300 upper level courses
All students must complete Historical Methods (HIST05.306) to enroll in 400 upper level courses

- Five Upper Level (300/400) History Courses (at least one course must be a 400 upper level elective)

(Two of the five courses must be in global history: Africa, Asia, Latin America, the Middle East, and/or Russia; Topics in History courses count as upper-level histories)

Capstone Requirement 3 s.h.

HIST05.492	Seminar (Seniors only)

History Department Required Courses 48 s.h.

Rowan Core, Rowan Experience, and Free Electives 72 s.h.

Total Credits 120 s.h.

The Bachelor of History/Master of History Combined Advanced Degree (CADP) Program

This unique program allows a student to earn both a Bachelor's degree and a Master's degree in history in only five years. Students in the program will be allowed to register for up to 12 graduate credits during their senior year, to pay the undergraduate rate for those credits, and to double-count those credits toward both degrees. Such a program offers great financial, educational, and marketability advantages to students. Admission into the program is selective and competitive.

Stage One of the Program. Students at this stage are considered CAPD students by the Department of History but retain their undergraduate status with the Registrar's Office

To be advanced to Stage Two of the program, students in Stage One will need to maintain a 3.3 GPA in history courses. If they do this, they will be automatically admitted to Stage Two in the Spring semester of their junior year. Please note that students in their junior year may apply directly into Stage Two if they have the requisite GPA, a grade of at least B- in Methods, and a faculty recommendation.

Stage Two is completed during a candidate's fourth year, a time during which they have a new designation with the Registrar's Office and will take at least two and up to four graduate courses at the undergraduate rate. At the end of the fourth year, students will move on to Stage Three, where they will now be considered graduate students by the University.

The Master's program requires completion of ten courses, including *Readings and Research I* and *Readings and Research II*. Students may choose to complete a two-semester thesis in their fifth year. The thesis counts as two of the ten required courses.

The CAPD coordinator, William Carrigan, carrigan@rowan.edu, will assist with academic issues throughout the program, including course selection, program requirements, departmental policies, or awarded credit. Applications are reviewed on a rolling basis but ideally should be received no later than February 1 of the candidate's junior year.

More information can be found at: https://chss.rowan.edu/departments/history/index.html.

BACHELOR OF ARTS IN HISTORY WITH CONCENTRATION IN UNITED STATES HISTORY

The concentration in United States History offers a structured program of study for history majors interested in gaining an in-depth understanding of the United States within the discipline of history. Students who fulfill the requirements of this program will earn a Bachelor of Arts in History with a Concentration in United States History. The concentration provides a coherent plan of study that prepares motivated students for graduate study or professional work in their chosen area and recognizes their efforts on their transcript.

Program Requirements

Non-Program Courses 24 s.h.

Introduction to Economics: Macroeconomics or Microeconomics (satisfies Humanistic Literacy) Introduction to Global Literature in English or Readings in Asian Literature (satisfies LIT requirement) Any Political Science course Any Geography or Anthropology course (satisfies Global Literacy (or former M/G requirement))

Experiential Learning

All students must take **one** of the following courses to fulfill this requirement:

AFST11.350	Topics in Africana Studies: Model African Union
ANTH02.290	Museum Studies
ECED23.320	Building Brains: Resilience and Competency
EDPA02.490	Public Service Internship
HIST05.378	Special Topics: History of Camden
HIST05.495	Internship in History
INCL02.310	STEAM I: Social Studies, ELA, & the Arts in the Inclusive Classroom
INTR01.470	Semester Abroad

INTR20.390	Interdisciplinary Case Studies in the Liberal Arts
INTR20.395	Experiential Learning in the Humanities & Social Sciences
INTR20.399	Internship in the Applied Liberal Arts
IS25.350	Special Topics in International Studies: Model United Nation
SMED40.450	Schools and Society

Four semesters of foreign language, preferably in the same language, but in no more than two languages.

Core Courses 15 s.h.

HIST05.100	The West in the World to 1660
HIST05.101	The West in the World Since 1660
or HIST05.120	World History Since 1500
HIST05.150	United States to 1865
HIST05.151	United States Since 1865
HIST05.273	American Military History
HIST05.306	Historical Methods (WI) (required before taking 400 upper level electives)

Upper Level History Electives 21 s.h.

1. At least two of the following 300/400 level History electives:

HIST05.426	Colonial North America
HIST05.427	History of the Revolution and Early Republic
HIST05.429	United States History, 1820-1861
HIST05.322	Civil War and Reconstruction
HIST05.453	Gilded Age and Progressive Era
HIST05.433	America War to War, 1914-1945
HIST05.375	America after 1945

2. Any two additional 300/400 level History electives in United States History. Students may satisfy this requirement by taking any of the courses listed below, for example, and/or by taking any other upper-level history course or Topics in History (HIST 05.429) related to United States History.

HIST05.455	Gender, Sexuality and History
HIST05.376	African American History to 1865
HIST05.377	African American History Since 1865
HIST05.475	History of New Jersey
HIST05.370	Topics in American History
HIST05.425	Women in American History
HIST05.334	Urban History of U.S.
HIST05.472	Cultural History of U.S.
HIST05.436	U.S. Home front, 1940-1945
HIST05.474	U.S. Labor History
HIST05.471	History of American West
HIST05.371	U.S. Legal and Constitutional History to 1870
HIST05.372	U.S. Legal and Constitutional History Since 1870
HIST05.412	Intellectual History of the U.S.
HIST05.412	U.S. Foreign Relations to 1900
HIST05.415	U.S. Foreign Relations Since 1900
HIST05.438	History of the Vietnam War
HIST05.407	History of World War II

3. Any two 300/400 level History electives in Global History (History of Africa, Asia, Latin America, Middle East, and Russia).

4. Any one additional 300/400 level History elective, in Global, European, and/or U.S. History.

Capstone Course 3 s.h.

HIST05.492	Seminar (Seniors only)

Students are encouraged to focus some of their non-program and free electives on courses related to the United States.

Recommended:

SOC08.120	Introduction to Sociology
GEOG16.240	Geography of U.S. and Canada
ENGL02.113	Readings in U.S. Literature
ECON04.205	American Economic History
PHIL09.228	American Philosophy
POSC07.400	American Political Thought

History Department Required Courses 63 s.h.

Rowan Core, Rowan Experience, and Free Electives 57 s.h.

Total Credits 120 s.h.

BACHELOR OF ARTS IN HISTORY WITH CONCENTRATION IN EUROPEAN/ANCIENT HISTORY

The concentration in European/Ancient History offers a structured program of study for history majors interested in gaining an in-depth understanding of Europe or the Ancient World within the discipline of history. Students who fulfill the requirements of this program will earn a Bachelor of Arts in History with a Concentration in European/Ancient History. The concentration provides a coherent plan of study that prepares motivated students for graduate study or professional work in their chosen area and recognizes their efforts on their transcript.

Students are encouraged to specialize in a particular area or period related to Europe/Ancient world in their choice of upper-level History courses, language study, and non-program and free electives.

Study Abroad

Students pursuing a concentration in European/Ancient History are strongly encouraged to spend at least one semester studying abroad.

Program Requirements

Non-Program Courses 24 s.h.

Introduction to Economics: Macroeconomics or Microeconomics (satisfies Humanistic Literacy) Introduction to Global Literature in English or Readings in Asian Literature (satisfies LIT requirement) Any Political Science course Any Geography or Anthropology course (satisfies Global Literacy (or former M/G requirement))

Experiential Learning

Experiential Learning All students must take one of the following courses to fulfill this requirement: AFST 11350: Topics in Africana Studies: Model African Union; ANTH 02290: Museum Studies; ECED 23320: Building Brains: Resilience and Competency; EDPA 02490: Public Service Internship; HIST 05378: Special Topics: History of Camden; HIST 05495: Internship in History; INCL 02310: STEAM I: Social Studies, ELA, & the Arts in the Inclusive Classroom; INTR 01470: Semester Abroad; INTR 20390: Interdisciplinary Case Studies in the Liberal Arts INTR 20395: Experiential Learning in the Humanities & Social Sciences; INTR 20399: Internship in the Applied Liberal Arts; IS 25350: Special Topics in International Studies: Model United Nation; SMED 40450: Schools and Society

Four semesters of foreign language, preferably in the same language, but in no more than two languages. (Recommended for Ancient Focus: Latin. Recommended for Modern Focus: French, German, Italian, Spanish.)

Core Courses 15 s.h.

HIST05.100	The West in the World to 1660
HIST05.101	The West in the World Since 1660
HIST05.120	World History Since 1500
HIST05.150	United States to 1865
or HIST05.151	United States Since 1865
HIST05.306	Historical Methods (W/I) (required before taking 400 upper level electives)

Upper Level History Electives 21 s.h.

1. Any four 300/400 level History electives in European and/or Ancient history and/or related global history. Students may satisfy this requirement by taking any of the courses listed below and/or by taking any other upper-level history course or Topics in History (HIST05.429) or Global Topics in History (HIST 05.443) related to European or Ancient history.

HIST05.307	Ancient Mediterranean World
HIST05.310	Medieval Europe
HIST05.311	Renaissance and Reformation
HIST05.312	Age of Enlightenment
HIST05.313	Age of Revolution
HIST05.315	20th Century Europe I
HIST05.316	20th Century Europe II
HIST05.319	Ancient Greece
HIST05.441	Imperialism and Colonialism
HIST05.314	Europe 1871-1914
HIST05.379	Ancient Egypt
HIST05.418	Women in Europe to 1700
HIST05.419	Women in Modern Europe
HIST05.410	European Intellectual History
HIST05.327	Victorian England

2. Any two 300/400 level History electives in Global History (History of Africa, Asia, Latin America, Middle East, and Russia).

3. Any additional 300/400 level History elective in Global, European, and/or United States History.

Capstone Course 3 s.h.

HIST05.492	Seminar (Seniors only)

Recommended

GEOG16.342	Geography of Europe
ANTH02.350	Comparative Cultures
ANTH02.202	Cultural Anthropology
ANTH02.202	Introduction to Archeology
CMS04.290	Rhetorical Theory
ENGL02.309	British Literature I
ENGL02.311	British Literature II
ENGL02.330	Classical Literature in Translation
ENGL02.430	Anglo-Saxon and Medieval Literature
ENGL02.440	Chaucer
GEOG16.347	Geography of the Middle East
POSC07.346	Politics and Society of Great Britain
POSC07.420	International Law
REL10.240	Introduction to the Bible
REL10.320	Introduction to Christianity
REL10.328	Development of Western Religious Thought
SOC08.399	Sociology of the Holocaust

Required Courses 63 s.h.

Rowan Core, Rowan Experience, and Free Electives 57 s.h.

Total Credits 120 s.h.

BACHELOR OF ARTS IN HISTORY WITH CONCENTRATION IN GLOBAL HISTORY

The concentration in Global History offers a structured program of study for history majors interested in gaining an in-depth understanding of global history or one region of the world—Africa, East Asia, Latin America, Middle East, or Russia--within the discipline of history. Students who fulfill the requirements of this program will earn a Bachelor of Arts in History with a Concentration in Global History. The concentration provides a coherent plan of study that prepares motivated students for graduate study or professional work in their chosen area and recognizes their efforts on their transcript.

Students are encouraged to specialize in a particular area of the world— Africa, East Asia, Latin America, the Middle East, or Russia -- in their choice of History courses, language study, and non-program and free electives.

Study Abroad

Students pursuing a concentration in Global History are strongly encouraged to spend at least one semester studying abroad in a non-English speaking country.

Program Requirements

Non-Program Courses 24 s.h.

Introduction to Economics: Macroeconomics or Microeconomics (satisfies Humanistic Literacy) Introduction to Global Literature in English or Readings in Asian Literature (satisfies LIT requirement) Any Political Science course Any Geography or Anthropology course (satisfies Global Literacy (or former M/G requirement))

Four semesters of foreign language, preferably in the same language, but in no more than two languages.

Core Courses 15 s.h.

HIST05.100	The West in the World to 1660
HIST05.101	The West in the World Since 1660
HIST05.120	World History Since 1500
HIST05.150	United States to 1865
or HIST05.151	United States Since 1865
HIST05.306	Historical Methods (W/I) (required before taking 400 upper level electives)

Upper Level History Electives 21 s.h.

1. Any four 300/400 level History electives in global history. Students may satisfy this requirement by taking any of the courses listed below, for example, and/or by taking any other upper-level global history course or Global Topics in History (HIST05.443).

HIST05.441	Imperialism and Colonialism
HIST05.447	History of Medicine in Africa
HIST05.394	Sub-Saharan African to 1800
HIST05.397	Sub-Saharan Africa since 1800
HIST05.437	20th Century African Nationalism
HIST05.413	Comparative Race Relations
HIST05.351	Modern Japan
HIST05.355	Modern China
HIST05.448	Late Imperial China

HIST05.408	Chinese Cultural History
HIST05.446	Race, Identity, and History in East Asia
HIST05.347	Traditional Latin America
HIST05.350	Modern Latin America
HIST05.409	Latin American Revolutions/ Reform
HIST05.362	History of Mexico & Caribbean
HIST05.411	Topics in Latin America
HIST05.383	Islamic Civilizations
HIST05.308	Modern Middle East
HIST05.404	Arab-Israeli Conflict
HIST05.417	Women in Islam
HIST05.439	Ottoman History
HIST05.444	Islamist Movements
HIST05.445	History of the Cold War
HIST05.343	Russia to 1914
HIST05.344	Russia Since 1914
HIST05.433	Topics in Global History

2. Any three additional 300/400 level History electives, in Global, European, and/or United States History.

Capstone Course 3 s.h.

HIST05.492	Seminar (Seniors only)

Students are encouraged to focus some of their non-program and free electives on courses related to international studies and their area of concentration.

Recommended

ANTH02.350	Comparative Cultures
ANTH02.202	Cultural Anthropology
ANTH02.371	Anthropological Approaches to Culture Change
ECON04.303	Principles of Economics: Global Perspective
GEOG16.110	Cultural Geography
LAWJ05.330	Problems in World Justice
PHIL09.211	World Philosophy I
POSC07.321	Contemporary World Problems
POSC07.420	International Law
POSC07.421	International Organizations
REL10.100	Religions of the World

Students should also consider courses that focus on a particular area, especially their area of concentration.

History Department Required Courses	63 s.h.
Rowan Core, Rowan Experience, and Free Electives	57 s.h.
Total Credits	120 s.h.

MINOR IN HISTORY

The Minor in History is designed to address the needs of students in other fields who wish to gain a broad base in the humanities and social sciences by incorporating historical perspectives into their majors and thus enhance their ability to reach higher levels of achievement in their own professional specialization.

The curriculum consists of 18 credits in History, including:

1. At least one course, at either the introductory or advanced level, must be taken in each of the following areas of concentration: American, European, and Global
2. At least three courses at the 300 or 400 level
3. Minors must earn at least a C- in all 300 to 400 level History courses.
4. Minors are encouraged to take HIST05.306, Historical Methods (WI)

Students pursuing the minor should plan their courses in collaboration with a Department of History advisor in addition to an advisor from their major.

More information can be found at: History.

Certificate of Undergraduate Study (CUGS) in Public History

Coordinators

Dr. William Carrigan
History Department
Robinson Hall
carrigan@rowan.edu

Dr. Jane Hill

Department of Sociology & Anthropology
Robinson Hall
hillj@rowan.edu

Public History is usually defined as history beyond the walls of a traditional classroom. Public Historians work as preservationists, in archives and research libraries, and as museum professionals. They may be curators, museum educators, exhibit producers, oral historians, and even community activists. The CUGS in Public History will interest students who hope to work in historical, natural history, or anthropological museums, historical societies, federal, state and local government, archival management, etc. The Certificate requires 15 s.h. of courses related to public history, including three core courses and two electives.

Core Courses:

ANTH02.290	Museum Studies
HIST05.369	Public History*
HIST05.495	Internship in History
or INTR20.399	Internship in Applied Liberal Arts (at a site approved by the coordinator)

* Note: Composition II (COMP01.112) is a prerequisite, but students pursuing this CUGS who have completed Museum Studies (ANTH02.290) will be given a prerequisite waiver

Electives:

Any TWO of the following courses:

HIST05.495	Internship in History (if not taken as a core course)
INTR20.399	Internship in Applied Liberal Arts (Another 3 s.h. at a site approved by the coordinator)
HIST05.475	History of New Jersey – (Composition II (COMP01.112) is a prerequisite)
ANTH02.203	Introduction to Archaeology
ANTH02.270	New World Archeology
ANTH02.280	Old World Archeology
ANTH02.310	Indians of North America
ART09.301	Digital Media & Techniques
WA01.322	Writing for the Workplace (WI) (75 s.h. is a prerequisite)
RTF03.295	Introduction to New Media (College Composition II (COMP01.112) is a prerequisite)
MKT09.200	Principles of Marketing (College Composition I (COMP01.111) and 12 s.h. is a prerequisite)
PR06.350	Introduction to Public Relations (all students may take an online section; students who are not Public Relations majors may be signed into a regular section
ADV04.330	Introduction to Advertising (All students may take an online section; students who are not Advertising majors need to be signed in a regular section)

Department of Law and Justice Studies

Dr. Michael S. Weiss
Chair
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Rachel Budmen
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The Law and Justice Studies program represents an interdisciplinary approach to the study of crime and the functioning of criminal law and the criminal justice system. It prepares students for professional careers in four major areas: law enforcement and security services, court services, corrections, and human services. Since many of the students who enter the program express an interest in preparation for graduate study and professional schools, the program also offers majors the rigorous preparation necessary to achieve such goals.

The program admits high school graduates at the freshman level and transfer students from community and four-year colleges. Before admitted students enroll in classes, they will be contacted by their advisor. The advisor develops with the student an individualized program of study and will be available to students throughout their time at Rowan. An internship in an appropriate criminal justice or related agency is required in order to provide students with experience, making their classwork more meaningful.

BACHELOR OF ARTS IN LAW AND JUSTICE STUDIES

Students are required to earn a C- or better in all Law and Justice Studies major courses.

A maximum of 90 s.h. can be transferred from other accredited colleges and universities into the Law and Justice major.

Rowan students majoring in fields other than Law and Justice Studies may elect to take courses in the department either as part of their general education requirements, as recommended requirements, as free electives, or as a minor in Law and Justice Studies.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

The Rowan Experience

All students must complete the University Rowan Experience Requirements as described on page 4

Other Required Courses 18 s.h.

SOC08.221	Social Problems
POSC07.110	American Government
or POSC07.100	Introduction to Government and Politics
PSY01.107	Essentials of Psychology
or PSY01.301	Psychology of Scientific Thinking
STAT02.100	Elementary Statistics
or STAT02.102	Statistical Literacy

Required General Education Courses (For non-transfer Students starting *Before* Fall 2018 *Only*) 3 s.h.

PHIL09.110	The Logic of Everyday Reasoning
*or*PHIL09.120	Introduction to Philosophy
*or*PHIL09.150	Introduction to Ethics
or PHIL09.240	Philosophy and Society

Required Rowan Core Courses (For non-transfer Students Starting in *Fall 2018 or After, Only*) 3 s.h.

PHIL09.120	Introduction to Philosophy
or PHIL09.150	Introduction to Ethics
or PHIL09.240	Philosophy and Society

Outside Free Electives 23 s.h.

Note: It is strongly recommended that the student consult an advisor for assistance in making these choices.

Outside Free Electives (For Students Starting in Fall 2018 or After, Only) 57 s.h.

Note: It is strongly recommended that the student consult an advisor for assistance in making these choices.

Major Requirements 36 s.h.

Students must take a minimum of 36 semester hours, including 24 semester hours of core course requirements and 12 semester hours of electives within the major.

Required Core Courses 24 s.h.

One of the following:

LAWJ05.202	American Police
LAWJ05.201	Introduction to Courts
LAWJ05.200	Introduction to Corrections

All of the following:

LAWJ05.175	Survey of Criminal Justice
LAWJ05.255	Criminal Law
LAWJ05.356	Criminal Justice Internship I
LAWJ05.369	Theories of Crime & Criminality
LAWJ05.380	Criminal Justice Research
LAWJ05.401	Law and Human Rights

One of the following:

LAWJ05.461	Seminar in Corrections
LAWJ05.465	Seminar in Social Justice
LAWJ05.467	Seminar in Law
LAWJ05.468	Seminar in Police Science
LAWJ05.469	Seminar in Law and Justice

Law & Justice Elective Offerings

LAWJ05.120	Intro to Security
LAWJ05.205	Minorities, Crime, and Criminal Justice
LAWJ05.210	Restorative Justice
LAWJ05.220	Victimology
LAWJ05.229	Introduction to Gangs
LAWJ05.225	Media and Crime
LAWJ05.250	Scholarship of Criminal Justice
LAWJ05.274	Criminal Justice and Community Relations
LAWJ05.276	Parole, Probation and Community Corrections
LAWJ05.280	Homeland Security
LAWJ05.285	Criminal Investigation
LAWJ05.287	Police Use of Force
LAWJ05.288	Casino Crime
LAWJ05.290	Forensic Law
LAWJ05.295	Religion, Crime and Punishment
LAWJ05.305	Law and Evidence
LAWJ05.310	Criminal Jurisprudence
LAWJ05.312	Criminal Procedure II
LAWJ05.315	Criminal Justice and Social Conflict
LAWJ05.320	Civil Aspects of Law Enforcement
LAWJ05.322	Drugs and Crime in America
LAWJ05.323	Maritime Crime and Criminality
LAWJ05.324	Sentencing and the Rights of the Convicted
LAWJ05.325	Comparative and International Issues in Criminal Justice
LAWJ05.326	International Terrorism
LAWJ05.327	Terrorism in the US
LAWJ05.329	Intelligence, Policing and Counterterrorism
LAWJ05.330	Problems of World Justice
LAWJ05.335	Criminal Procedure I
LAWJ05.337	Treatment of the Offender
LAWJ05.342	Counseling and Guidance of the Offender
LAWJ05.343	Offender Re-entry, Re-integration, and Recidivism
LAWJ05.346	Women, Crime and Criminal Justice

LAWJ05.350	Mass Murder
LAWJ05.357	Criminal Justice Internship II
LAWJ05.361	Introduction to Juvenile Justice
LAWJ05.364	Critical Issues in American Law Enforcement
LAWJ05.367	Theories of Justice
LAWJ05.379	Political Prisoner
LAWJ05.381	Crime Mapping and Crime Analysis I
LAWJ05.382	Crime Mapping and Crime Analysis II
LAWJ05.392	Criminal Justice Administration
LAWJ05.395	Incarceration Experience
LAWJ05.399	Crime Prevention Analysis
LAWJ05.415	Selected Topics in Criminal Justice

Total semester hours in program 120 s.h.

Law and Justice Studies Combined Advanced Degree (CADP) Program

The Law and Justice Studies CAPD Program allows students to earn a Bachelor of Arts in Law and Justice Studies and a Master of Arts in Criminal Justice in five years.

Twelve credits can be double-counted towards both the undergraduate and graduate degrees.

To apply to the program, a student must have:

- Successfully completed 60-75 credits of undergraduate coursework
- A cumulative GPA of 3.5 within the major and an overall cumulative GPA of 3.2
- Successfully completed at least 15 credits within the major
- Successfully completed at least 3 courses within the Law and Justice Studies Department at Rowan University with a grade of B or higher
- Successfully completed at least 15 credits at Rowan University
- Completed or be enrolled in Theories of Crime and Criminality (LAWJ05.369) and Criminal Justice Research (LAWJ05.380)

An application must consist of:

- Two letters of recommendation, at least one of which must be from a Law and Justice Studies professor (in sealed envelopes with recommenders' signatures across seal)
- A 300-500 word statement of purpose for attending the program with name, address, email, and phone number at the top
- A printout of the student's Rowan Transcript

Completed application packets must be submitted to the Coordinator of the Master of Arts in Criminal Justice program by February 15th before a student's senior year.

MINOR IN LAW AND JUSTICE STUDIES

A minor consisting of 21 s.h. in Law and Justice Studies is available to all students. Students minoring in Law and Justices Studies must take the following classes:

LAWJ05.175	Survey of Criminal Justice
LAWJ05.369	Theories of Crime and Criminality
LAWJ05.255	Criminal Law

In addition, students must take any Four (4) additional Law and Justice Studies courses. Students must earn a C- or better in all courses for the minor. To declare the minor, go to the University Advising Center in room 323 Savitz Hall - (856) 256-4459.

Total semester hours for Minor program 21 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN COMMUNITY CORRECTIONS

Kimberly Houser
856.256.4500, ext 53739
houser@rowan.edu

Christine Saum
Campbell Library, Room 570
856.256.4500, ext. 53541
saum@rowan.edu

Advisors

The Certificate of Undergraduate Study (CUGS) in Community Corrections provides a sequence of courses emphasizing the core of evidence-based practices in the field of community corrections and risk reduction/behavior change (such as Offender reentry and reintegration, parole and probation, treatment of the offender, and drugs and crime in America). The course selections are designed to help students seeking careers in criminal justice to be more competitive in the rapidly expanding area of community corrections.

Certificate of Undergraduate Study in Community Corrections 15 s.h.

The requirements include the following five course:

LAWJ05.343	Offender Re-entry, Reintegration and Recidivism
LAWJ05.276	Parole, Probation and Community Corrections
LAWJ05.337	Treatment of the Offender
LAWJ05.322	Drugs and Crime in America

To complete the requirements of the CUGS in Community Corrections, students may choose from one of the three courses offered below to meet their specific areas of interest and career goals.

LAWJ05.361	Introduction to Juvenile Justice
LAWJ05.210	Restorative Justice
LAWJ05.200	Introduction to Corrections

To be awarded the CUGS in Community Corrections, students must complete all courses required for the CUGS in Community Corrections with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN CRIME MAPPING AND CRIME ANALYSIS

Evan Sorg
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856.256.4500, ext. 53725
sorg@rowan.edu

The Certificate of Undergraduate Study (CUGS) in Crime Mapping and Crime Analysis will prepare students for careers as crime analysts by providing them with both hands-on and theoretical content that is relevant to crime analysis work. Geography, Planning, and sustainability courses ensure that students are provided a background in spatial data, the operation of geographic information systems, and geographic concepts related to analyzing and displaying spatial data and information. Law and Justice courses provide students with experience performing actual crime analysis functions and how to take the results of analyses that are learned and present them in ways that are relevant and practical to police practitioners.

Certificate of Undergraduate Study in Crime Mapping and Crime Analysis 15 s.h.

The requirements include the following five courses:

Three of the five courses will serve as the foundation of the CUGS and will be taken early on in the pursuit of the CUGS. These courses may also be used to fulfill curriculum requirements of the Law and Justice Studies and Geography, Planning, and Sustainability degree programs. They will operate without prerequisites. These courses are:

LAWJ05.364	Critical Issues in American Law Enforcement
GEOG16.160	Introduction to Mapping and Geographic Information Science
LAWJ05.381	Crime Mapping and Crime Analysis I

Upon completion of these three courses, students will begin pursuing the remaining two advanced courses. These courses are:

GEOG16.260	Fundamentals of Geographic Information Systems
LAWJ05.382	Crime Mapping and Crime Analysis II

GEOG16.260 has a prerequisite of either GEOG06.193 or GEOG16.160. Students may fulfill either of these prerequisites; however, GEOG16.160 is a required course for successful CUGS completion. Crime Mapping and Crime Analysis II will have a prerequisite of Crime Mapping and Analysis I. In addition to this prerequisite, students have two options in fulfilling a second requirement before enrolling in Crime Mapping and Crime Analysis II. With instructor or program advisor

approval, students may concurrently enroll in the prerequisite, GEOG16.260, and Crime Mapping and Crime Analysis II. To be awarded the CUGS in Crime Mapping and Crime Analysis, students must complete all courses required for the CUGS in Crime Mapping and Crime Analysis with at least a 2.0 average.

Accelerated Law Degree Programs (3+3 Programs)

Michael Weiss, Chair
Department of Law & Justice Studies,
Pre-Law Advisor
856-256-4840
weissm@rowan.edu rowan.edu/lawjustice

Partner Law Schools

Thomas R. Kline School of Law, Drexel University

Delaware Law School, Widener University

Rutgers Law School

What are the 3+3 Programs?

They are programs that allow students to earn a bachelor's degree and a J.D. in only six years, instead of seven, saving you time and money by completing your law degree with your first year of law school simultaneously counting as your last year of undergraduate study. Each 3+3 program comes with significant scholarship opportunities.

What is the 4+3 Program?

Students may also take advantage of 4+3 programs at Widener University-Delaware Law School and Drexel University Thomas R. Kline School of Law by completing all Rowan degree requirements before enrolling in law school and satisfying the law school admissions criteria in this brochure. Scholarship opportunities are also be available.

Widener University-Delaware Law School 3+3

Requirements: ***Students must***

- Complete all major and core requirements at Rowan and 75% of bachelor's degree requirements before enrolling in courses at Delaware Law.
- Earn an undergraduate cumulative GPA of 3.0 or higher through six semesters at Rowan.
- Achieve an LSAT score that meets or exceeds the median LSAT score of the current Delaware Law first-year entering class.
- Satisfy all Rowan standards and Delaware Law admissions requirements relating to character and fitness.
- Submit a completed application to Delaware Law no later than April 1 of the calendar year in which the student plans to begin legal study.
- Students admitted to the 3+3 program must attend Delaware Law School on a full-time basis for their first year

Tuition and Scholarships

- A minimum $30,000 renewable Merit Scholarship will be offered to all Rowan students admitted to Delaware Law through this program, to offset tuition for students who attend full time (2022-2023 tuition is $1793 per credit. First year students take 32 credits, second year students typically take 30 credits, and third year students typically take 28 credits).

Drexel University-Thomas R. Kline School of Law 3+3

Requirements: ***Students must***

- Complete all major and core requirements at Rowan and in total, 91 credits toward their bachelor's degree requirements before enrolling in courses at Drexel Law.
- Earn an undergraduate cumulative GPA that approximates a 3.5 or higher by the time of application to Drexel Law.
- Achieve an LSAT score that approximates or exceeds the median LSAT score of the current Drexel Law first-year entering class.
- Take the LSAT no later than December of the third year at Rowan.
- Satisfy all Rowan standards and Drexel Law admissions requirements relating to character and fitness.
- Submit a completed application to Drexel Law no later than February 1 of the calendar year in which the student plans to begin legal study.

Tuition and Scholarships

Applicants are automatically reviewed for our "Bridgebuilder Scholarship" to offset tuition costs. This renewable scholarship has an approximate value of $25,000 for students in their first year of study (2022-2023 tuition for first-year law students at Drexel Kline Law is $50,700). Additional merit scholarship opportunities are available.

Rutgers Law School 3+3

Requirements: ***Students must***

- Complete all major and core requirements at Rowan and in total, 91 credits toward their bachelor's degree requirements before enrolling in courses at Rutgers Law.
- Satisfy all Rowan standards and Rutgers Law admissions requirements relating to character and fitness.
- *For the best chance of admission:*
- Earn an undergraduate cumulative GPA of 3.4 or higher, or the median GPA of students entering Rutgers Law the previous year (whichever is higher) by the end of the fifth semester at Rowan.
- Achieve an LSAT score that meets or exceeds the median LSAT score of the students entering Rutgers Law the previous year.
- Submit a completed application to Rutgers Law no later than March 15 of the calendar year in which the student plans to begin legal study.

Tuition and Scholarships

- As a public institution, tuition at Rutgers Law is typically much less than at a private institution. (2021-2022 tuition for first year in-state law students at Rutgers Law is $26,320). Students who meet the criteria in this agreement can choose to attend the Summer Jump Start program. Admitted students may also qualify for significant scholarship aid to offset the cost of attendance and housing during the regular academic year.

Career Opportunities

After earning both a bachelor's degree at Rowan University and a Juris Doctorate, students will have developed strong written, oral, and critical analysis skills and will have extensive knowledge of core legal subjects. These skills will prepare students for careers in:

- Prominent law firms
- Government agencies
- Public Interest
- Major corporations
- Politics

Things to keep in mind

1. Stay in contact with Rowan's Pre- Law Advisor.
2. Make sure you also meet with your major advisor at least once a semester to plan out your course schedule. This is the best way to ensure you are on target to complete all major and core requirements in three years.
3. Join the Pre-Law Society, Rowan's student organization for undergraduates interested in law school. The Pre-Law Society hosts guest speakers, law school informational sessions, and such events as an annual Law School Fair, an annual Mock Law School class, a law school admissions "counselor-in-residence," and a Mock Law School Admissions Committee session.

Department of Philosophy and World Religions

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The department offers a 30 s.h. Bachelor of Arts in Philosophy and a 30 s.h. Bachelor of Arts in World Religions. Other department programs include a minor in Philosophy, a minor in World Religions, and a minor in Ethics. Additionally, the Department offers Certificates of Undergraduate Study (CUGS), of 12 s.h. each, in Philosophy, World Religions, Ethics, and Asian Philosophy and Religion. Visit our departmental webpage Philosophy for more details.

BACHELOR OF ARTS IN PHILOSOPHY

The 30 s.h. Bachelor of Arts in Philosophy acquaints students with some of the world's great intellectual traditions and contemporary writings. Students develop transferable skills in critical thinking, analysis, writing, and communication. Coursework includes the major subfields of philosophy, such as ethics and applied ethics, epistemology, social and political philosophy, aesthetics, and philosophy of science. Graduates are well prepared for a variety of careers and leadership roles, especially law, government, information technology, journalism, and business. Philosophy majors also regularly score in the top percentiles on graduate admission tests, including the Graduate Record Examination, the Law School Admission Test, and the Graduate Management Admission Test.

Program requirements

Students must have a cumulative GPA of at least 2.0 in Rowan University coursework. (Transfer courses/credit do not count toward the Rowan University GPA.). A minimum of 30 sh of coursework must be completed at/through Rowan University. Only grades of "D-" or above may apply to graduation/degree requirements (Some programs may set higher minimums).

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All Philosophy majors must complete the Rowan Experience requirements as described on page 4

Experiential Learning

Students must complete an Experiential Learning course as a Non-program Elective. Students choose from a bank of experiential learning courses: 0-6 S.H. See bank of experiential learning courses on the website and full program guide for details.

A. Foundational Courses - 6 S.H.

Choose two of the following courses:

PHIL09.120 *or* 121	Introduction to Philosophy
PHIL09.150 *or* 151	Introduction to Ethics
PHIL09.211	Ancient Philosophy- WI
PHIL09.213	Modern Philosophy - WI

B. Logic Requirement:

PHIL09.110	Logic of Everyday Reasoning
or	
PHIL09.130	Introduction to Symbolic Logic (Introduction to Symbolic Logic recommended)

C. Electives - 18 S.H.
Six additional Philosophy or PHRE courses – 18 S.H. (at least 9 S.H. must be upper-level)

PHIL09.110	Logic of Everyday Reasoning
PHIL09.120 *or* PHIL09.121	Introduction to Philosophy
PHIL09.130	Introduction to Symbolic Logic
PHIL09.150 *or* PHIL09.151	Introduction to Ethics
PHIL09.211	Ancient Philosophy – WI
PHIL09.213	Modern Philosophy – WI
PHIL09.218	Environmental Ethics
PHIL09.219	Existentialism
PHIL09.200	Philosophy of Religion
PHIL09.222	Business Ethics
PHIL09.228	American Philosophy
PHIL09.231 *or* PHIL09.241	Asian Thought
PHIL09.240 *or* PHIL09.241	Social and Political Philosophy
PHIL09.310 *or* PHIL09.311	Aesthetics
PHIL09.324	Philosophy of Law
PHIL09.326	Philosophy of Mind
PHIL09.327	Philosophy and Race – WI
PHIL09.328 *or* PHIL09.329	Philosophy and Gender
PHIL09.341	Biomedical Ethics – WI
PHIL09.346	Feminist Ethics-WI
PHIL09.368 *or* PHIL09.369	Philosophy of Science
PHIL09.370 *or* PHIL09.371	Epistemology
PHIL09.376	Philosophy of Medicine – WI
PHIL09.380	Intermediate Symbolic Logic
PHIL09.392 *or* PHIL09.393	Contemporary Moral Problems
PHIL09.440	Topics in Philosophy
PHIL09.472	Topics in the History of Philosophy
PHRE11.310	Buddhism
PHRE11.330	Daoism
PHRE11.361	Ethics In and Out of Religions
PHRE11.440	Topics in Philosophy and World Religions

D. Capstone 3 S.H.

PHIL09.495	Senior Seminar in Philosophy

Students must attend 2 career events prior to graduation.

Total Departmental Requirements for BA in Philosophy	30 s.h.
Total General Education, Rowan Experience, and electives	90 s.h.

BACHELOR OF ARTS IN WORLD RELIGIONS

The World Religions faculty offers a 30 s.h. Bachelor of Arts in World Religions. The program acquaints students with the world's great religious traditions and engages them in critical reflection on diverse religious values, ideals, and practices and in interreligious dialogue. Students graduating with a major in World Religions are well prepared for a variety of careers, as well as for admission to graduate programs in World Religions. The program offers career tracks in pre-law, pre-business, pre-health, pre-government, pre-social work, and pre-journalism. Other related programs include a minor in Philosophy and World Religions, and a minor in Ethics, in addition to the Certificates of Undergraduate Study (CUGS) of 12 s.h. each, in World Religions, Ethics, and Asian Philosophy and Religion. A grade of C- or better must be earned in all World Religions courses.

Program requirements

Students must have a cumulative GPA of at least 2.0 in Rowan University coursework. (Transfer courses/credit do not count toward the Rowan University GPA.). A minimum of 30 s.h. of coursework must be completed at/through Rowan University. Only grades of "D-" or above may apply to graduation/degree requirements (Some programs may set higher minimums).

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All World Religions majors must complete the Rowan Experience requirements as described on page 4

Experiential Learning

Students must complete an Experiential Learning course as a Non-program Elective. Students choose from a bank of experiential learning courses: 0-6 S.H. See bank of experiential learning courses on website and full program guide for details.

A. Foundational Courses - 3 S.H.

REL10.100	World Religions

B. Introductory and Mid-level Courses—6 S.H.

Choose two courses. One course must be non-western.

REL10.150	Religion on Film
REL10.210	Religion in America
REL10.214	Religions of the Western World
REL10.230 *or* PHIL09.231	Religions of Asia OR Asian Thought
REL10.240	Introduction to Bible

C. Methodology course—3 S.H.

REL10.219	Approaches to Religion (preferred)
PHIL09.200	Philosophy of Religion
SOC08.322	Sociology of Religion

D. Upper-level courses—9 S.H.

- 3 Upper level classes Required
- 2 Upper level classes must be from Departmental Bank

Departmental Upper-level Courses:

REL10.301	Judaism
REL10.320	Christianity
PHRE11.310	Buddhism
PHRE11.330	Daoism
REL10.331	Spirituality and Nature
REL10.335	Sex and Bible
REL10.340	Topics in World Religions
PHRE11.350	Spirituality and Healing
PHRE11.361	Ethics in and out of Religions
PHRE11.440	Topics in Philosophy and World Religions

Optional Non-Departmental Upper-level Courses:

ANTH02.323	Magic and Religion
HIST05.383	Islamic Civilization
HIST05.311	Renaissance and Reformation
HIST05.417	Women in Islam
HIST05.444	Islamist Movements
SOC08.365	Contemporary Jewish Life

E. Electives—6 S.H. of Introductory, Mid-Level, or Upper-Level courses

F. Capstone 3 S.H.

REL10.450	Senior Seminar in World Religions

Students must attend 2 career events prior to graduation.

Total Departmental Requirements for BA in World Religions	30 s.h.
Total General Education, Rowan Experience, and electives	90 s.h.

MINOR IN PHILOSOPHY

Program Requirements: 18 s.h.

A. Foundational Courses – 6 s.h.

PHIL09.120 *or* 121	Introduction to Philosophy
PHIL09.150 *or* 151	Introduction to Ethics
PHIL09.110 *or* PHIL09.130	Logic of Everyday Reasoning or Introduction to Symbolic Logic
PHIL09.211	Ancient Philosophy- WI
or PHIL09.213	Modern Philosophy- WI

B. Philosophy Electives—9 S.H. (at least 6 S.H. must be upper-level)

PHIL09.110	Logic of Everyday Reasoning
PHIL09.120 *or* PHIL09.121	Introduction to Philosophy
PHIL09.150 *or* PHIL09.151	Introduction to Ethics
PHIL09.211	Ancient Philosophy – WI
PHIL09.213	Modern Philosophy – WI
PHIL09.218	Environmental Ethics
PHIL09.219	Existentialism
PHIL09.200	Philosophy of Religion
PHIL09.222	Business Ethics
PHIL09.228	American Philosophy
PHIL09.231	Asian Thought
PHIL09.240 *or* PHIL09.241	Social and Political Philosophy
PHIL09.310 *or* PHIL09.311	Aesthetics
PHIL09.324	Philosophy of Law
PHIL09.326	Philosophy of Mind
PHIL09.327	Philosophy and Race – WI
PHIL09.328 *or* PHIL09.329	Philosophy and Gender
PHIL09.341	Biomedical Ethics – WI
PHIL09.346	Feminist Ethics - WI
PHIL09.368 *or* PHIL09.369	Philosophy of Science
PHIL09.370 *or* PHIL09.371	Epistemology
PHIL09.376	Philosophy of Medicine – WI
PHIL09.380	Intermediate Symbolic Logic
PHIL09.392 *or* PHIL09.393	Contemporary Moral Problems
PHIL09.440	Topics in Philosophy
PHIL09.472	Topics in the History of Philosophy
PHRE11.310	Buddhism
PHRE11.330	Daoism
PHRE11.361	Ethics In and Out of Religions
PHRE11.440	Topics in Philosophy and World Religions

C. Capstone—3 S.H.

PHIL09.495	Senior Seminar in Philosophy

MINOR IN WORLD RELIGIONS

Program Requirements: 18 s.h.

A. Foundational Courses – 3 S.H.

REL10.100	World Religions

B. Mid-level Course—3 S.H.

REL10.150	Religion on Film
REL10.210	Religion in America
REL10.214	Religions of the Western World
REL10.230	Religions of Asia
PHIL09.231	Asian Thought
REL10.240	Introduction to Bible
PHIL09.200	Philosophy of Religion

C. Methodological Course—3 S.H.

REL10.219	Approaches to Religion

D. Upper-level World Religions Courses—6 S.H.

REL10.301	Judaism
REL10.320	Christianity
PHRE11.310	Buddhism

PHRE11.330	Daoism
REL10.331	Spirituality and Nature
REL10.335	Sex and Bible
REL10.340	Topics in World Religions
PHRE11.350	Spirituality and Healing
PHRE11.361	Ethics in and out of Religions
PHRE11.440	Topics in Philosophy and World Religions

E. Capstone—3 S.H.

REL10.450	Senior Seminar in World Religions

MINOR IN ETHICS

Ellen Miller
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Program Requirements: 18 s.h.

A. Foundational Course—3 s.h.

PHIL09.150 *or* PHIL09.151	Introduction to Ethics

B. Ethics Electives—15 s.h.

BANK A.

Choose at least three courses (9 s.h.) from Bank A. At least 6 s.h. must be 300 or 400-level courses.

PHIL09.218	Environmental Ethics
PHIL09.222	Business Ethics
PHIL09.240	Social and Political Philosophy
PHIL09.241	Social and Political Philosophy – WI
PHIL09.310 *or* PHIL09.311	Aesthetics
PHIL09.324	Philosophy of Law
PHIL09.327	Philosophy and Race – WI
PHIL09.328	Philosophy and Gender
PHIL09.329	Philosophy and Gender – WI
PHIL09.341	Biomedical Ethics – WI
PHIL09.346	Feminist Ethics
PHIL09.392	Contemporary Moral Problems
PHIL09.393	Contemporary Moral Problems – WI
PHRE11.310	Buddhism
PHRE11.330	Daoism
PHRE11.361	Ethics In and Out of Religions
	An approved PHIL, REL, or PHRE course

BANK B.

Take any course from Bank A. or 1-2 courses listed below.

REL10.219	Approaches to Religion
SOC08.230	The Sociology of Minority Groups
LAWJ05.255	Criminal Law
CMS04.425	Ethical Issues in Human Communication
JRN02.319	Media Ethics
POSC07.320	International Relations
POSC07.323	The Politics of Poverty: Class, Gender, and Race in America
PHRE11.350	Spirituality and Healing
REL10.331	Spirituality and Nature
LAWJ05.330	Problems in World Justice
POSC07.340	Civil Rights and Civil Liberties
SOC08.442	Environmental Justice: Race, Class, and Gender
	Approved Internship or Service Learning Project (3-6 s.h.)

CERTIFICATE OF UNDERGRADUATE STUDY IN PHILOSOPHY

Christine Larsen-Britt
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The Certificate of Undergraduate Study in Philosophy (CUGS) is a valuable addition to any major. Philosophy courses impart and sharpen skills in close reading, theoretical reasoning and excellent writing, as well as helping students place their experience within a cross-cultural and historical context of thinking about fundamental human issues. These skills and this broader perspective help students do well on all graduate admissions tests, are attractive to employers, and help equip students for executive positions later in their careers. Students can choose specific philosophy courses related to their major field of study or other areas of interest. Students will develop an awareness of how their actions affect others on a local and global level. Elective courses include Biomedical Ethics, Philosophy of Science, Aesthetics, Philosophy and Gender, Environmental Ethics, and many other options.

The Certificate of Undergraduate Study in Philosophy may be declared either in the Philosophy and World Religions Department in Bunce Hall (856-256-4075), Third Floor, or with Christine Larsen-Britt (larsen-britt@rowan.edu) of the College of Humanities and Social Sciences Dean's Office.

Certificate of Undergraduate Study in Philosophy **12 s.h.**

A. Foundational Course – 3 s.h. Choose one of the following

PHIL09.120 *or* PHIL09.121	Introduction to Philosophy
PHIL09.150 *or* PHIL09.151	Introduction to Ethics
PHIL09.211	Ancient Philosophy – WI
PHIL09.213	Modern Philosophy – WI
PHIL09.110	Logic of Everyday Reasoning
PHIL09.130	Introduction to Symbolic Logic

B. Philosophy Electives—9 s.h.

At least one PHIL course must be upper-level See full list of courses under BA in Philosophy

No courses may be taken P/NC.

CERTIFICATE OF UNDERGRADUATE STUDY IN WORLD RELIGIONS

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The Certificate of Undergraduate Study (CUGS) in World Religions is designed to complement and enrich a student's major program, as well as to prepare students for graduate studies and professional careers. A certificate in World Religions will appeal to students who are interested in learning about diverse religions and the role they play in world events. It will help students to gain knowledge and critical training in the area of religion studies and acquire the in-depth understanding and appreciation of core aspects of religion's impact upon culture. It will enable students to readily take those jobs that increasingly require the knowledge of religions in the areas such as media, the arts, education, government, health care, communication, public relations, and international affairs. The Certificate of Undergraduate Study in World Religions may be declared either in the Philosophy and World Religions Department in Bunce Hall (856-256-4075), Third Floor or with Christine Larsen-Britt (larsen-britt@rowan.edu) of the College of Humanities and Social Sciences Dean's Office.

Certificate of Undergraduate Study in World Religions **12 s.h.**

A. Foundational Requirement - 3 s.h.

REL10.100	World Religions

Elective Requirement (9 s.h.):

REL10.150	Religion on Film
REL10.210	Religion in America
REL10.214	Religions of the Western World
REL10.219	Approaches to Religion
REL10.230	Religions of Asia
REL10.240	Introduction to the Bible
REL10.301	Judaism
REL10.320	Christianity
REL10.331	Spirituality and Nature
REL10.340	Topics in World Religions
PHRE11.310	Buddhism
PHRE11.330	Daoism
PHRE11.361	Ethics In and Out of Religions

No courses may be taken P/NC.

CERTIFICATE OF UNDERGRADUATE STUDY IN ASIAN PHILOSOPHY AND RELIGION

Christine Larsen-Britt

Advisor
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The Certificate of Undergraduate Study (CUGS) in Asian Philosophy and Religion is designed to complement and enrich a student's major program, as well as to prepare students for graduate studies and professional careers. A certificate in Asian philosophy and religion will appeal to students who are interested in learning Asian philosophy and religion. It will help students to gain knowledge and critical training in the area of Asian philosophy and religion, and acquire the in-depth understanding and appreciation of core aspects of Asian culture. It will enable students to readily take those jobs that increasingly require the knowledge of Asian culture in the areas such as education, business, government, health care, communication, public relations, and international affairs. No prior background in Philosophy or Religion Studies is required. Any student pursuing an undergraduate degree at Rowan University is eligible to apply. The Certificate of Undergraduate Study in Asian Philosophy and Religion may be declared either in the Philosophy and World Religions Department in Bunce Hall (856-256-4075), Third Floor or with Christine Larsen-Britt (larsen-britt@rowan.edu) of the College of Humanities and Social Sciences Dean's Office.

Certificate of Undergraduate Study in Asian Philosophy and Religion **12 s.h.**

Foundational Requirements (3 s.h.):

REL10.230	Religions of Asia
or PHIL09.231	Asian Thought

Three Elective (9 s.h.):

PHRE11.310	Buddhism
PHRE11.330	Daoism
PHRE11.350	Spirituality and Healing
PHRE11.440	Selected Topics in Philosophy and Religion (in Asian related topics)

No courses may be taken P/NC.

CERTIFICATE OF UNDERGRADUATE STUDY IN ETHICS

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The Certificate of Undergraduate Study in Ethics (CUGS) is a multi-departmental program designed to complement and enhance a student's major program, as well as to prepare students for graduate studies and professional careers. A certificate in ethics will appeal to students across the Rowan campus especially since most employers require ethics training and understanding. This certificate will expose students to analysis of ethical theories and teach students how to apply those theories in professional practice. Students can choose specific applied ethics courses related to business, medicine, and the environment. Students will develop an awareness of how their actions affect others on a local and global level. The Certificate of Undergraduate Study in Ethics may be declared either in the Philosophy and World Religions Department in Bunce Hall (856-256-4075), Third Floor or with Christine Larsen-Britt (larsen-britt@rowan.edu) of the College of Humanities and Social Sciences Dean's Office.

Certificate of Undergraduate Study in Ethics **12 s.h.**

Foundational Ethics Course (3 s.h.):

PHIL09.150 *or* PHIL09.151	Introduction to Ethics

Take 6 s.h. – 9 s.h. from Bank A.

- At least one course must be upper-level from Bank A.

Bank A.

PHIL09.218	Environmental Ethics
PHIL09.222	Business Ethics
PHIL09.240 *or* PHIL09.241	Social and Political Philosophy
PHIL09.324	Philosophy of Law
PHIL09.310 *or* PHIL09.311	Aesthetics
PHIL09.327	Philosophy and Race – WI
PHIL09.328 *or* PHIL09.329	Philosophy and Gender
PHIL09.341	Biomedical Ethics – WI
PHIL09.346	Feminist Ethics - WI
PHIL09.392 *or* PHIL09.393	Contemporary Moral Problems
PHRE11.310	Buddhism

PHRE11.330	Daoism
PHRE11.361	Ethics in and out of Religions
	An approved PHIL, REL, or PHRE course

Bank B. (take up to 3 s.h. from Bank B.)

REL10.219	Approaches to Religion
SOC08.230	The Sociology of Minority Groups
LAWJ05.255	Criminal Law
CMS04.425	Ethical Issues in Human Communication
JRN02.319	Media Ethics
POSC07.320	International Relations
POSC07.323	The Politics of Poverty: Class, Gender, and Race in America
REL10.331	Spirituality and Nature
LAWJ05.330	Problems in World Justice
POSC07.340	Civil Rights and Civil Liberties
PHRE11.350	Spirituality and Healing
SOC08.442	Environmental Justice: Race, Class, and Gender
	Approved Internship or Service Learning Project (3 s.h.)

No courses may be taken P/NC.

Department of Political Science and Economics

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POLITICAL SCIENCE PROGRAM
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BACHELOR OF ARTS IN POLITICAL SCIENCE

The Political Science faculty offers a major program of 36 credits leading to a Bachelor of Arts degree, and a minor program consisting of 21 credits. These programs are open to all students who envision careers as government managers and administrators, public policy analysts, lawyers, journalists, intelligence officers, diplomatic service officers, teachers, lobbyists, public opinion analysts, legislative aides, campaign professionals, or any other career in government or business which requires a broad liberal arts background. The major program aims to provide both breadth of knowledge of the discipline and in-depth studies in areas of the student's greatest interest. A grade of C- or better must be earned in all Political Science courses.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Experiential Learning

Choose one course from the following bank of experiential learning courses.

AFST11.350	Topics in Africana Studies: Model African Union
INTR20.395	Experiential Learning in the Humanities & Social Sciences
ECON04.410	Internship in Economics
EDPA02.490	Public Service Internship
INTR20.399	Internship in the Applied Liberal Arts
INTR01.470	Semester Abroad
IS25.350	Special Topics in International Studies: Model United Nations

INTR20.390	Interdisciplinary Case Studies in the Liberal Arts

Required Courses

Political Science

POSC07.110	American Government
POSC07.200	Survey of Western Political Theory
POSC07.230	Comparative Political Systems
POSC07.320	International Relations
POSC07.360	Methodology and Statistics in Political Science Research
POSC07.489	Seminar in Political Science

Applied Politics

Majors must complete 6 s.h. in applied politics utilizing one of the following two options:

EDPA02.490	Public Service Internship*

*If seeking to do the Public Service Internship, please speak to your advisor for all possible options.

or two of the following:

POSC07.220	State & Local Government
EDPA02.320	Public Administration
POSC07.415	In-depth Study of the Supreme Court
POSC07.421	International Organizations
or EDPA02.490	Public Service Internship

Political Science Electives

Distribution of electives: a minimum of 6 s.h. (two courses) in one of the three areas below and 3 s.h. (one course) in each of two other areas.

American Politics/Public Administration

(each course is 3 s.h.)

POSC07.220	State and Local Government
POSC07.302	Public Opinion and Propaganda
POSC07.303	Campaigns, Political Parties and Interest Groups
POSC07.305	The Legislative Process
POSC07.306	The Presidency
POSC07.308	Current Problems in American Politics
POSC07.311	Women and American Politics
POSC07.323	The Politics of Poverty: Gender, Class and Race in America
POSC07.324	The Politics of Race in American Society
POSC07.327	Social Movements and Political Activism
POSC07.335	Mass Media and Politics
POSC07.370	Special Topics in Political Science (according to topic)
POSC07.380	American Politics on Film
POSC07.385	Environmental Policy
POSC07.400	American Political Thought
POSC07.401	Contemporary Political Thought
POSC07.491	Independent Study in Political Science (according to topic)
EDPA02.320	Public Administration
EDPA07.333	Social Policy and the Welfare State
EDPA02.410	Public Policy

Multicultural/Global Studies and International and Comparative Politics

(each course is 3 s.h.)

POSC07.321	Contemporary World Problems
POSC07.330	Contemporary U.S. Foreign Policy
POSC07.341	Russian, East European and Eurasian Politics
POSC07.346	Politics and Society of Great Britain
POSC07.347	Politics of the Middle East
POSC07.350	Introduction to Asian Political Systems
POSC07.370	Special Topics in Political Science (according to topic)
POSC07.420	International Law
POSC07.421	International Organizations
POSC07.491	Independent Study in Political Science (according to topic)

Constitutional Law and the Legal Process

(each course is 3 s.h.)

POSC07.310	American Constitutional Law

POSC07.312	Freedom of Expression
POSC07.340	Civil Rights and Civil Liberties
POSC07.370	Special Topics in Political Science (according to topic)
POSC07.375	Politics and the Judicial Process
POSC07.410	Selected Problems in Constitutional Law
POSC07.415	In-depth Study of the Current Supreme Court
POSC07.491	Independent Study in Political Science (according to topic)

Other Required Courses

ECON04.101	Introduction to Macroeconomics
ECON04.102	Introduction to Microeconomics
GEOG16.140	World Regional Geography
HIST05.100	Western Civilization I
or HIST05.150	US History I
HIST05.101	Western Civilization II
or HIST05.151	US History II
PHIL09.110	Logic of Everyday Reasoning
or PHIL09.130	Intro. to Symbolic Logic

Total Credits in Program **120 s.h.**

MINOR IN POLITICAL SCIENCE

The minor program in political science supplements the curriculum of students majoring outside of political science; it helps students expand their career options into such fields as law, journalism, social studies teaching, business, government, and intelligence. The minor requires 21 s.h. of political science courses. Twelve of those semester hours are in basic courses which are required of all who pursue a political science minor, while the other nine are political science electives that students can tailor to their particular career or intellectual interests.

Required Courses

POSC07.110	American Government
POSC07.200	Survey of Western Political Theory
POSC07.230	Comparative Political Systems
POSC07.320	International Relations

Political Science Electives

Any three courses (each is 3 s.h.) from the following list:

POSC07.220	State and Local Government
POSC07.302	Public Opinion and Propaganda
POSC07.303	Campaigns, Political Parties and Interest Groups
POSC07.305	The Legislative Process
POSC07.306	The Presidency
POSC07.308	Current Problems in American Politics
POSC07.310	American Constitutional Law
POSC07.311	Women and American Politics
POSC07.312	Freedom of Expression
POSC07.321	Contemporary World Problems
POSC07.323	The Politics of Poverty: Gender, Class and Race in America
POSC07.324	The Politics of Race in American Society
POSC07.327	Social Movements and Political Activism
POSC07.330	Contemporary U.S. Foreign Policy
POSC07.335	Mass Media and Politics
POSC07.340	Civil Rights and Civil Liberties
POSC07.341	Russian, East European and Eurasian Politics
POSC07.346	Politics and Society of Great Britain
POSC07.347	Politics of the Middle East
POSC07.350	Introduction to Asian Political Systems
POSC07.360	Methodology and Statistics in Political Science Research
POSC07.370	Special Topics in Political Science
POSC07.375	Politics and the Judicial Process
POSC07.380	American Politics on Film
POSC07.385	Environmental Policy
POSC07.400	American Political Thought
POSC07.401	Contemporary Political Thought
POSC07.410	Selected Problems in Constitutional Law
POSC07.415	In-depth Study of the Current Supreme Court
POSC07.420	International Law

POSC07.421	International Organizations
POSC07.491	Independent Study in Political Science
EDPA02.320	Public Administration
EDPA07.333	Social Policy and the Welfare State
EDPA02.410	Public Policy

CERTIFICATE OF UNDERGRADUATE STUDY IN PUBLIC POLICY

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The Certificate of Undergraduate Study (CUGS) in Public Policy provides students with a fundamental understanding of critical tools for effective policy analysis, including formal program evaluation, cost-benefit analysis, and an introduction to policy-relevant statistics. The flexible course study enables students to take a range of courses (on health, labor, environmental, and social policies), preparing them for employment or graduate degree training.

Certificate of Undergraduate Study in Public Policy 12 s.h.

The requirements include the following course: EDPA02.410 Public Policy

The CUGS in Public Policy also will require 9 S.H. from any 3 of the following courses:

POSC07.220	State & Local Government	3 s.h.
POSC07.323	Race, Poverty and Welfare in the US	3 s.h.
POSC07.385	Environmental Policy	3 s.h.
EDPA02.320	Public Administration	3 s.h.
EDPA07.333	Social Policy and the Welfare State	3 s.h.
ECON04.210	Environmental Economics	3 s.h.*
ECON04.215	Current Economic Problems	3 s.h.*
ECON04.251	Health Policy	3 s.h.*
ECON04.307	Economic Development	3 s.h.*
ECON04.310	Global Economics	3 s.h.*
ECON04.315	Public Finance	3 s.h.*
ECON04.345	Labor Economics	3 s.h.*
ECON04.360	Urban Economics	3 s.h.*

*Prerequisites: ECON04.101 Intro to Macroeconomics and ECON04.102 Intro to Microeconomics

To be awarded the CUGS in Public Policy, students must complete all courses required for the CUGS in Public Policy with at least a 2.0 average. The flexibility and broad applicability of the CUGS in Public Policy makes it relevant to all majors who seek to add a policy component to their course of study.

ECONOMICS PROGRAM

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BACHELOR OF ARTS IN ECONOMICS

In Economics, students acquire skills for analyzing important and stimulating national and global problems. Various possible solutions are developed. Economics deals with many current issues facing our society, such as energy, inflation, unemployment, pollution, urban decay, as well as foreign trade and government budget deficits.

The study of Economics prepares students for graduate studies or careers in the private sector, government services, teaching, or research. Graduates with the Bachelor of Arts degree find that employment opportunities are greatest in business and government.

There are two programs of study: (1) Bachelor of Arts program requiring 36 hours in economics; and (2) a minor requiring 21 hours in economics.

Program Requirements

Students are required to earn a C- or better in all Economics required and elective courses applied towards the major and take (MATH03.125) Calculus T & A or (MATH03.130) Calculus I and earn a C- or better. Students must take at least 30 of the 120 credits required for graduation and 21 of their required 36 credits in the major at Rowan University.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Experiential Learning

Choose one course from the following bank of experiential learning courses.

AFST11.350	Topics in Africana Studies: Model African Union
INTR20.395	Experiential Learning in the Humanities & Social Sciences
ECON04.410	Internship in Economics
EDPA02.490	Public Service Internship
INTR20.399	Internship in the Applied Liberal Arts
INTR01.470	Semester Abroad
IS25.350	Special Topics in International Studies: Model United Nations
INTR20.390	Interdisciplinary Case Studies in the Liberal Arts

Major in Economics 36 s.h.

Required Courses 21 s.h.

ECON04.101	Introduction to Economics: Macroeconomics
ECON04.102	Introduction to Economics: Microeconomics
ECON04.301	Intermediate Macroeconomics
ECON04.302	Intermediate Microeconomics
ECON04.392	Econometrics
ECON04.492	Seminar in Economics (WI)

Economic Electives 15 s.h.

One Multi-cultural/Global (MG) course is required:

ECON04.200	History of Economic Ideas
ECON04.205	American Economic History
ECON04.210	Environmental Economics
ECON04.215	Current Economic Problems and Policies
ECON04.225	Women in the Economy
ECON04.269	Selected Topics in Economics
ECON04.303	Principles of Economics: A Survey (not for majors)
ECON04.305	Money and Banking
ECON04.307	Economic Development (MG)
ECON04.310	Global Economics (MG)
ECON04.315	Public Finance
ECON04.320	Contemporary Economic Systems (MG)
ECON04.345	Labor Economics
ECON04.335	Socio-Economic Applications of Blockchain
ECON04.351	Health Economics
ECON04.352	Industrial Organization
ECON04.353	Law and Economics
ECON04.360	Urban Economics
ECON04.363	Sports Economics
ECON04.395	Economics of Personal Financial Planning
ECON04.410	Internship in Economics
ECON04.495	Independent Study in Economics

Free Electives 29 s.h.

Total Credits in Program **120 s.h.**

MINOR IN ECONOMICS

Required Courses 6 s.h.

ECON04.101	Introduction to Economics-Macroeconomics
ECON04.102	Introduction to Economics-Macroeconomics

Economics Electives 15 s.h.

The student, in consultation with his/her Economics Advisor, must select the remaining 15 s.h. from the courses offered by the Economics curriculum. No less than 6 s.h. must be at the junior/senior level. Principles of Economics: Global Perspective (ECON04.303) is not counted as a junior/senior-level elective course. Both Intermediate Macroeconomics (ECON04.301) and Intermediate Microeconomics (ECON04.302) are strongly recommended.

Total Credits in Program 21 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN ENVIRONMENTAL POLICY AND ECONOMICS

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This program provides students with an interdisciplinary approach to create and develop efficient ways to protect and enhance the world's economic and environmental resources. Students will learn how to design and assess the impact of environmental regulations and policies through an interdisciplinary approach using economics, geography, planning, public policy, and sociology.

Students will demonstrate particular knowledge of cost-benefit analysis, policy formulation and analysis, land use planning, and sustainable economic development. Students will explore questions such as, (1) What is the role of government in regulating the environment? (2) What tools exist to estimate the impact of environmental policies? (3) How does geography/location determine economic development? (4) Are economic growth and environmental sustainability compatible? Although this program is available to all students, it is primarily targeted to students majoring in Economics, Political Science, Geography, Planning, Sociology, and Environmental Studies.

Certificate of Undergraduate Study in Environmental Policy and Economics 12 s.h.

The requirements include the following four courses:

Required course		3 s.h.
ECON04.210	Environmental Economics	
One of the Following		3 s.h.
SOC08.400	Environment, Policy and Society	
POSC07.385	Environmental Policy	
One of the Following		3 s.h.
GEOG16.301	Natural Resources, Capitalism, and Society	
ENST94.102	Environmental Studies: Social Perspective	
ECON04.101	An Introduction to Economics: A Macroeconomics Perspective	
ECON04.102	An Introduction to Economics: A Microeconomics Perspective	
POSC07.200	Survey of Western Political Theory	
One of the Following		3 s.h.
PLAN31.386	Land Use and Conservation	
PLAN31.389	Environmental/Sustainable Planning	

CERTIFICATE OF UNDERGRADUATE STUDY IN BLOCKCHAIN APPLICATIONS IN BUSINESS AND SOCIAL SCIENCES

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The Certificate of Undergraduate Study (CUGS) in Blockchain Applications in Business and Social Sciences provides a sequence of courses that combines Blockchain Technology topics and its applications in business, economics, finance, government, and many other social sciences. This CUGS will entail taking interdisciplinary core courses as well as courses in Economics, Accounting & Finance, and computer sciences, and will improve the employment and career opportunities of undergraduate students entering the job market upon graduation.

Certificate of Undergraduate Study in Blockchain Applications in Business and Social Sciences 12 s.h.

The requirements include the following five courses:

Required Courses:		6 s.h.
INTR01.301	Blockchain Applications	
CS10.250	Cryptography and Blockchain Essentials	
Elective Courses:		6 s.h.
FIN04.444	Bitcoin, Cryptocurrency, and Blockchain Applications	
MIS02.320	Business Applications of Blockchain	
ECON04.335	Socio-Economic Applications of Blockchain	

To be awarded the CUGS in Blockchain Applications in Business and Social Sciences, students must complete all courses required for the CUGS in Blockchain Applications in Business and Social Sciences with at least a 2.0 average. This CUGS is relevant for any major, but it is especially well suited for students majoring in Business, Economics, Accounting, Finance, Healthcare, Political Science, International Studies, Public Policy, and many other social sciences and business-related majors.

Department of Sociology and Anthropology

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Sociology

The major in Sociology consists of 120 semester hours. Upon completing all requirements in their program, students majoring in Sociology receive a Bachelor of Arts degree in Sociology. The major program aims to develop students' competence in understanding and analyzing the effects of social, economic and cultural factors across all levels of society. The Bachelor of Arts in Sociology overall affords its majors a strong Liberal Arts undergraduate degree as well as a rich foundation for most graduate degree programs and many careers, including law, marketing, medicine and public health, social work, and social science.

Students in the Sociology major now have the option of taking the General Program, the Applied Concentration, or the Anthropology Concentration for the degree. The General Program (2208) allows students flexibility in choosing which lower and upper level electives will be part of their program. It consists of a total of 36 semester hours. The Concentration in Applied Sociology (2209) consists of 36 semester hours, with students taking fewer Free Electives than in the General Program. The Applied Concentration focuses specifically on the analysis and treatment of social problems, the assessment of community-based needs and practices, and the development and evaluation of strategies for positive social change. It provides a sound foundation for pursuing careers in human and community service industries.

The Concentration in Anthropology (P210) consists of 36 semester hours. This concentration gives Sociology students interested in both Sociology and Anthropology an avenue for in-depth preparation for graduate studies and professions. For students interested in pursuing Sociology, the anthropological viewpoint on diversity, culture and ethnography will expand their opportunities in a global society.

Admission to the sociology program is open to all those students who are in good academic standing. To graduate with a degree in sociology, students must have a minimum GPA of 2.0 and no grades lower than a C- in all required courses (this rule applies to Sociology and non-Sociology courses). Students must also have an overall GPA of 2.0. Of the 36 semester hours in the general program and 36 semester hours in both Applied and Anthropology Concentrations, students must take at least 18 hours in 300 or 400 level sociology courses. Sociology majors must also have a total of 30 semester hours of upper level courses among the 120 semester hours of course work required for graduation. This minimum of 30 upper level hours--of which 18 upper level hours must be in sociology--can be divided between sociology and other areas of study. Credit by examination-CLEP, may be substituted for Introduction to Sociology (08 120).

BACHELOR OF ARTS IN SOCIOLOGY, GENERAL DEGREE PROGRAM

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

STAT02.100	Elementary Statistics
PSY01.107	Essentials of Psychology
ANTH02.202	Cultural Anthropology

History, Humanities and Languages Choice

Choose from among the general education courses in each field. (6 s.h.)

Geography Choose one of the following:

GEOG16.110	Cultural Geography

or GEOG16.140	World Regional Geography

Economics or Political Science Choose one of the following:

ECON04.101	Intro to Macroeconomics
ECON04.102	Intro to Microeconomics
POSC07.100	Intro to Government and Politics
POSC07.110	American Government
POSC07.230	Comparative Political Systems
POSC07.321	Contemporary World Problems

History Choice from Approved General Education Courses (3 s.h.)

Religion or Philosophy Choice from Approved General Education Courses (3 s.h.)

(The general education courses are the same for both the general program and the concentration. See above.)

Sociology Major Courses

Required Courses for the Bachelor of Arts in Sociology, General Program 36 s.h.

SOC08.120	Introduction to Sociology
SOC08.331	Classical Sociological Theory (upper level)
SOC08.375	Sociological Research Methods (upper level)
SOC08.376	Social Statistics (upper level)
SOC08.425	Senior Seminar (upper level)
(any level)	Social Institutions Bank Choice
(any level)	Social Institutions Bank Choice
(any level)	Social Processes Bank Choice
(any level)	Social Processes Bank Choice
(any level)	Sociology Choice
(any level)	Sociology Choice
(any level)	Sociology Choice

Total Credits: **120 s.h.**

Required Courses for the Bachelor of Arts in Sociology, Applied Concentration 36 s.h.

SOC08.120	Introduction to Sociology
SOC08.221	Social Problems
SOC08.331	Classical Sociological Theory
SOC08.375	Sociological Research Methods
SOC08.376	Social Statistics
SOC08.425	Senior Seminar
SOC08.494	Field Experience in Sociology
SOC08.339	Sociological Practice
(any level)	Practice Bank Choice
(any level)	Applied Bank Choice
(any level	Concentration Bank Choice
(any level)	Sociology Choice

Total Credits: 120 s.h.

Required Courses for the Bachelor of Arts in Sociology, Anthropology Concentration 36 s.h.

SOC08.120	Introduction to Sociology
SOC08.331	Classical Sociological Theory
SOC08.375	Sociological Research Methods
SOC08.376	Social Statistics
SOC08.425	Senior Seminar
ANTH02.250	Intro to Anthropological Linguistics
ANTH02.203	Introduction to Archaeology
ANTH02.221	Human Variation
Anthropology Choice	(Foundational Bank)
ANTH02.280	Old World Archaeology
Anthropology Choice	(Practice Bank)
Anthropology/Sociology Choice	(Electives Bank)

Total Credits: 120 s.h.

Minor in Sociology

The Minor in Sociology consists of 21 semester hours. A minimum of 12 of the semester hours must be taken in 300 or 400 level courses. Introduction to Sociology (SOC08.120) as well as Classical Sociological Theory (SOC08.331) are required courses.

ANTHROPOLOGY

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BACHELOR OF ARTS IN ANTHROPOLOGY

The Bachelor of Arts in Anthropology, through a four-field approach (cultural, physical/biological, linguistic, and archaeology), prepares students for a variety of career opportunities in research, teaching, development, advocacy, health care among diverse populations, consumer research, community-based organizations, non-profits, and public service. Anthropology Majors will have the option of concentrating their studies in one of four subfield tracks. These are forensic anthropology, museum studies, medical anthropology, cultural resource management, and archaeology. The BA Anthropology degree will also support those students who wish to pursue further study in graduate or professional schools. By acquiring an anthropological perspective on diversity, culture, and ethnography as well as developing strong social and natural scientific research skills, students will expand their career opportunities.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Major Requirements 37 sh

Foundational courses 15 sh

ANTH02.202	Cultural Anthropology (Global Literacy)	3 sh
ANTH02.203	Introduction to Archaeology (Scientific Literacy)	3 sh
ANTH02.221	Human Variation (Scientific Literacy)	3 sh
ANTH02.250	Introduction to Anthropological Linguistics (Global Literacy)	3 sh
ANTH02.295	Introduction to Qualitative Research (Scientific Literacy)	3 sh

Upper level and capstone courses 10 sh

ANTH02.395	Anthropological Theory	3 sh
ANTH02.450	Anthropology Senior Seminar (WI), Satisfies WI requirement	3 sh
ANTH02.315	Forensic Anthropology (lab)	4 sh
or ANTH02.324	Archaeological Field Methods (lab)	4 sh

Anthropology Electives 12 sh

Students choose 4 courses from the following Anthropology Electives Bank; at least three must be upper level; 12 sh:

ANTH02.200	Introduction to Bioarchaeology	3 sh
ANTH02.205	Mummies and Burial Practices of Ancient Cultures	3 sh
ANTH02.210	Natives of South America (Global Literacy)	3 sh
ANTH02.215	Medical Anthropology (Global Literacy)	3 sh
ANTH02.225	Arts and Medicine (Artistic Literacy)	3 sh
ANTH02.240	Food and Culture	3 sh
ANTH02.245	Sport and Culture	3 sh
ANTH02.270	New World Archaeology	3 sh
ANTH02.275	Anthropology of Race and Ethnicity (Global Literacy)	3 sh
ANTH02.280	Old World Archaeology	3 sh
ANTH02.290	Museum Studies	3 sh
ANTH02.301	Human Evolution (Scientific Literacy)	3 sh
ANTH02.305	Primatology	3 sh
ANTH02.310	Indians of North America (Global Literacy)	3 sh
ANTH02.311	Peoples and Cultures of Africa (Humanistic Literacy)	3 sh
ANTH02.312	Anthropological Perspectives on Physical Growth & Development	3 sh
ANTH02.322	Sex/ Sex Roles in a Cultural Perspective	3 sh
ANTH02.323	Anthropology of Magic & Religion	3 sh
ANTH02.326	The Maya	3 sh
ANTH02.335	Archaeology of Ancient Egypt	3 sh
ANTH02.336	Visual Culture of Ancient Egypt	3 sh
ANTH02.350	Comparative Cultures	3 sh
ANTH02.355	Global Health in Anthropological Perspective	3 sh

ANTH02.371	Anth. Approaches to Global Development	3 sh
ANTH02.375	Anthropology of Media	3 sh
ANTH02.376	Anthropology Through Film	3 sh
ANTH02.378	Public Archaeology	3 sh
ANTH02.400	Field Methods in Egyptology	3 sh
ANTH02.420	Psychological Anthropology	3 sh
Total Hours Required for Graduation		120 sh

Students must earn a minimum 2.0 G.P.A. in major courses. Letter grades only in Anthropology courses; up to 10% of overall credits may be P/NC. Only grades of C minus or above may apply to graduation requirements. Students must earn 30 credits in upper-level (300, 400, 500 level) courses, including 19 upper-level anthropology credits. No more than two courses can be repeated and each of these two can be repeated no more than twice.

Minor in Anthropology

The Minor in Anthropology consists of six 3-credit courses. The first three courses constitute a common core taken by all minors. These are:

ANTH02.202	Cultural Anthropology
ANTH02.221	Human Variation
ANTH02.203	Archaeology

Minors select the remaining three courses in consultation with their minor advisor (whom the student may choose at any point prior to taking the final three courses). Each student will be encouraged to concentrate in a particular subfield of anthropology (cultural, linguistics, physical, or archaeology). The minimum grade requirement for courses in the Minor Anthropology is C-.

CERTIFICATE OF UNDERGRADUATE STUDY IN ANCIENT EGYPTIAN STUDIES

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The certificate of undergraduate study in Ancient Egyptian Studies allows Rowan students with an interest in the archaeology, art history, and history of ancient North Africa, the Mediterranean, and the Near East to receive specialized training in one of the rigorous and fascinating subfields of that area. Students may concentrate their studies in historical, archaeological, or museum studies aspects of this discipline, gaining exposure to these career fields.

The certificate program provides multiple opportunities for experiential learning including museum-based research making use of the ongoing faculty-led project at the University of Pennsylvania's Museum of Archaeology and Anthropology. Additional experiential opportunities include the observation of archaeological, historical, and museum-based research in Egypt with the additional opportunity to participate in an archaeological excavation in Egypt as part of a research internship. While not required, the certificate would encourage students to take multiple semesters of Arabic to ensure that they can take full advantage of the learning opportunities in the faculty-led study abroad elective or the fieldwork-based internship in Egypt should they choose to enroll in those courses. These learning experiences would give students a definite advantage in applying for advanced degree programs in Anthropology, Art History, Egyptology, History, and Museum Studies.

The Certificate of Undergraduate Study in Ancient Egyptian Studies is 15 s.h., five courses:

Required Courses:

Three of the following courses for 9 sh:

ANTH02.335	Archaeology of Ancient Egypt
ANTH02.336	Visual Culture of Ancient Egypt
HIST05.379	Ancient Egypt (Students who have completed COMP01.112 College Composition II will be given a prerequisite waiver for HIST05.306 Historical Methods)
ANTH02.290	Museum Studies

Electives:

Two courses from the electives bank for a total of 6 sh

ANTH02.280	Old World Archaeology
HIST05.319	Ancient Greece (Students who have completed COMP01.112 College Composition II will be given a prerequisite waiver for HIST05.306 Historical Methods).
ANTH02.400	Field Methods in Egyptology (an intersession course which will incorporate field trip).

INTR20.399	Internship in the Applied Liberal Arts related to archaeological fieldwork in Egypt or museum-based lab research at MARU or coordinator approved non-Rowan University institution. Any Arabic language course (ARAB12.101; ARAB12.102; ARAB12.201; ARAB12.211, ARAB12.212 or ARAB12.320)

Bachelor of Arts in Disaster Preparedness and Emergency Management (B.A.)

Dr. DeMond Miller
Coordinator
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Academic Advisor Contact Information
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The Bachelor of Arts in Disaster Preparedness and Emergency Management is an interdisciplinary academic program, designed to provide rigorous academic preparation for students interested in seeking advanced emergency management professional homeland security education and training or a career in international, national, state, and local disaster preparedness, emergency management, and safety areas with an emphasis on urban environments. The current focus areas include biomedical preparedness (in conjunction with the Cooper Medical School of Rowan University), public administration and civic leadership, and civil safety/justice administration, all of which lead to establishing core competencies in emergency preparedness. In addition to providing student with a broad understanding of safety and security issues, the Disaster Preparedness and Emergency Management degree program focuses on several vital components of the emergency management field:

- Critical Infrastructure Protection
- Disaster Preparedness and Response
- Intelligence Sharing and Analysis

Graduates will be prepared to work in a variety of settings and agencies that focus on emergency rescue and response, homeland security, hospitals, municipal emergency management, county emergency management, safety management, intelligence analysis, private security, airports, state and local law enforcement, federal law enforcement, customs investigators, special agents, military service and border security and patrol. The upper-level courses for this major are offered on the Camden Campus of Rowan University.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Program Requirements

The Disaster Preparedness and Emergency Management program consists of 120 S.H. of coursework, including 33 S.H. of core major requirements coursework and 6 S.H. of focus area courses. The 33 S.H. of core major requirements provides a common foundation for all majors with an emphasis on ethics to assist the student in developing complex thinking skills. As part of the 33 S.H. of core major courses, each student will complete a 3 S.H. internship experience designed to provide an experiential learning opportunity and to give the student a more practical view of the intended career path. In addition to the core requirements, general education requirements, and electives, each student will select one (1) of the following focus area:

- **Focus Area 1:** Public Administration and Policy for Crisis Decision Leadership- 6 additional S.H of Political Science/Public Administration, Disaster Leadership or Risk Analysis coursework
- **Focus Area 2:** Justice, Safety and Homeland Security Administration- 6 additional S.H. of Law & Justice coursework with a focus on Homeland Security or Risk Analysis
- **Focus Area 3:** Public Health, Emergency Health Preparedness and Biomedical Safety- 6 additional S.H. of Biomedical/Population Health and Epidemiology or Risk Analysis coursework

In addition to courses in Political Science, Law and Justice, Anthropology, Sociology, and the Physical Sciences, students can also use the following Disaster Preparedness and Emergency Management courses to fulfill Focus Area requirements.

DPEM00.280	Global Catastrophes	3
DPEM43.355	Emergency Exercises: Design, Implementation and Evaluation	3
DPEM43.395	Emergency Operations and Business Continuity	3
DPEM43.420	Risk Analysis for Disaster Preparedness and Homeland Security	3
DPEM00.300	Bioterrorism and Weapons of Mass Destruction	3
DPEM00.321	Humanitarian Response: Evacuation and Shelter Management	3
DPEM00.412	Health Operations Management	3
DPEM00.444	Emerging Health Threats: Risks and Surveillance	3
DPEM00.460	Public Health Emergency Preparedness and Response	3
DPEM00.480	Advanced Topics in Emergency Management Homeland Security	3

Required BA-DPEM Core Courses 27 s.h.

(s.h.: semester hours/credit hours)

DPEM00.101	Intro to Emergency Management and Homeland Security	3
DPEM00.310	Critical Infrastructure	3
LAWJ05.326	International Terrorism	3
SOC08.429	Organizational Response to Disasters and Crisis	3
or DPEM43.395	Emergency Operations and Business Continuity	3
SOC08.328	Sociology of Disasters and Crisis	3
DPEM00.391	Natural and Technological Hazards	3
DPEM00.410	Public Leader in Crisis Management and Communication	3
DPEM00.400	Disaster Planning, Mitigation and Recovery	3
DPEM00.211	Incident Command: Theory and Practice	3

Research Methods 3 s.h.

Choice of 1 below (3 s.h.)

DPEM00.370	Research and Data Analysis in Emergency Management and Homeland Security	3
LAWJ05.380	Criminal Justice Research Methods	3
POSC07.360	Methodology and Statistics in Political Science Research	3

Approved Internship/Field Experience *3 s.h.

Students seeking to enroll in an internship/field experience must secure the approval of the program director prior to enrollment. Dual majors must consult with the Emergency Management program director for internship/field experience approval. Without prior approval, students will not be allowed to earn the credits needed to fulfill the internship graduation requirements. Also, Rowan Student Patrol (within the Department of Public Safety under the supervision of the Rowan Police) cannot be used to fulfill the internship requirement in Disaster Preparedness and Emergency Management. All prerequisites must be completed before enrolling in DPEM43.495.

* 3 s.h. are required, 6 s.h. are recommended

EDPA02.490	Public Service Internship	3
SOC08.494	Sociology Field Experience	3
LAWJ05.356	Criminal Justice Internship	3
DPEM43.495	Internship in Disaster Preparedness and Emergency Management	3

Total Required Credits for the Program 120 s.h. (33 Core)

Foundation Courses

PSY01.107	Essentials of Psychology (Satisfies Humanistic Literacy)	3 s.h.
STAT02.100	Elementary Statistics	3 s.h.
or STAT02.260	Statistics I (Satisfies Quantitative Literacy)	3 s.h.
POSC07.110	American Government (Satisfies Humanistic Literacy)	3 s.h.
GEOG16.160	Intro to Mapping and GIS	3 s.h.
or LAWJ05.381	Crime Mapping and Crime Analysis I (GEOG16.160 satisfies Artistic Literacy)	3 s.h.
SOC08.120	Intro to Sociology	3 s.h.
or SOC08.121	Intro to Soc for Premeds	3 s.h.

Graduation/Exit, Benchmark, and/or Thesis Requirements

None

CERTIFICATE OF UNDERGRADUATE STUDY IN BORDERS, PORTS OF ENTRY, AND HOMELAND SECURITY

DeMond Miller

Advisor

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This certificate program, Borders, Ports of Entry, and Homeland Security speaks directly to the need to secure United States borders and ports of entry as directed by federal law. Following the September 11, 2001, terrorist attacks, the US Border Patrol refocused its priorities on preventing terrorist penetration, while remaining committed to its traditional duties of preventing the illicit trafficking of people and contraband between official ports of entry. Shortly after the creation of the Department of Homeland Security, the US Border Patrol was directed to formulate a new National Border Patrol Strategy (NBPS) that would better reflect the realities of the post-9/11 security landscape. The Certificate of Undergraduate Study (CUGS) in Borders, Port of Entry, and Homeland Security is at the forefront of this need to address national security priorities. The certificate enables students to deepen their appreciation of the complexity, breadth, and topicality of concerns grouped under the rubric border security and homeland security while providing them with a coordinated, discipline-specific theoretical perspective, methodology, and research approach appropriate to the disciplines of emergency management and security studies.

Certificate of Undergraduate Study in Borders, Ports of Entry, and Homeland Security 15 s.h.

The requirements include the following five courses:

DPEM00.223	Borders, Ports, and Homeland Security
LAWJ05.323	Maritime Crime and Criminality
or DPEM00.300	Bioterrorism and Weapons of Mass Destruction
DPEM00.325	Technology and Border Surveillance in Homeland Security
DPEM00.321	Humanitarian Response: Evacuation and Shelter Management
or LAWJ05.329	Intelligence, Policing and Counterterrorism.

To be awarded the CUGS in Borders, Ports of Entry, and Homeland Security, students must complete all courses required for the CUGS in Borders, Ports of Entry, and Homeland Security with at least a 2.0 average. The pre-requisites for The DPEM courses (DPEM 00101 Introduction to Disaster Preparedness and Emergency Management) is required.

CERTIFICATE OF UNDERGRADUATE STUDY IN COUNTERTERRORISM & EMERGENCY RESPONSE OPERATIONS

DeMond S. Miller
Advisor
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This 15 credit hour interdisciplinary Certificate of Undergraduate Study (CUGS) in Counterterrorism and Emergency Response Operations is designed to provide an understanding of the fundamental framework and principles which guide the response to terrorism activities. Specifically, the program analyzes the role and function of counterintelligence and the intelligence community. It will emphasize terrorist cultures, terrorist history and organization, terrorist capabilities, terrorist finance, and international money-laundering, threat assessment, intelligence operations, incident command systems, border security, emergency response, joint operations, surveillance and communications systems, cyberterrorism, weapons of mass destruction, counterterrorist operations, and applications to specific terrorist organizations and threats; the strengths and weaknesses of counterterrorist tools, including intelligence, diplomacy, law enforcement, and military force; the policy challenges in erecting security countermeasures and managing terrorist incidents; issues of civil liberties and morality in countering terrorism; the role of the public and the media; and proposals for revising U.S. counterterrorist programs.

CUGS IN COUNTERTERRORISM & EMERGENCY RESPONSE OPERATIONS 15 s.h.

The five (5) three (3) credit courses are:

LAWJ05.329	Intelligence, Policing and Counterterrorism
LAWJ05.326	International Terrorism
DPEM43.420	Risk Analysis for Disaster Preparedness and Homeland Security
DPEM00.300	Bioterrorism and Weapons of Mass Destruction
SOC08.491	Social Dynamics of Political Violence, Insurgency and Civil Unrest

To be awarded the CUGS, all courses must be passed with a minimum grade of C-. Appropriate course substitutions, with the approval of the CUGS advisor, for SOC08.491 and LAWJ05.326 can be made from the following curricula: Law and Justice Studies (LAWJ), Sociology (SOC), History (HIST), International Studies (INTS), Political Science (POLSCI). All other courses are required to earn the CUGS. Also note, DPEM00.420 and DPEM00.300 has DPEM00.101 as a prerequisite or enrollment by permission of the instructor.

CERTIFICATE OF UNDERGRADUATE STUDY IN DISASTER PUBLIC HEALTH PREPAREDNESS AND EMERGENCY RESPONSE OPERATIONS

DeMond Miller

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Public health professionals in emergency management respond to major disasters to protect residents from disease outbreaks and other hazards that result from contaminated food and water, chemical releases, insect-borne diseases, and unmet medical needs. The Certificate of Undergraduate Study (CUGS) in Disaster Public Health Preparedness and Emergency Response Operations provides a sequence of courses that combines health, public health control systems, humanitarian intervention, human rights, and social justice perspectives. These experts and specialists often collaborate with partner organizations at the municipal, state, and federal levels to ensure that emergency plans are current, in force, and properly implemented. This certificate offers a series of courses that enhance the student s skills to be proficient in understanding and management of local, regional, or national health crises within an emergency management /disaster context.

Certificate of Undergraduate Study in Disaster Public Health Preparedness and Emergency Response Operations 19 s.h.

The requirements include the following five courses:

DPEM00.101	Introduction to Disaster Preparedness and Emergency Management
HLT00.200	Community and Public Health
DPEM00.444	Emerging Health Threats: Risks and Surveillance
DPEM00.442	Preparedness and Public Health Response
DPEM00.321	Humanitarian Response to Disasters and Crisis

To be awarded the CUGS in Disaster Public Health Preparedness and Emergency Response Operations, students must complete all courses required for the CUGS in Disaster Public Health Preparedness and Emergency Response Operations with at least a 2.0 average. DPEM 00.101 Introduction to Disaster Preparedness and Emergency Management and HLT 00.200 Community and Public Health should be taken prior to the other courses in the certificate program because they are prerequisites for upper-level courses.

CERTIFICATE OF UNDERGRADUATE STUDIES IN ENVIRONMENTAL JUSTICE

Harriet Hartman
Advisor
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The Certificate of Undergraduate Studies in Environmental Justice provides a sequential introduction to an understanding of the social forces of culture, power, and economics that underpin the impact of environmental problems and planning. With the increased environmental impacts of climate change here in New Jersey, our communities need clear-eyed assessment of the impact of mitigation and development plans on all citizens of the state. This certificate will produce graduates with the awareness and capabilities to see those social forces and how they interplay with the physical environment. Students earning this certificate will have a knowledge of how to work with local and deferral governmental bodies to meet the EPA requirement: EPA has as its goal for all communities and persons across this nation to enjoy the same degree of protection from environmental and health hazards, and equal access to the decision-making process to have a healthy environment in which to live, learn, and work. Neither sociologists, nor students of the environment can achieve these goals without a coherent integration of the constructs which are a hallmark of Environmental Justice, and these goals will be addressed in the required classes. The Department of Labor is itself hiring environmental justice sociologists, as of the writing of the proposal. Across the federal government, multiple agencies are hiring in this area, as are state and local agencies required to comply with environmental regulations that require demographic assessments, community outreach, and community education. Additionally, the activism movement in environmental justice is active and energized as more and more people become alarmed about environmental issues and how policies related to them are being formed.

Certificate of Undergraduate Study in Environmental Justice 15-18 s.h.

Will consist of 4 courses (12 credits) plus 1 3-credit course prerequisite for the required courses and an optional 1 3-credit course prerequisite to one of the electives.

The requirements include the following courses:

Two required courses (6 credits)

SOC08.400	Environmental Policy and Society (Prereq SOC08.120 Intro to Sociology)
SOC08.442	Environmental Justice: Race, Class and Gender (Prereq SOC08.120 Intro to Sociology)

Two of the following (6 credits)

ANTH02.355	Global Health in Anthropological Perspective
POSC07.385	Environmental Policy

ECON04.210	Environmental Economics (Prereq ECON04.102 Intro to Microeconomics)
DPEM00.391	Natural and Technological Hazards
PLAN31.280	Foundations of Planning and Environmental Design
ENST94.303	Environmental Advocacy
ENST94.301	Environmental Ethics
ENST94.101/EVSC01.101	Planet in Peril: Environmental Science in the 21st Century
EVSC01.121	Global Environmental Change
GEOL01.131	Earth in Transition: The Science of Global Climate change to electives

The courses may be taken in any order, but prerequisites need to be taken before the actual required or elective courses.

CERTIFICATE OF UNDERGRADUATE STUDY IN SEARCH AND RESCUE OPERATIONS

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The Certificate of Undergraduate Study (CUGS) in Search and Rescue Operations affords students the opportunity to understand the multidisciplinary nature of search and rescue teams as a specialty area within the field of Emergency Management and prepare them to work in various positions within a search and rescue team. The CUGS will explore how various skills are used to assist in emergency operations as part of a coordinated first responder event to find/recover missing, lost, deceased persons. The courses represented in the CUGS offer an in-depth understanding of the science and methodology of search and rescue process.

Certificate of Undergraduate Study in Search and Rescue Operations 16 s.h.

The requirements include the following five courses:

DPEM00.101	Introduction to Disaster Preparedness and Emerg. Management
or	
HES00.109	Adventure and Experiential Learning
DPEM00.222	Search & Rescue Operations: Wilderness & Natural Environments
HES00.309	Wilderness First Responder
DPEM00.333	Search and Rescue: Management and Lost Person Behavior

Select One:

DPEM43.355	Emergency Exercises-Design, Implementation and Evaluation
DPEM00.480	Advanced Topics in Emergency Management Homeland Security
HES00.116	Safety First Aid Basic Understanding of Athletic Injuries
DPEM00.380	Drone Applications in Emergency Management

To be awarded the CUGS in Search and Rescue Operations, students must complete all courses required for the CUGS in Search and Rescue Operations with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN UNMANNED AIRCRAFT SYSTEMS APPLICATIONS

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The Certificate of Undergraduate Study (CUGS) in Unmanned Aircraft Systems Applications is designed to give students the theoretical knowledge of drone flight and hands-on experience in a fast-growing career field. The program and area of study will be new to Rowan University. The Unmanned Aircraft Systems Applications CUGS is not designed to create expert pilots, that will come as students gain more experience; however, the CUGS is designed to train students how to use data collected from Unmanned Aircraft Systems. As such, the classes are not designed for flight instruction as a primary skillset but rather to reinforce data collection and analysis skills.

Certificate of Undergraduate Study in Unmanned Aircraft Systems Applications 15 s.h.

The requirements include the following five courses:

DPEM00.282	Drones: Foundations, Design, and Maintenance
DPEM00.380	Drone Applications in Emergency Management
Or	
GEOG16.375	Remote Sensing of the Environment*
DPEM00.381	Legal, Ethical, And Security Issues for Drones
SET01.307	PHOTOGRAMMETRY

Select one of the following courses

SET01.308	Mapping for Unmanned Aerial Systems
Or	
GEOG16.370	Drones, Planes, and Satellites

Permission by Instructor can be obtained to enter this course if a student has not completed GEOG16.160 Introduction to Mapping and GIS; however, the student has completed coursework that is equivalent to GEOG16.160 Introduction to Mapping and GIS. Permission is granted on a case-by-case basis.

To be awarded the CUGS in Unmanned Aircraft Systems Applications, students must complete all courses required for the CUGS in Unmanned Aircraft Systems Applications with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN URBAN AND COMMUNITY STUDIES

Nadine Sullivan Advisor Campbell Library, 5th Floor
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sullivann@rowan.edu

The Certificate of Undergraduate Studies (CUGS) in Urban and Community Studies will train students in a deep understanding and analysis of the political, economic, and social roots of problems arising in urbanization, emphasizing the social phenomena of contemporary cities, the problems, and possible solutions in mass societies, and metropolitan and regional interdependence. With a tripling of the global population over the past 60 years and the drive for mass consumption, urban sociology provides a foundation best suited to address spatial and consumption issues for crowded populations, focusing on the social processes that create challenges and stratification in urban areas, including the pros and cons of urban planning, gentrification, mechanisms of social control, social stratification, socioeconomic stratification, race relations, racial and ethnic residential segregation and stratification, migration of immigrants/refugees/asylum-seekers from diverse religious and cultural backgrounds, contests over sanctuary cities, the ghettoization of immigrant/refugee groups, environmental pollution, lack of affordable housing, food deserts, and the crime arising in cities because of the poverty created by deindustrialization and joblessness.

Electives from political science, economics, geography, and law and justice will provide additional perspectives on urban and community problems. Graduates will also understand the rise of cities, the creation of the suburbs, rural regions, and the implications of institutionalized inequalities in all three spaces for a democratic society.

Career paths open to students with this training include regional and urban planners, urban administrators, public policy creators, lawyers, local and national politicians, governmental agency employees, special interest lobbyists in anti-discrimination/social movement organizations, economists, community developers, community and social service providers, educators, human resource personnel, communications, and research.

Certificate in Undergraduate Studies in Urban and Community Studies 12 s.h.

(15 with required courses prerequisite). History and Economics electives have additional prerequisites if they are chosen to complete the CUGS. The requirements include the following four (4) three (3) credit courses:

The following course:

SOC08.320	Urban Sociology (Prereq SOC08.120 Intro to Soc)

One of the following:

SOC08.405	Applied Community Development (Prereq SOC08.120 Intro to Soc)
SOC08.431	Social Psychology of City Life (Prereq SOC08.120 Intro to Soc)
SOC15.322	Sociology of Population (Prereq SOC08.120 Intro to Soc)
SOC08.441	Sociology of Migration: Contemporary Perspectives (Prereq SOC08.120 Intro to Soc or SOC08.230 Minority Groups)

Two of the following:

ECON04.360	Urban Economics (Prereq ECON04.102 An Introduction to Economics A Microeconomic Perspective
HIST05.334	Urban History of the United States (Prereq HIST05.306 Historical Methods or AMST13.301 Interdisciplinary Research and Writing
HIST05.378	History of Camden (Prereq HIST05.306 Historical Methods)
LAWJ05.274	Criminal Justice and Community Relations
GEOG16.302	Urban Geography

It is required to take Introduction to Sociology (prerequisite) prior to Urban Sociology in the first semester. It is recommended to take Urban Sociology before the other sociology course. Other courses may be taken in any order and/or concurrently; however, both history and economics courses have additional prerequisites which must be taken prior to taking the elective course.

Bachelor of Arts in Human Services (B.A.)
Sharon McCann
Coordinator
Campbell Hall
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Academic Advisor Contact Information
Michelle Mignot
856.256.5572
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The Bachelor of Arts in Human Services is an academic program unique to the Camden Campus that will prepare individuals to serve as human services providers, health educators, social service professionals, and community service specialists. The curriculum is designed to combine theory and research with application in experiential learning settings in the urban community and social service agencies located in the City of Camden, New Jersey. The Human Services program is designed for students who are interested in studying and working with individuals of diverse populations in urban settings.

Program Requirements

The Human Services program consists of 120 S.H. of coursework, including 39 S.H. of core requirements, 9 S.H. of which involve direct field experience. In addition to the core requirements, general education requirements, and electives, students will choose one of the following three concentrations, each consisting of a single required 3 S.H. course and 6 S.H. of electives relevant to each concentration:

- Clinical Services Concentration- 9 S.H.
- Administrative Concentration- 9 S.H.
- Criminal Justice Concentration- 9 S.H.

Required Core Courses 39 s.h.

(s.h.: semester hours/credit hours)

HSRV01.100	Introduction to Human Services	3
SOC08.120	Introduction to Sociology	3
PSY01.107	Essentials of Psychology	3
PSY03.205	Intake and Interviewing Skills	3
SOC08.223	Sociology of Social Welfare	3
SOC08.332	Contemporary Sociological Theory	3
HSRV08.310	Research Methods for Human Services	3
HSRV01.320	Applied Ethics in Human Services	3
HSRV01.351	Field Experience in Human Services	9
SOC08.430	Case Management Intervention in Sociological Practice	3
HSRV01.400	Senior Seminar: Human Services- WI	3

Other Required Courses 9 s.h.

ANTH02.202	Cultural Anthropology	3
POSC07.110	American Government	3
STAT02.100	Elementary Statistics	3
or STAT02.260	Statistics I	

Total Required Credits for the Program 120 s.h. (39 Core)

Foundation Courses

*University standard for all undergraduate programs. 30 credits must be completed at Rowan.

Graduation/Exit, Benchmark, and/or Thesis Requirements

- Completion of a Portfolio of work completed within the senior courses, including personal growth journaling and field experience processing.
- Completion of a field experience/placement and clinical/service hours.

CERTIFICATE OF UNDERGRADUATE STUDY IN HUMAN SERVICES - ADMINISTRATION

Michelle Mignot
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This course of study will introduce students who are not Human Services majors to both theoretical and practical approaches used by professionals working in a variety of human services agencies. It could readily be a program for people already in the field who wish to advance their careers and move into administration. The courses will provide an overview of the skills and perspectives best suited to assist them in applying their other coursework to real-world settings, meeting the needs of employers as they navigate our changing societies. It will also prepare them for positions as diversity trainers, human services providers, managers, and staff of human services agencies, and human rights organizations.

The five required courses are : 15 s.h.

HSRV01.100	Introduction to Human Services	3 s.h.
HSRV01.320	Applied Ethics in Human Services	3.s.h
EDPA02.410	Introduction to Public Administration	3 s.h.
SOC08.401	Human Services Organizations	3 s.h.
SOC08.353	The Sociology of Complex Organizations	3 s.h.
or EDPA02.410	Public Policy	3 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN HUMAN SERVICES - DIRECT SERVICE

Michelle Mignot
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This course of study will introduce students who are not Human Services majors to both theoretical and practical approaches used by professionals working in a variety of human services agencies. The courses will provide an overview of the skills and perspectives best suited to assist them in applying their other coursework to real-world settings, meeting the needs of employers as they navigate our changing societies. It will also prepare them for positions as diversity trainers, human services providers, managers, and staff of human services agencies, and human rights organizations. This credential could readily be applied to professionals already working in the field who wish to advance their careers.

The five required courses are : 15 s.h.

HSRV01.100	Introduction to Human Services	3 s.h.
HSRV01.320	Applied Ethics in Human Services	3 s.h.
PSY03.205	Intake and Interviewing	3 s.h.
SOC08.430	Case Management Intervention in Sociological Practice	3 s.h.
SOC08.223	Sociology of Social Welfare	3 s.h.
or SOC08.326	Socialization of the Child through Adolescence	3 s.h.
or SOC08.223	Sociology of Social Work	3 s.h.
or SOC08.230	Sociology of Minority Groups	3 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN HUMAN SERVICES - CRIMINAL JUSTICE

Michelle Mignot
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This Certificate of Undergraduate Study will introduce students who are not Human Services majors to both theoretical and practical approaches used by professionals working in a variety of human services agencies. It will be of particular interest to Criminal Justice majors seeking work in the Corrections field. An increased need for probation and parole officers is foreseen by the State of New Jersey, this is designed to help meet that need. The courses will provide an overview of the skills and perspectives best suited to assist them in applying their other coursework to real-world settings, meeting the needs of employers as they navigate our changing societies. It will also prepare them for positions as diversity trainers, human services providers, managers, and staff of human services agencies, and human rights organizations.

The five required courses are : 15 s.h.

HSRV01.100	Introduction to Human Services	3. s.h.
SOC08.332	Contemporary Sociological Theory	3 s.h.
LAWJ05.175	Survey of Criminal Justice	3. s.h.
SOC08.325	Deviant Behavior and Social Control	3. s.h.
LAWJ05.315	Criminal Justice and Social Conflict	3. s.h.
or LAWJ05.210	Restorative Justice	3. s.h.
or LAWJ05.220	Victimology	3. s.h.

Department of World Languages

Marilyn S. Manley, Ph.D.
Chair
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The Department offers a major in Spanish, a Coordinate Education major in Spanish, and an interdisciplinary major in Modern Languages and Linguistics. Within the Spanish Major, four Concentrations are available in: (1) Applied Spanish, (2) Peninsular Spanish Literature and Culture, (3) Spanish American Literature and Culture, and (4) Spanish Translation and Interpretation. The Department also offers the Applied Spanish Program Sequence A for the Bachelor of Arts in Liberal Studies: Humanities / Social Sciences and participates in the interdisciplinary major in International Studies and the interdisciplinary major in Area Studies. Minors are offered by the Department in Arabic Studies (interdisciplinary), French, German Studies (interdisciplinary), Italian Studies (interdisciplinary), Japanese, Latin American Studies (interdisciplinary), Romance Languages (Spanish, French and Italian), and Spanish. The Department participates in both the interdisciplinary International Studies Minor and the interdisciplinary Asian Studies Concentration. Additionally, the Department offers Certificates of Undergraduate Study (CUGS), of 12 s.h. each, in (1) American Sign Language (ASL), (2) Arabic, (3) Chinese, (4) French, (5) German, (6) Italian, (7) Japanese, (8) Russian (9) Spanish, (10) Applied Spanish, (11) Peninsular Spanish Literature and Culture, (12) Spanish American Literature and Culture, (13) Spanish Translation and Interpretation, and (14) Spanish for Health Professions. Visit Department of World Languages for the latest details.

BACHELOR OF ARTS IN SPANISH

Marilyn S. Manley, Ph.D.
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The Spanish Major, which may be declared either in the World Languages Department in Bunce Hall, Suite 305, or with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), offers a flexible curriculum that makes it possible to develop an intensive study of the Spanish language, its civilization, cultures and literatures. It also provides a general background for future professional studies and advanced degrees in Spanish as well as careers in a variety of fields, such as social, administrative, and governmental work, and international business.

Within the Spanish Major, four Concentrations are available in: (1) Applied Spanish, (2) Peninsular Spanish Literature and Culture, and (3) Spanish American Literature and Culture, and (4) Spanish Translation and Interpretation. Each of these Concentrations seeks to provide recognition for students' completion of 12 s.h. in the respective subject area.

Literature courses in English translation cannot be counted for credit toward the major nor any other course without Spanish as the language of instruction. All incoming Spanish majors (Freshmen, Internal Transfers and Transfer Students) are required to take the "STAMP 4S" Spanish Placement Examination for initial placement, prior to registration; contact Esther Mas Serna (mas@rowan.edu), Spanish Placement Coordinator, for details. Students of Appreciation of Hispanic Literature (SPAN05.301) are required to take the STAMP 4S Exam a second time for assessment and advisement purposes in the major. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students may transfer credits into the Spanish Major, including from study abroad. Students planning to study abroad must meet with their Spanish Advisor in order to determine course equivalents. For more information, visit our website Department of World Languages or contact the Department for the latest details.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

6 s.h. of a world language other than Spanish are required. Both courses must be in the same language.

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Experiential Learning Requirement

All students with the Spanish major must satisfy the Experiential Learning Requirement (ELR) (0-6 s.h.). Students must choose one option from the following list (all are worth 3 s.h. except where indicated):

AFST11.310	Service-Learning Seminar in Africana Studies
AFST11.350	Topics in Africana Studies: Model African Union
ANTH02.290	Museum Studies
ANTH02.295	Introduction to Qualitative Research

ANTH02.315	Forensic Anthropology
ANTH02.324	Archaeological Field Methods
DPEM43.495	Internship in Disaster Preparedness & Emergency Management (3-6 s.h.)
ECED23.320	Building Brains: Resilience and Competency
ECON04.410	Internship in Economics
EDPA02.490	Public Service Internship (3-6 s.h.)
HIST05.378	Special Topics: History of Camden
HIST05.495	Internship in History
HSRV01.311	Field Experience I
INCL02.310	STREAM 1: Social Studies, ELA, & the Arts in the Inclusive Classroom
INTR01.470	Semester Abroad (0-6 s.h.)
INTR20.390	Interdisciplinary Case Studies in the Liberal Arts (1 s.h.)
INTR20.395	Experiential Learning in the Humanities & Social Sciences (0-1 s.h.)
INTR20.399	Internship in the Applied Liberal Arts (2-6 s.h.)
IS25.350	Special Topics in International Studies: Model United Nations
LAWJ05.356	Criminal Justice Internship I (3-6 s.h.)
LAWJ05.357	Criminal Justice Internship II
SMED40.450	Schools and Society
SOC08.377	Field Research Experience
SOC08.494	Field Experience in Sociology (3-6 s.h.)
SPAN05.452	Internship in Spanish
SPAN05.499	Study Abroad

Major Requirements 33 s.h.

Take all of the following courses:

SPAN05.212	Spanish Reading and Composition
SPAN05.301	Appreciation of Hispanic Literature
SPAN05.320	Spanish Civilization and Culture
SPAN05.324	Spanish American Civilization and Culture-M/G
SPAN05.409	Advanced Spanish Grammar and Composition-WI
SPAN05.411	Advanced Spanish Conversation

Group A: Applied Spanish Electives*

Choose one of the following:

SPAN05.300	Spanish Phonetics
SPAN05.302	Introduction to Hispanic Linguistics*
SPAN05.305	Oral Spanish
SPAN05.312	Spanish for Business A
SPAN05.313	Spanish for Medical Personnel
SPAN05.314	Spanish for Business B
SPAN05.315	Spanish for Law
SPAN05.316	Spanish for Medical Emergencies and Disaster Response
SPAN05.340	Introduction to Spanish Translation*
SPAN05.350	Introduction to Spanish Interpretation
SPAN05.400	History of the Spanish Language
SPAN05.440	Special Topics (Applied)
SPAN05.450	Internship in Spanish (Applied)
SPAN05.441	Advanced Spanish Translation

Group B: Peninsular Electives

Choose one of the following:

SPAN05.325	Readings in Contemporary Spanish Literature
SPAN05.326	Spanish Novel
SPAN05.381	Contemporary Spanish Theatre
SPAN05.440	Special Topics (Peninsular)
SPAN05.450	Internship in Spanish (Peninsular)
SPAN05.481	Generation of '98
SPAN05.482	Contemporary Spanish Novel

Group C: Spanish American Electives

Choose one of the following:

SPAN05.327	Spanish American Poetry
SPAN05.328	Spanish American Theatre
SPAN05.383	Spanish American Short Story
SPAN05.426	Spanish American Novel
SPAN05.440	Special Topics (Spanish American)

SPAN05.450	Internship in Spanish (Spanish American)

Group D: Two additional electives from Group A, B, or C above.

Free Electives at least 44 s.h.

Total Credits in Program 120 s.h.

*College of Education K-12 Subject Matter Dual Degree Majors are required to take either Introduction to Hispanic Linguistics (SPAN05.302) or Introduction to Spanish Translation (SPAN05.340).

Spanish Major Concentration in Applied Spanish

Within the Spanish Major, students may choose to earn a Concentration in Applied Spanish, representing the completion of 12 s.h. in Applied Spanish courses at the 200, 300 and 400 levels. The Concentration may be declared either in the World Languages Department in Bunce Hall, Suite 305, or with Christine Larsen-Britt (advise@rowan.edu). This Concentration in Applied Spanish will enhance the profile of all job applicants across all fields of study, as it represents the ability to apply one's knowledge of Spanish to a variety of career fields, including, for example, business, medicine, translation, and education. The Concentration includes the following:

Required Course

SPAN05.212	Spanish Reading and Composition

Elective Courses

Choose three of the following

SPAN05.300	Spanish Phonetics
SPAN05.302	Introduction to Hispanic Linguistics
SPAN05.305	Oral Spanish
SPAN05.312	Spanish for Business A
SPAN05.313	Spanish for Medical Personnel
SPAN05.314	Spanish for Business B
SPAN05.315	Spanish for Law
SPAN05.316	Spanish for Medical Emergencies and Disaster Response
SPAN05.340	Introduction to Spanish Translation
SPAN05.350	Introduction to Spanish Interpretation
SPAN05.400	History of the Spanish Language
SPAN05.440	Special Topics (Applied)
SPAN05.441	Advanced Spanish Translation
SPAN05.450	Internship in Spanish (Applied)

Spanish Major Concentration in Peninsular Spanish Literature and Culture

Within the Spanish Major, students may choose to earn a Concentration in Peninsular Spanish Literature and Culture, representing the completion of 12 s.h. in related coursework at the 300 and 400 levels. The Concentration may be declared either in the World Languages Department in Bunce Hall, Suite 305, or with Christine Larsen-Britt (advise@rowan.edu). This Concentration in Peninsular Spanish Literature and Culture enhances the profile of all job applicants across all fields of study, as it represents Advanced-level proficiency and the ability to access the culture of Spain through its literature, with a view to giving students an in-depth, sophisticated level of knowledge that will serve them in their professional life in many fields, including, for example, diplomacy, translation, education, and politics. The Concentration includes the following:

Required Course

SPAN05.301	Appreciation of Hispanic Literature

Elective Courses

Choose three of the following

SPAN05.320	Spanish Civilization and Culture
SPAN05.325	Readings in Contemporary Spanish Literature
SPAN05.326	Spanish Novel
SPAN05.381	Contemporary Spanish Theatre
SPAN05.440	Special Topics (Peninsular)
SPAN05.450	Internship in Spanish (Peninsular)
SPAN05.481	Generation of '98
SPAN05.482	Contemporary Spanish Novel

Spanish Major Concentration in Spanish American Literature and Culture

Within the Spanish Major, students may choose to earn a Concentration in Spanish American Literature and Culture, representing the completion of 12 s.h. in related coursework at the 300 and 400 levels. The Concentration may be declared either in the World Languages Department in Bunce Hall, Suite 305, or with Christine Larsen-Britt (advise@rowan.edu). This Concentration in Spanish American Literature and Culture enhances the profile of all job applicants across all fields of study, as it represents Advanced-level proficiency and the ability to access the culture of Latin America through literature, with a view to giving students the in-depth knowledge that will serve them in their professional life in many fields, including,

for example, diplomacy, translation, education and politics. The Concentration includes the following:

Required Course

SPAN05.301	Appreciation of Hispanic Literature

Elective Courses
Choose three of the following

SPAN05.324	Spanish American Civilization and Culture-M/G
SPAN05.327	Spanish American Poetry
SPAN05.328	Spanish American Theatre
SPAN05.383	Spanish American Short Story
SPAN05.426	Spanish American Novel
SPAN05.440	Special Topics (Spanish American)
SPAN05.450	Internship in Spanish (Spanish American)

Spanish Major Concentration in Spanish Translation and Interpretation

Within the Spanish Major, students may choose to earn a Concentration in Spanish Translation and Interpretation, representing the completion of 12 s.h. in related coursework at the 300 and 400 levels. The Concentration may be declared either in the World Languages Department in Bunce Hall, Suite 305, or with Christine Larsen-Britt (advise@rowan.edu). This Concentration in Spanish Translation and Interpretation enhances the profile of all job applicants across all fields of study, as skills in Translation and Interpretation are in high demand across a wide variety of career fields, such as in medicine, business, government, education, arts, and media. The Concentration includes the following:

Required Course

SPAN05.340	Introduction to Spanish Translation
SPAN05.350	Introduction to Spanish Interpretation
SPAN05.441	Advanced Spanish Translation
SPAN05.450	Internship in Spanish (Applied)

BACHELOR OF ARTS IN MODERN LANGUAGES & LINGUISTICS

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The Major in Modern Languages and Linguistics, which may be declared either in the World Languages Department in Bunce Hall, Suite 305, or with Christine Larsen-Britt (advise@rowan.edu), offers an innovative, flexible, interdisciplinary curriculum that combines the study of modern languages, linguistics and communication. In order to play a meaningful role in world discourse, in order to protect our national security and in order to compete with our international counterparts in every field of study imaginable, the knowledge of modern languages is now a fundamental and indispensable part of every student's education. As citizens of today's world, students will benefit greatly from the study of modern languages, thus equipping them with the ability to communicate and interact with large populations of speakers coming from different cultural and ideological backgrounds. Additionally, through the completion of a core course in linguistics or anthropological linguistics and the option of completing additional electives in linguistics and communication, students will be able to put their specific language and culture studies into a broader context.

While the Rowan University Department of World Languages offers coursework in American Sign Language (ASL), Arabic, Chinese, French, German, Italian, Japanese, Quechua, Russian, and Spanish, **Spanish is the only Advanced Language option that can be completed entirely on Rowan's campus;** students who select a language other than Spanish as the Advanced Language for the program must meet with Dr. Marilyn Manley (manley@rowan.edu), Chair of the Department of World Languages, to discuss Rowan study abroad options and/or to obtain her approval to transfer in 300/400-level courses taken at other institutions in order to complete the program.

Concentration options are available for the Major in Modern Languages and Linguistics, corresponding to the Advanced Language and the Intermediate Language chosen for the program, in American Sign Language (ASL), Arabic, Chinese, French, German, Italian, Japanese, Russian, and Spanish; each Concentration consists of four courses in the language. The Concentrations should be declared with the Program Advisor.

Credits may also be accepted through an Advanced Placement Examination, or via a CLEP Exam. Rowan University's Testing Center (testingservices@rowan.edu), located in the Academic Success Center, Savitz Hall, Suite 304, offers the CLEP Exam in Spanish, French and German; depending on their scores, students may earn up to a maximum of 9 s.h. in each of these languages through the CLEP Exam.

Students with previous experience in Spanish who wish to study Spanish as one of their chosen languages for the Major in Modern Languages & Linguistics will be required to take the Spanish Placement Exam (STAMP 4S of Avant Assessment) for initial course placement. Contact Esther Mas Serna (mas@rowan.edu) for more information. All students with existing proficiency in other languages who are interested in continuing their study of those languages within the program will be required to meet with the primary faculty member(s) responsible for teaching those languages for a placement interview to determine initial course placement. Students may earn the credits for any courses skipped via the Authorization for Credit by Examination process. As an exit requirement, all students will be required to take Avant Assessment's STAMP 4S or STAMP as a final measure of language proficiency in the Advanced-level language chosen for the major. For more information, visit our website, Department of World Languages or contact the Department for the latest details.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Experiential Learning Requirement

All students with the Major in Modern Languages & Linguistics must satisfy the Experiential Learning Requirement (ELR) (0-6 s.h.). Students must choose one option from the following list (all are worth 3 s.h. except where indicated):

AFST11.310	Service-Learning Seminar in Africana Studies
AFST11.350	Topics in Africana Studies: Model African Union
ANTH02.290	Museum Studies
ANTH02.295	Introduction to Qualitative Research
ANTH02.315	Forensic Anthropology
ANTH02.324	Archaeological Field Methods
DPEM43.495	Internship in Disaster Preparedness & Emergency Management (3-6 s.h.)
ECED23.320	Building Brains: Resilience and Competency
ECON04.410	Internship in Economics
EDPA02.490	Public Service Internship (3-6 s.h.)
HIST05.378	Special Topics: History of Camden
HIST05.495	Internship in History
HSRV01.311	Field Experience I
INCL02.310	STREAM 1: Social Studies, ELA, & the Arts in the Inclusive Classroom
INTR01.470	Semester Abroad (0-6 s.h.)
INTR20.390	Interdisciplinary Case Studies in the Liberal Arts (1 s.h.)
INTR20.395	Experiential Learning in the Humanities & Social Sciences (0-1 s.h.)
INTR20.399	Internship in the Applied Liberal Arts (2-6 s.h.)
IS25.350	Special Topics in International Studies: Model United Nations
LAWJ05.356	Criminal Justice Internship I (3-6 s.h.)
LAWJ05.357	Criminal Justice Internship II
SMED40.450	Schools and Society
SOC08.377	Field Research Experience
SOC08.494	Field Experience in Sociology (3-6 s.h.)
SPAN05.452	Internship in Spanish
SPAN05.499	Study Abroad

Major Requirements 39 s.h.

The basic structure of this 39 s.h. major is as follows; all courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC:

I. **Core Course Requirement (3 s.h.)**: Take either of the following 3 s.h. courses: "Introduction to Anthropological Linguistics" (ANTH 02.250/SPAN 05.250) or "Linguistics" (CMS 04.325).

II. **Advanced Language (18 s.h.)**: Take a minimum of 3 s.h. at the 200-level, 12 s.h. at the 300-level, and 3 s.h. at the 400-level.

III. **Intermediate Language (12 s.h.)**: Take a minimum of 6 s.h. at the 100-level and 6 s.h. at the 200-level

IV. **Choose option A, B or C below (6 s.h.)**:

Option A:

Novice Language (6 s.h.): Take a minimum of 6 s.h. at the 100-level

Option B:

Linguistics/Communication Electives (6 s.h.): Take two electives from the following list:

ANTH02.250/SPAN05.250	Introduction to Anthropological Linguistics (if not Core course)
CMS04.325	Linguistics (if not already taken as the Core course)
SPAN05.302	Introduction to Hispanic Linguistics
QUEC10.100	Modern Descendants of the Incas: Quechua Language, Culture, and History
HONR05.390	Linguistics and Cultures of Native South America
CMS04.220	Interpersonal Communication
CMS04.255	Nonverbal Communication
CMS04.316	Mediated Interpersonal Communication
CMS04.320	Communicating Gender
CMS04.360	Intercultural Communication
SMED51.330	Teaching and Learning A: Foreign Languages
CMS04.225	Semantics
CMS04.226	Semantics (WI)
BLED40.512	Second Language Acquisition and Linguistics for Teaching Languages (with Senior Privilege)
BLED40.515	Language, Culture and Communication (with Senior Privilege)
CS07.555	Natural Language Processing (with Senior Privilege)

Option C:

Novice Language and Linguistics/Communication Elective (6 s.h.): Take a minimum of 3 s.h. at the 100 level in the Novice Language and one 3 s.h. Linguistics/Communication elective from the above list.

The following language courses are offered by the Department of World Languages on a rotating basis:

American Sign Language (ASL) course options:

ASL01.101	Elementary American Sign Language I
ASL01.102	Elementary American Sign Language II
ASL01.201	Intermediate American Sign Language I
ASL01.211	Intermediate American Sign Language II
ASL01.440	Special Topics

Arabic language course options:

ARAB12.101	Elementary Arabic I
ARAB12.102	Elementary Arabic II
ARAB12.201	Intermediate Arabic I
ARAB12.211	Intermediate Arabic II
ARAB12.212	Intermediate Arabic III
ARAB12.301	Advanced Arabic I
ARAB12.302	Advanced Arabic II
ARAB12.320	Arabic Civilization and Culture
ARAB12.440	Special Topics

Chinese language course options:

CHIN07.101	Elementary Chinese I
CHIN07.102	Elementary Chinese II
CHIN07.201	Intermediate Chinese I
CHIN07.211	Intermediate Chinese II
CHIN07.212	Intermediate Chinese III

French language course options:

FREN02.101	Elementary French I
FREN02.102	Elementary French II
FREN02.201	Intermediate French I
FREN02.211	Intermediate French II
FREN02.205	Oral French
FREN02.212	French Reading and Composition
FREN02.300	French Phonetics
FREN02.311	Advanced French Conversation
FREN02.315	Introduction to French Literature
FREN02.320	French Civilization and Culture
FREN02.324	Appreciation of French Literature
FREN02.325	Readings in Contemporary French Literature
FREN02.326	The French Novel
FREN02.400	History of the French Language

FREN02.410	Advanced French Composition
FREN02.420	Evolution of French Civilization
FREN02.421	The French Short Story
FREN02.435	French Individual Study
FREN02.440	Special Topics
FREN02.499	Study Abroad

German language course options:

GERM03.101	Elementary German I
GERM03.102	Elementary German II
GERM03.201	Intermediate German I
GERM03.211	Intermediate German II
GERM03.212	German Reading and Composition
GERM03.320	German Civilization and Culture
GERM03.411	Advanced German Conversation
GERM03.435	Independent Study in German
GERM03.440	Special Topics
GERM03.499	Study Abroad

Italian language course options:

ITAL04.101	Elementary Italian I
ITAL04.102	Elementary Italian II
ITAL04.201	Intermediate Italian I
ITAL04.211	Intermediate Italian II
ITAL04.212	Italian Reading and Composition
ITAL04.320	Italian Civilization and Culture
ITAL04.440	Special Topics

Japanese language course options:

JAPA08.101	Elementary Japanese I
JAPA08.102	Elementary Japanese II
JAPA08.201	Intermediate Japanese I
JAPA08.211	Intermediate Japanese II
JAPA08.212	Intermediate Japanese III
JAPA08.305	Oral Japanese
JAPA08.440	Special Topics

Russian language course options:

RUSS06.101	Elementary Russian I
RUSS06.102	Elementary Russian II
RUSS06.201	Intermediate Russian I
RUSS06.211	Intermediate Russian II

Spanish language course options:

SPAN05.101	Spanish I
SPAN05.102	Spanish II
SPAN05.201	Spanish III
SPAN05.211	Spanish Reading and Conversation
SPAN05.212	Spanish Reading and Composition
SPAN05.300	Spanish Phonetics
SPAN05.301	Appreciation of Hispanic Literature
SPAN05.302	Introduction to Hispanic Linguistics
SPAN05.305	Oral Spanish
SPAN05.312	Spanish for Business A
SPAN05.313	Spanish for Medical Personnel
SPAN05.314	Spanish for Business B
SPAN05.315	Spanish for Law
SPAN05.316	Spanish for Medical Emergencies and Disaster Response
SPAN05.320	Spanish Civilization and Culture
SPAN05.324	Spanish American Civilization and Culture (M/G)
SPAN05.325	Readings in Contemporary Spanish Literature
SPAN05.326	Spanish Novel
SPAN05.327	Spanish American Poetry
SPAN05.328	Spanish American Theatre
SPAN05.340	Introduction to Spanish Translation
SPAN05.350	Introduction to Spanish Interpretation
SPAN05.381	Contemporary Spanish Theatre

SPAN05.383	Spanish American Short Story
SPAN05.400	History of the Spanish Language
SPAN05.409	Advanced Spanish Grammar and Composition (WI)
SPAN05.410	Advanced Spanish Grammar
SPAN05.411	Advanced Spanish Conversation
SPAN05.426	Spanish American Novel
SPAN05.435	Spanish Individual Study
SPAN05.440	Special Topics
SPAN05.450	Internship in Spanish
SPAN05.441	Advanced Spanish Translation
SPAN05.481	The Generation of 1898
SPAN05.482	Contemporary Spanish Novel
SPAN05.499	Study Abroad

Free Electives minimum 32 s.h.
Total Credits in Program 120 s.h.

MINOR IN ARABIC STUDIES

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The Arabic Studies Minor may be declared in the Department of World Languages, Bunce Hall 305, with Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall. In addition to gaining communicative competence in Arabic, the proposed program allows students to deepen their understanding of Arab culture, society, geography, politics, and history through interdisciplinary coursework. This academic background makes our students more competitive as they search for employment across a wide variety of career fields, including but not limited to work in foreign and public service, international sales and business, humanitarian work, government, politics, and international law. The program consists of 6 courses (18 credits). Students must receive a grade of at least "C-" in all courses for the program. Each of the courses listed below is worth 3 credits.

This 18 s.h. minor is open to all students. A placement interview is strongly recommended for students with previous knowledge of Arabic so that they may begin their Arabic language study at the appropriate level. For placement interview information, please contact Mr. Tarek Mousa at mousa@rowan.edu. Students may earn the credits for any skipped courses via the Authorization for Credit by Examination process and these credits are counted in fulfillment of minor requirements. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students may transfer credits into the Arabic Studies Minor, including from study abroad; students planning to study abroad must meet with their Advisor in order to determine course equivalents. For more information, visit our website, Department of World Languages or contact the Department for the latest details.

Arabic Studies Minor 18 s.h.

Students are required to take the following four courses within the language component of the program (or receive credits via a placement interview and Authorization for Credit by Examination – contact Mr. Tarek Mousa for more details at mousa@rowan.edu):

Arabic Language Core:

ARAB12.101	Elementary Arabic I
ARAB12.102	Elementary Arabic II
ARAB12.201	Intermediate Arabic I
ARAB12.211	Intermediate Arabic II

Students must also select two of the following elective courses (courses taught in English can be taken at any time, before, after or concurrently with Arabic language courses):

Interdisciplinary Electives:

ARAB12.212	Intermediate Arabic III
ARAB12.301	Advanced Arabic I
ARAB12.302	Advanced Arabic II
ARAB12.320	Arabic Civilization & Culture
ARAB12.440	Special Topics
GEOG16.347	Geography of the Middle East

HIST05.308	Modern Middle East
HIST05.383	Islamic Civilization
HIST05.404	Arab-Israeli Conflict
HIST05.417	Women in Islam
POSC07.347	Politics of the Middle East

MINOR IN FRENCH

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The French Minor, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, offers a flexible curriculum with many opportunities for selection of courses in French language, civilization, culture, and literature. It provides a general background for future professional studies and advanced degrees in French and work in a wide variety of fields, such as social, administrative and governmental work, as well as international business.

This 18 s.h. minor is open to all students. A placement interview is strongly recommended for students with previous knowledge of French so that students may begin the minor at the appropriate level. For placement interview information, please contact Dr. Maria Hernandez at hernandezm@rowan.edu. Students may earn the credits for any skipped courses via the Authorization for Credit by Examination process and these credits are counted in fulfillment of minor requirements. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students may transfer credits into the French Minor, including from study abroad and up to 9 s.h. from the CLEP Exam in French (equivalent to Elementary French I & II and Intermediate French I – contact the Testing Center, testingservices@rowan.edu, in the Academic Success Center, Savitz Hall, Suite 304, for more information). Students planning to study abroad must meet with their French Advisor in order to determine course equivalents. For more information visit our website, Department of World Languages or contact the Department for the latest details.

French Minor 18 s.h.

Any 18 s.h. of French (with the exception of courses taught in English) can fulfill the requirements for the minor; prerequisites are strictly enforced. Though many variants exist, a basic course sequence beginning with Elementary French I for beginners follows.

FREN02.101	Elementary French I
FREN02.102	Elementary French II
FREN02.201	Intermediate French I
FREN02.211	Intermediate French II
FREN02.205	Oral French
FREN02.212	French Reading and Composition

MINOR IN GERMAN STUDIES

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The German Studies Minor, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, is an intensive program of study which offers courses in German language in addition to German civilization and culture and various interdisciplinary electives taught in English. It provides a general background for future professional studies and advanced degrees in German and work in a wide variety of fields, such as social, administrative and governmental work, as well as international business.

This 18 s.h. minor is open to all students. A placement interview is strongly recommended for students with previous knowledge of German so that they may begin their German language study at the appropriate level. For placement interview

information, please contact Dr. Edward Smith at smithe@rowan.edu. Students may earn the credits for any skipped courses via the Authorization for Credit by Examination process and these credits are counted in fulfillment of minor requirements. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students may transfer credits into the German Studies Minor, including from study abroad and up to 9 s.h. from the CLEP Exam in German (equivalent to Elementary German I and II and Intermediate German I – contact the Testing Center, testingservices@rowan.edu, in the Academic Success Center, Savitz Hall, Suite 304, for more information). Students planning to study abroad must meet with their German Advisor in order to determine course equivalents. For more information visit our website, Department of World Languages or contact the Department for the latest details.

German Studies Minor 18 s.h.

The Minor consists of 6 courses (18 credits). Students are required to take at least 3 and a maximum of 5 courses within the language component of the program (or receive CLEP Exam credits). Elective courses in other departments can be used toward the Minor:

Courses taught in German

GERM03.101	Elementary German I
GERM03.102	Elementary German II
GERM03.201	Intermediate German I
GERM03.211	Intermediate German II
GERM03.212	German Reading & Composition
GERM03.320	German Civilization & Culture
GERM03.411	Advanced German Conversation
GERM03.440	Special Topics

Courses Taught in English (The following electives can be taken concurrently with language courses):

GERM03.100	Masterpieces of German Literature in English Translation (LIT)
GEOG16.342	Geography of Europe
HIST05.315	Twentieth Century Europe I
HIST05.406	Jewish Holocaust 1933-1945
SOC08.399	Sociology of the Holocaust
PHIL09.472	German Philosophy (Topics in the History of Philosophy)
RTF01.402	German Cinema (Special Topics in Radio/TV/Film)

MINOR IN ITALIAN STUDIES

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The Italian Studies Minor may be declared in the Department of World Languages, Bunce Hall 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall. This program allows students to add to their linguistic proficiency in Italian as well as their cultural, social and historical competence, which will benefit them on the job market, especially considering the strong presence of Italian companies, business activities, and institutions in our territory (i.e. foreign and public service, international sales and business, humanitarian work, government, politics, international law). The program will also support students' growth and development as global citizens and will prepare them to interact with a different population and culture with greater cultural awareness and sensitivity, in accordance with the mission of the Department of World Languages.

This 18 s.h. minor is open to all students. A placement interview is strongly recommended for students with previous knowledge of Italian so that they may begin their Italian language study at the appropriate level. For placement interview information, please contact Dr. Alessandra Mirra at mirra@rowan.edu. Students may earn the credits for any skipped courses via the Authorization for Credit by Examination process and these credits are counted in fulfillment of minor requirements. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students may transfer credits into the Italian Studies Minor, including from study abroad; students planning to study abroad must meet with their Advisor in order to determine course equivalents. For more information, visit our website, Department of World Languages or contact the Department for the latest details.

Italian Studies Minor 18 s.h.

Students are required to take the following four courses within the language component of the program (or receive credits via a placement interview and Authorization for Credit by Examination – contact Dr. Alessandra Mirra for more details at mirra@rowan.edu):

Italian Language Core:

ITAL04.101	Elementary Italian I
ITAL04.102	Elementary Italian II
ITAL04.201	Intermediate Italian I
ITAL04.211	Intermediate Italian II

Students must also select at least one of the following elective courses (courses taught in English can be taken at any time, before, after or concurrently with Italian language courses):

Interdisciplinary Electives Group 1:

ITAL04.212	Italian Reading and Composition
ITAL04.320	Italian Civilization and Culture
ITAL04.100	Masterpieces of Italian Literature in English Translation
ITAL04.440	Special Topics
HIST05.307	Ancient Mediterranean World
HIST05.311	Renaissance and Reformation History

For their 6th course, students may choose another course from Interdisciplinary Electives Group 1 above OR one of the courses below:

Interdisciplinary Electives Group 2:

ARHS03.103	Art History Survey I
ARHS03.104	Art History Survey II
MUSG06.102	General Music History
HIST05.315	Twentieth Century Europe I

MINOR IN JAPANESE

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The Japanese Minor may be declared in the Department of World Languages, Bunce Hall 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), and at the University Advising Center, Suite 323, Savitz Hall. This program recognizes students' completion of 18 s.h. in Japanese language. In addition to gaining linguistic competence, as they progress through the program, students will develop their communicative competence in Japanese and broaden their knowledge of Japanese culture and society. Students will also find that the program encourages their growth and development as global citizens, especially because studying Japanese language and culture provides vastly different perspectives and viewpoints. This academic background will set students apart as they search for employment in a wide variety of career fields, such as foreign and public services, international sales and business, humanitarian work, government, politics, and international law.

Japanese Minor 18 s.h.

Five required courses (3 s.h. each):

JAPA08.101	Elementary Japanese I
JAPA08.102	Elementary Japanese II (prerequisite of C- in JAPA08.101 or waiver)
JAPA08.201	Intermediate Japanese I (prerequisite of C- in JAPA08.102 or waiver)
JAPA08.211	Intermediate Japanese II (prerequisite of C- in JAPA08.201 or waiver)
JAPA08.212	Intermediate Japanese III (prerequisite of C- in JAPA08.211 or waiver)

Elective option – Choose one of the following (3 s.h. each):

JAPA08.305	Oral Japanese (prerequisite of C- in JAPA08.212)
JAPA08.440	Special Topics (prerequisite of C- in JAPA08.212)

Students with existing proficiency in Japanese should contact Chie Matsumura Dusk (dusk@rowan.edu) for a placement interview. It is possible for students to earn credits for the courses that they skip via the Authorization for Credit by Examination process. Contact Chie Matsumura Dusk (dusk@rowan.edu) for more details about this option.

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, study abroad, and credits obtained through Advanced Placement (up to 12 s.h. in place of "Elementary Japanese I," "Elementary Japanese II," "Intermediate Japanese I," and "Intermediate Japanese II"). Credits obtained from higher level coursework in Japanese may also be transferred in to substitute for any of the courses listed above. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with Chie Matsumura Dusk (dusk@rowan.edu), Coordinator for Japanese, in order to

determine course equivalents.

MINOR IN ROMANCE LANGUAGES

Christine Larsen-Britt
Advisor
856.256.4459
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The Minor in Romance Languages which may be declared in the World Languages Department in Bunce Hall, Suite 305, with Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, offers a flexible curriculum with many opportunities for selection of courses in French, Italian and Spanish. This multi-disciplinary program promotes students' understanding of other cultures, develops students' ability to communicate with people from other cultures, and develops an awareness of crossing borders in a linguistic and cultural sense. Students also acquire a basic linguistic competence in French, Italian and Spanish. The Department strongly urges potential Romance Language Minors to consult with the Program Advisor, in the event the student already has existing proficiency in Spanish, French and/or Italian and wishes to start at a higher level. Either a placement interview or exam may be necessary; contact Esther Mas for Spanish at mas@rowan.edu; contact Dr. Maria Hernandez for French at hernandezm@rowan.edu; contact Dr. Alessandra Mirra at mirra@rowan.edu for Italian. In order to satisfy the requirements for this minor, students must take 21 s.h. credits in a combination of French, Italian and Spanish. These 21 s.h. may be completed through:

- Taking the courses listed below, each of which is 3 s.h. (All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC.)
- Taking a placement exam in Spanish and a placement interview in French and Italian, and earning the credits for any skipped courses via the Authorization for Credit by Examination process
- Transferring in credits, including from study abroad, AP credits, as well as credits earned through the CLEP Exam in both French and Spanish (up to 9 s.h., equivalent to the first three semesters of Spanish and French). Contact the Testing Center (testingservices@rowan.edu) in the Academic Success Center, Savitz Hall, Suite 304 for more information. There is no CLEP Exam for Italian. Students planning to study abroad must meet with the Minor in Romance Languages Advisor in order to determine course equivalents.
- Students are required to study 3 semesters in one Romance language and 2 semesters in each of the other two Romance languages. A student pursuing either a major or minor in one of these languages can only apply two of these program courses toward the Minor in Romance Languages. (For example, a Spanish major or minor can only use 2 Spanish courses towards this minor; a French minor can only use 2 French courses towards this minor; and an Italian Studies minor can only use 2 Italian courses towards this minor.)

For more information visit our website, Department of World Languages or contact the Department for the latest details.

Basic Romance Language Minor Model 21 s.h.

FREN02.101	Elementary French I
FREN02.102	Elementary French II
SPAN05.101	Spanish I
SPAN05.102	Spanish II
ITAL04.101	Elementary Italian I
ITAL04.102	Elementary Italian II
	And one third semester course of Spanish, French or Italian: SPAN05.201, FREN02.201 or ITAL04.201.

MINOR IN SPANISH

Christine Larsen-Britt
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advise@rowan.edu

The Spanish Minor, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, offers a flexible curriculum with many opportunities for selection of courses in the Spanish language and in Spanish and Spanish American civilization, culture, literature and linguistics. It provides a general background for future professional studies and advanced degrees in Spanish and work in a wide variety of fields, such as social, administrative and governmental work, as well as international business.

This 18 s.h. minor is open to all students. A placement exam is strongly recommended so that students may begin the minor at the appropriate level. For placement exam information, please contact Esther Mas Serna at mas@rowan.edu. Students may earn the credits for any skipped courses via the Authorization for Credit by Examination process and these credits are counted in fulfillment of minor requirements. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students may transfer credits into the Spanish Minor, including from study abroad and up to 9 s.h. from the CLEP Exam in Spanish (equivalent to Spanish I, II and III – contact the Testing Center, testingservices@rowan.edu, in the Academic Success Center, Savitz Hall, Suite 304, for more information). Students

planning to study abroad must meet with their Spanish Advisor in order to determine course equivalents.

Spanish Minor 18 s.h.

Any 18 s.h. of Spanish (with the exception of courses taught in English) can fulfill the requirements for the minor, however, prerequisites are strictly enforced. A basic course sequence beginning with Spanish I for beginners is as follows though many variants exist. For more information, visit our website, Department of World Languages or contact the Department for the latest details.

SPAN05.101	Spanish I
SPAN05.102	Spanish II
SPAN05.201	Spanish III
SPAN05.211	Spanish Reading and Conversation
SPAN05.212	Spanish Reading and Composition
	Any additional upper-level course offered in Spanish

CERTIFICATE OF UNDERGRADUATE STUDY IN AMERICAN SIGN LANGUAGE (ASL)

Christine Larsen-Britt
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The Certificate of Undergraduate Study (CUGS) in American Sign Language (ASL) may be declared in the Department of World Languages in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall. This program recognizes students' completion of 12 s.h. in American Sign Language (ASL), which corresponds to Intermediate-level proficiency in the language. Intermediate-level proficiency in a world language is a valuable credential. In general, according to the American Council on the Teaching of Foreign Languages (ACTFL), at the Intermediate-level, it is possible to create with the language, combining and recombining learned material to provide personal information, communicate in complete sentences on a variety of familiar topics, ask questions, and initiate, sustain and conclude a simple social or transactional task. For more information visit our website, Department of World Languages or contact the Department for the latest details.

Certificate of Undergraduate Study in American Sign Language (ASL) 12 s.h.

The requirements include the following four, 3 s.h. courses:

ASL01.101	Elementary American Sign Language I
ASL01.102	Elementary American Sign Language II
ASL01.201	Intermediate American Sign Language I
ASL01.211	Intermediate American Sign Language II

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, and study abroad. Credits obtained from higher level coursework in ASL may also be substituted for any of the four courses listed above. A placement interview is strongly recommended for students with existing proficiency in ASL. For placement interview information, please contact Ms. Melissa Screven at screven@rowan.edu; students may earn the credits for any courses skipped via the Authorization for Credit by Examination Process and these credits also count toward the program. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Advisor in order to determine course equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in American Sign Language (ASL).

CERTIFICATE OF UNDERGRADUATE STUDY IN ARABIC

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Program Mentor
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Christine Larsen-Britt
Advisor
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advise@rowan.edu

The Certificate of Undergraduate Study (CUGS) in Arabic, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in Arabic, which corresponds to Intermediate-level proficiency in the language. Intermediate-level proficiency in a world language is a valuable credential, as it represents the ability to live independently in a foreign country with a substantial degree of success. In general, according to the American Council on the Teaching of Foreign Languages (ACTFL), Intermediate-level speakers are able to create with the language, combining and recombining learned material to provide personal information, speak in sentences on a variety of familiar

topics, ask questions, and initiate, sustain and conclude a simple social or transactional task. For more information visit our website, Department of World Languages or contact the Department for the latest details.

Certificate of Undergraduate Study in Arabic 12 s.h.

The requirements include the following four, 3 s.h. courses:

ARAB12.101	Elementary Arabic I
ARAB12.102	Elementary Arabic II
ARAB12.201	Intermediate Arabic I
ARAB12.211	Intermediate Arabic II

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, and study abroad. Credits obtained from higher level coursework in Arabic may also be substituted for any of the four courses listed above. A placement interview is strongly recommended for students with existing proficiency in Arabic. For placement interview information, please contact Tarek Mousa at mousa@rowan.edu; students may earn the credits for any courses skipped via the Authorization for Credit by Examination Process and these credits also count toward the program. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Advisor in order to determine course equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Arabic.

CERTIFICATE OF UNDERGRADUATE STUDY IN CHINESE

Christine Larsen-Britt
Advisor
856.256.4459
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The Certificate of Undergraduate Study (CUGS) in Chinese, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in Chinese, which corresponds to Intermediate-level proficiency in the language. Intermediate-level proficiency in a world language is a valuable credential, as it represents the ability to live independently in a foreign country with a substantial degree of success. In general, according to the American Council on the Teaching of Foreign Languages (ACTFL), Intermediate-level speakers are able to create with the language, combining and recombining learned material to provide personal information, speak in sentences on a variety of familiar topics, ask questions, and initiate, sustain and conclude a simple social or transactional task. For more information visit our website, Department of World Languages or contact the Department for the latest details.

Certificate of Undergraduate Study in Chinese 12 s.h.

The requirements include the following four, 3 s.h. courses:

CHIN07.101	Elementary Chinese I
CHIN07.102	Elementary Chinese II
CHIN07.201	Intermediate Chinese I
CHIN07.211	Intermediate Chinese II

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, credits obtained through Advanced Placement (up to 9 s.h. are accepted at Rowan in place of "Elementary Chinese I", "Elementary Chinese II" and "Intermediate Chinese I"), and study abroad. Credits obtained from higher level coursework in Chinese may also be substituted for any of the four courses listed above. A placement interview is strongly recommended for students with existing proficiency in Chinese. For placement interview information, please contact Dr. Haidong Liu at liuh@rowan.edu; students may earn the credits for any courses skipped via the Authorization for Credit by Examination Process and these credits also count toward the program. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Advisor in order to determine course equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Chinese.

CERTIFICATE OF UNDERGRADUATE STUDY IN FRENCH

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The Certificate of Undergraduate Study (CUGS) in French, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in French, which corresponds to Intermediate-level proficiency in the language. Intermediate-level proficiency in a world language is a valuable credential, as it represents the

ability to live independently in a foreign country with a substantial degree of success. In general, according to the American Council on the Teaching of Foreign Languages (ACTFL), Intermediate-level speakers are able to create with the language, combining and recombining learned material to provide personal information, speak in sentences on a variety of familiar topics, ask questions, and initiate, sustain and conclude a simple social or transactional task. For more information visit our website, Department of World Languages or contact the Department for the latest details.

Certificate of Undergraduate Study in French 12 s.h.

The requirements include the following four, 3 s.h. courses:

FREN02.101	Elementary French I
FREN02.102	Elementary French II
FREN02.201	Intermediate French I
FREN02.211	Intermediate French II

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, study abroad, credits obtained through the College-Level Examination Program (CLEP) (up to 9 s.h. are accepted at Rowan in place of the first three semesters of French - contact the Testing Center, testingservices@rowan.edu, in the Academic Success Center, Savitz Hall, Suite 304, for more information), credits obtained through Advanced Placement (up to 9 s.h. are accepted at Rowan in place of "Elementary French I", "Elementary French II" and "Intermediate French I"), and by substituting other 200-400 level French courses.
A placement interview is strongly recommended for students with existing proficiency in French. For placement exam information, please contact Dr. Maria Hernandez at hernandezm@rowan.edu; students may earn the credits for any courses skipped via the Authorization for Credit by Examination Process and these credits also count toward the program. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Advisor in order to determine course equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in French.

CERTIFICATE OF UNDERGRADUATE STUDY IN GERMAN

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The Certificate of Undergraduate Study (CUGS) in German, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in German, which corresponds to Intermediate-level proficiency in the language. Intermediate-level proficiency in a world language is a valuable credential, as it represents the ability to live independently in a foreign country with a substantial degree of success. In general, according to the American Council on the Teaching of Foreign Languages (ACTFL), Intermediate-level speakers are able to create with the language, combining and recombining learned material to provide personal information, speak in sentences on a variety of familiar topics, ask questions, and initiate, sustain and conclude a simple social or transactional task. For more information visit our website, Department of World Languages or contact the Department for the latest details.

Certificate of Undergraduate Study in German 12 s.h.

The requirements include the following four, 3 s.h. courses:

GERM03.101	Elementary German I
GERM03.102	Elementary German II
GERM03.201	Intermediate German I
GERM03.211	Intermediate German II

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, study abroad, credits obtained through the College-Level Examination Program (CLEP) (up to 9 s.h. are accepted at Rowan in place of "Elementary German I", "Elementary German II" and "Intermediate German I"- contact the Testing Center, testingservices@rowan.edu, in the Academic Success Center, Savitz Hall, Suite 304, for more information), credits obtained through Advanced Placement (up to 9 s.h. are accepted at Rowan in place of "Elementary German I", "Elementary German II" and "Intermediate German I"), and by substituting other 200-400 level German courses.
A placement interview is strongly recommended for students with existing proficiency in German. For placement interview information, please contact Dr. Edward Smith at smithe@rowan.edu; students may earn the credits for any courses skipped via the Authorization for Credit by Examination Process. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Advisor in order to determine course

equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in German.

CERTIFICATE OF UNDERGRADUATE STUDY IN ITALIAN

Alessandra Mirra, Ph.D.
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The Certificate of Undergraduate Study (CUGS) in Italian, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in Italian, which corresponds to Intermediate-level proficiency in the language. Intermediate-level proficiency in a world language is a valuable credential, as it represents the ability to live independently in a foreign country with a substantial degree of success. In general, according to the American Council on the Teaching of Foreign Languages (ACTFL), Intermediate-level speakers are able to create with the language, combining and recombining learned material to provide personal information, speak in sentences on a variety of familiar topics, ask questions, and initiate, sustain and conclude a simple social or transactional task. For more information visit our website, Department of World Languages or contact the Department for the latest details.

Certificate of Undergraduate Study in Italian 12 s.h.

The requirements include the following four, 3 s.h. courses:

ITAL04.101	Elementary Italian I
ITAL04.102	Elementary Italian II
ITAL04.201	Intermediate Italian I
ITAL04.211	Intermediate Italian II

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, credits obtained through Advanced Placement (up to 12 s.h. are accepted at Rowan in place of the four courses listed above), and study abroad. Credits obtained from higher level coursework in Italian may also be substituted for any of the four courses listed above. A placement interview is strongly recommended for students with existing proficiency in Italian. For placement exam information, please contact Dr. Alessandra Mirra at mirra@rowan.edu; students may earn the credits for any courses skipped via the Authorization for Credit by Examination process and these credits also count toward the program. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Advisor in order to determine course equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Italian.

CERTIFICATE OF UNDERGRADUATE STUDY IN JAPANESE

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The Certificate of Undergraduate Study (CUGS) in Japanese, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in Japanese, which corresponds to Intermediate-level proficiency in the language. Intermediate-level proficiency in a world language is a valuable credential, as it represents the ability to live independently in a foreign country with a substantial degree of success. In general, according to the American Council on the Teaching of Foreign Languages (ACTFL), Intermediate-level speakers are able to create with the language, combining and recombining learned material to provide personal information, speak in sentences on a variety of familiar topics, ask questions, and initiate, sustain and conclude a simple social or transactional task. For more information visit our website, Department of World Languages or contact the Department for the latest details.

Certificate of Undergraduate Study in Japanese 12 s.h.

The requirements include the following four, 3 s.h. courses:

JAPA08.101	Elementary Japanese I

JAPA08.102	Elementary Japanese II
JAPA08.201	Intermediate Japanese I
JAPA08.211	Intermediate Japanese II

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, credits obtained through Advanced Placement (up to 12 s.h. are accepted at Rowan in place of the four courses listed above), and study abroad. Credits obtained from higher level coursework in Japanese may also be substituted for any of the four courses listed above. A placement interview is strongly recommended for students with existing proficiency in Japanese. For placement interview information, please contact Chie Matsumura Dusk at dusk@rowan.edu; students may earn the credits for any courses skipped via the Authorization for Credit by Examination process and these credits also count toward the program. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Advisor in order to determine course equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Japanese.

CERTIFICATE OF UNDERGRADUATE STUDY IN RUSSIAN

Christine Larsen-Britt
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The Certificate of Undergraduate Study (CUGS) in Russian, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in Russian, which corresponds to Intermediate-level proficiency in the language. Intermediate-level proficiency in a world language is a valuable credential, as it represents the ability to live independently in a foreign country with a substantial degree of success. In general, according to the American Council on the Teaching of Foreign Languages (ACTFL), Intermediate-level speakers are able to create with the language, combining and recombining learned material to provide personal information, speak in sentences on a variety of familiar topics, ask questions, and initiate, sustain and conclude a simple social or transactional task. For more information visit our website, Department of World Languages or contact the Department for the latest details.

Certificate of Undergraduate Study in Russian 12 s.h.

The requirements include the following four, 3 s.h. courses:

RUSS06.101	Elementary Russian I
RUSS06.102	Elementary Russian II
RUSS06.201	Intermediate Russian I
RUSS06.211	Intermediate Russian II

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, and study abroad. Credits obtained from higher level coursework in Russian may also be transferred in to substitute for any of the four courses listed above. A placement interview is strongly recommended for students with existing proficiency in Russian. For placement interview information, please contact Ms. Olga Greendlinger (greendlinger@rowan.edu); students may earn the credits for any courses skipped via the Authorization for Credit by Examination process and these credits also count toward the program. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Advisor to determine course equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Russian.

CERTIFICATE OF UNDERGRADUATE STUDY IN SPANISH

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The Certificate of Undergraduate Study (CUGS) in Spanish, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in Spanish, which corresponds to Intermediate-level proficiency in the language. Intermediate-level proficiency in a world language is a valuable credential, as it represents the ability to live independently in a foreign country with a substantial degree of success. In general, according to the American Council on the Teaching of Foreign Languages (ACTFL), Intermediate-level speakers are able to create with the language, combining and recombining learned material to provide personal information, speak in sentences on a variety of familiar topics, ask questions, and initiate, sustain and conclude a simple social or transactional task. For more information visit our website, Department of World Languages or contact the Department for the latest details.

Certificate of Undergraduate Study in Spanish 12 s.h.

The requirements include the following four, 3 s.h. courses:

SPAN05.101	Spanish I
SPAN05.102	Spanish II

SPAN05.201	Spanish III
SPAN05.211	Spanish Reading and Conversation

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, study abroad, credits obtained through the College-Level Examination Program (CLEP) (up to 9 s.h. are accepted at Rowan in place of "Spanish I", "Spanish II" and "Spanish III" - contact the Testing Center, testingservices@rowan.edu, in the Academic Success Center, Savitz Hall, Suite 304, for more information), credits obtained through Advanced Placement (up to 9 s.h. are accepted at Rowan in place of "Spanish I", "Spanish II" and "Spanish III"), and by substituting other 200-400 level Spanish courses.

A placement exam is strongly recommended for students with existing proficiency in Spanish. For placement exam information, please contact Esther Mas Serna at mas@rowan.edu; students may earn the credits for any courses skipped via the Authorization for Credit by Examination process and these credits also count toward the program. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Advisor in order to determine course equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Spanish.

CERTIFICATE OF UNDERGRADUATE STUDY IN APPLIED SPANISH

Christine Larsen-Britt
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advise@rowan.edu

The Certificate of Undergraduate Study (CUGS) in Applied Spanish, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in Applied Spanish courses at the 200, 300 and 400 levels. This Certificate will enhance the profile of all job applicants across all fields of study, as it represents the ability to apply one's knowledge of Spanish to a variety of career fields, including, for example, business, medicine, translation, and education. The Certificate includes the following:

Required Course

SPAN05.212	Spanish Reading and Composition

Elective Courses
Choose three of the following

SPAN05.300	Spanish Phonetics
SPAN05.302	Introduction to Hispanic Linguistics
SPAN05.305	Oral Spanish
SPAN05.312	Spanish for Business A
SPAN05.313	Spanish for Medical Personnel
SPAN05.314	Spanish for Business B
SPAN05.315	Spanish for Law
SPAN05.316	Spanish for Medical Emergencies and Disaster Response
SPAN05.340	Introduction to Spanish Translation
SPAN05.350	Introduction to Spanish Interpretation
SPAN05.400	History of the Spanish Language
SPAN05.440	Special Topics (Applied)
SPAN05.441	Advanced Spanish Translation
SPAN05.450	Internship in Spanish (Applied)

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, and study abroad. For more information visit our website, Department of World Languages or contact the Department for the latest details. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Applied Spanish.

CERTIFICATE OF UNDERGRADUATE STUDY IN PENINSULAR SPANISH LITERATURE AND CULTURE

Christine Larsen-Britt
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856.256.4459
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The Certificate of Undergraduate Study (CUGS) in Peninsular Spanish Literature and Culture, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in related coursework at the 300 and 400 levels. This Certificate in Peninsular Spanish Literature and Culture enhances the profile of all job applicants across all fields of study, as it represents Advanced-level proficiency and the ability to access the culture of Spain through its literature, with a view to giving students an in-depth, sophisticated level of knowledge that will serve them in their professional life in many fields, including, for example, diplomacy, translation, education and politics.

The Certificate includes the following:

Required Course

SPAN05.301	Appreciation of Hispanic Literature

Elective Courses
Choose three of the following

SPAN05.320	Spanish Civilization and Culture
SPAN05.325	Readings in Contemporary Spanish Literature
SPAN05.326	Spanish Novel
SPAN05.381	Contemporary Spanish Theatre
SPAN05.440	Special Topics (Peninsular)
SPAN05.450	Internship in Spanish (Peninsular)
SPAN05.481	Generation of '98
SPAN05.482	Contemporary Spanish Novel

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, and study abroad. For more information visit our website, Department of World Languages or contact the Department for the latest details. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Peninsular Spanish Literature and Culture.

CERTIFICATE OF UNDERGRADUATE STUDY IN SPANISH AMERICAN LITERATURE AND CULTURE

Christine Larsen-Britt
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The Certificate of Undergraduate Study (CUGS) in Spanish American Literature and Culture, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in related coursework at the 300 and 400 levels. This Certificate in Spanish American Literature and Culture enhances the profile of all job applicants across all fields of study, as it represents Advanced-level proficiency and the ability to access the culture of Latin America through literature, with a view to giving students the in-depth knowledge that will serve them in their professional life in many fields, including, for example, diplomacy, translation, education and politics. The Certificate includes the following:

Required Course

SPAN05.301	Appreciation of Hispanic Literature

Elective Courses
Choose three of the following

SPAN05.324	Spanish American Civilization and Culture-M/G
SPAN05.327	Spanish American Poetry
SPAN05.328	Spanish American Theatre
SPAN05.383	Spanish American Short Story
SPAN05.426	Spanish American Novel
SPAN05.440	Special Topics (Spanish American)
SPAN05.450	Internship in Spanish (Spanish American)

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, and study abroad. For more information visit our website, Department of World Languages or contact the Department for the latest details. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Spanish American Literature and Culture.

CERTIFICATE OF UNDERGRADUATE STUDY IN SPANISH TRANSLATION AND INTERPRETATION

Christine Larsen-Britt
Advisor
856.256.4459
advise@rowan.edu

The Certificate of Undergraduate Study (CUGS) in Spanish Translation and Interpretation, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with the Program Advisor, Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, recognizes students' completion of 12 s.h. in related coursework at the 300 and 400 levels. This Certificate in Spanish Translation and Interpretation enhances the profile of all job applicants across all fields of study, as skills in Translation and Interpretation are in high demand across a wide variety of career fields, such as in medicine, business, government, education, arts, and media. The Certificate includes the following:

Required Course

SPAN05.340	Introduction to Spanish Translation
SPAN05.350	Introduction to Spanish Interpretation
SPAN05.441	Advanced Spanish Translation
SPAN05.450	Internship in Spanish (Applied)

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, and study abroad. For more information visit our website, Department of World Languages or contact the Department for the latest details. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Spanish Translation and Interpretation.

CERTIFICATE OF UNDERGRADUATE STUDY IN SPANISH FOR HEALTH PROFESSIONS

Christine Larsen-Britt
Advisor
856.256.4459
advise@rowan.edu

The Certificate of Undergraduate Study (CUGS) in Spanish for Health Professions (12 s.h.), which may be declared in the World Languages Department in Bunce Hall, Suite 305, with Christine Larsen-Britt (advise@rowan.edu), with Advisors in the School of Health Professions, or at the University Advising Center, Suite 323, Savitz Hall, includes a combination of Spanish language coursework at the Intermediate level and subject-specific coursework offered both in Spanish and in English. As such, the program is designed to enhance students' prospects on the job market by making them more effective in treating and communicating with Spanish-speaking patients and clients.

Required course (3 s.h.):

SPAN05.212	Spanish Reading and Composition (pre-req. 4th semester Spanish - SPAN05.211)

Choose 1 of the following (3 s.h.):

HLT00.302	Global Health
HES00.202	Medical Terminology
HLT00.301	Health and Diverse Populations

Choose 2 of the following (6 s.h.):

SPAN05.305	Oral Spanish (pre-req. SPAN05.211)
SPAN05.313	Spanish for Medical Personnel (pre-req. SPAN05.212)
SPAN05.316	Spanish for Medical Emergencies and Disaster Response (pre-req. SPAN05.211)

Students with existing proficiency in Spanish should contact Esther Mas (mas@rowan.edu) regarding the placement exam. Students may place into any of the first five semester levels of Spanish language, as high as Spanish Reading and Composition (SPAN 05.212). It is possible for students to earn credits for the courses that they skip via the Authorization for Credit by Examination process. Contact Esther Mas (mas@rowan.edu) for more details about this option.

Students without existing proficiency in Spanish will first need to complete 12 s.h. of lower-level coursework in Spanish, including Spanish I (SPAN 05.101), Spanish II (SPAN 05.102), Spanish III (SPAN 05.201), and Spanish Reading and Conversation (SPAN 05.211).

Students may satisfy program requirements through coursework completed at Rowan University, transfer credits obtained from coursework at other institutions, or through study abroad. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with the Program Advisor in order to determine course equivalents. Non-matriculated students may also earn the Certificate of Undergraduate Study (CUGS) in Spanish for Health Professions.

Center for Interdisciplinary Studies

Emily Blanck
Executive Director
Robinson 215E
blancke@rowan.edu

The Center for Interdisciplinary Studies provides a home for undergraduate and graduate programs affiliated with the College of Humanities and Social Sciences. Recognizing the value of interdisciplinary study to uncover the deepest understanding of a topic, the center promotes and facilitates interdisciplinary research and collaboration.

AFRICANA STUDIES

Chanelle Rose
Coordinator
Robinson Hall 216L
856.256.4500 ext. 53963
rosec@rowan.edu

Rowan University's Africana Studies Program is a significant component of the Institution's commitment to multidisciplinary education and the inclusion of the study of the experiences of diverse peoples within its academic programs and services. The program offers a Bachelor Degree in Africana Studies and an undergraduate minor in African American Studies, through cooperative arrangements with about 12 academic departments of the University.

BACHELOR OF ARTS IN AFRICANA STUDIES

Africana Studies is an interdisciplinary major designed to engage undergraduate students in a critical examination of past and contemporary challenges, experiences and contributions of people of African descent throughout the world. Hence the program is both national and international in scope. The program emphasizes two major goals: (1) discovering, mastering and creating knowledge and (2) using those understandings and skills in service to institutions and communities.

Students are required to take 12 Africana Electives from two different banks: Africana and Comparative/World Electives. To maximize their career path options, students will be able to take the Africana Studies Major with a minor in one of the academic disciplines or as a double major.

Graduates with a Bachelor Degree in Africana Studies will have the intellectual, technical, and social competencies to be competitive as applicants for employment and graduate or professional study in the US or abroad in a broad range of fields including: Education, law and justice, business, international affairs, federal and state public services, politics, social work, public administration, library and museum services, health sciences and public health, theatre, psychology and the social sciences, economic development, non-profit management, writing, journalism, ethnic studies, and the arts.

The program promotes regular academic advising and consultation with the program coordinator or other faculty and staff to enable students to follow a clear sequence of courses both in general education and the major. This is especially essential for students pursuing a double major, who will need assistance in fulfilling the requirements of both majors by utilizing the flexibility provided in the current model of general education.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the University Rowan Experience as described on page 4

Experiential Learning

Must choose one course from the bank of experiential learning courses below.

AFST11.310	Service Learning Seminar in Africana Studies
AFST11.350	Topics in Africana Studies: Model African Union
HIST05.378	Special Topics: History of Camden
INTR01.470	Semester Abroad
INTR20.390	Interdisciplinary Case Studies in the Liberal Arts
INTR20.395	Experiential Learning in the Humanities & Social Sciences
INTR20.399	Internship in the Applied Liberal Arts
IS25.350	Special Topics in International Studies: Model United Nations

Program Requirements

Foundational or Core Requirements: 18 s.h.

AFST11.104	Introduction to Africana Studies
HIST05.394	Sub-Saharan Africa to 1800
AFST11.304	Africana Social/Political Thought
AFST11.450	Senior Seminar in Africana Studies*

****Optional: Students can complete this requirement in the hybrid online Model African Union course or History Senior Seminar capstone course OR students can use their research paper in a seminar(intensive writing course typically offered in junior or senior year)as long as the paper covers an Africana Studies theme.**

Each Africana Studies Major will take 12 credit hours of courses from the Africana Electives and 6 credit hours of courses from the Comparative/World Electives; two of the courses from the Comparative/World Electives must be at the 100/200 level and four must be at the 300/400 level.

Africana Electives (4 courses) 12 sh

AFST11.310	Service Learning Seminar
AFST11.350	Topics: Black Masculinity
AFST11.350	Topics: International Model African Union
ZULU16.101	Elementary Zulu I
ZULU16.102	Elementary Zulu II
ANTH02.250	Introduction to Anthropological Linguistics

ANTH02.311	Peoples & Cultures of Africa
ANTH02.335	Archaeology of Ancient Egypt
ANTH02.275	Anthropology of Race and Ethnicity
ARAB12.101	Elementary Arabic I
ARAB12.102	Elementary Arabic II
CMS01.406	African American Culture in Media
ECON04.360	Urban Economics
ENGL02.354	African American Literature I
ENGL02.355	African American Literature II
ENGL02.355	African American Literature Since Harlem Renaissance
ENGL02.365	U.S. Latino/a Literature
ENGL02.218	Multiethnic Literatures of the United States
GEOG16.345	Geography of Africa
GEOG16.344	Geography of Latin America
HIST05.397	Sub-Saharan Africa Since 1800
HIST05.437	20th Century African Nationalism
HIST05.322	Civil War & Reconstruction
HIST05.376	African American History to 1865
HIST05.377	African American History Since 1865
HIST05.373	Civil Rights and Black Power
HIST05.429	Proseminar [must focus on an African American/Africana topic]**
HIST05.443	Global Proseminar [must focus on an African topic]**
HIST05.347	Traditional Latin America
HIST05.350	Modern Latin America
HIST05.409	Latin America Revolution & Reform
HIST05.362	History of Mexico & the Caribbean
HIST05.411	Topics in Latin American History [must focus on an Africana topic]
LAWJ05.205	Minorities, Crime, and Justice
MUS40.344	Hip Hop Culture: Music, Lifestyle, Fashion and Politics
MUS06.220	The Music of African Americans
MUSG06.115	Growth & Development of Jazz
PHIL09.327	Philosophy of Race
POSC07.324	Black Americans & American Politics
POSC07.340	Civil Rights and Civil Liberties
POSC07.323	Politics of Race, Poverty & Welfare
POSC07.347	Politics & Societies of Africa
POSC07.441	Contemporary Problems of Modern Africa
PSY01.235	African American Psychology
PSY01.310	Psychology of Racism & Ethnocentrism
RTF03.280	African American Film History
SOC08.120	Sociology of Minority Groups
SOC08.488	Critical Race Theory: Social Justice, Advocacy and Intervention
SPAN05.323	Survey of Spanish American Literature I
SPAN05.329	Survey of Spanish American Literature II
SPAN05.324	Spanish American Civilization & Culture
SPAN05.327	Spanish American Poetry
SPAN05.328	Spanish American Theatre
SPAN05.326	Spanish American Novel
THD07.301	African/African American Theatre
THD08.311	African Influences in American Dance

**Relevant special topics courses in any discipline [must be approved by Coordinator]

Comparative/World Electives (2 courses) 6sh

Two of these courses (Comparative/World Electives) must be at the 100/200 level and four must be at the 300/400 level.

ANTH02.210	Natives of South America
ECON04.310	Global Economics
ECON04.225	Women in the Economy
ENGL02.116	Introduction to Global Literatures in English
ENGL02.200	Gender, Sexuality, and Literature
GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography
HIST05.120	World History Since 1500
HIST05.383	Islamic Civilization
HIST05.417	Women in Islam
HIST05.413	Comp. Race Relat.: S. Afr/Brazil/US

HIST05.422	Women in American History
HIST05.425	History of Feminisms
HIST05.441	Imperialism & Colonialism
HONR05.390	Linguistics and Cultures of Native South America (Honors Selected Topics)
HONR05.390	Modern Descendants of the Incas: Quechua Language, Culture and History (Honors Selected Topics)
INTR01.130	Women in Perspective
INTR01.200	Issues in Women's Health
LAWJ05.330	Problems in World Justice
LAWJ05.346	Women, Crime, and Criminal Justice
LAWJ05.401	Law & Human Rights
MKT09.379	International Marketing
MUSG06.447	Music in World Cultures
POSC07.230	Comparative Political Systems
POSC07.321	Contemporary World Problems
POSC07.311	Women in American Politics
PSY01.105	Psy. of Ethnic Identity & Community
PSY01.200	Psy. of Women & Cultural Experience
RTF03.272	Images of Women in Film
SOC08.330	Soc. Stratif. in Contemp. Societies
SOC08.327	Comparative Education

Program Electives 9 s.h.

Students majoring in Africana Studies must elect a minimum of twelve credit hours from courses offered under any of the areas above. At least two (2) of the electives from the Africana and Comparative/World Electives must be at the 300 or 400 level.

Other Requirements

In addition to the hours needed to fulfill the Rowan University General Education Requirements, Africana Studies majors must take the following additional credits from the courses listed under the Social and Behavioral Sciences Banks and the History, Humanities and Language Banks.

Courses

Social and Behavioral Sciences	6 s.h.
Foreign/World Language (Zulu, Swahili, Arabic, French, Spanish, or Portuguese)	6 s.h.
Non-Program Electives	8-9 s.h.

Study Abroad

Although Study Abroad is not required, students may complete a portion of their comparative/world electives through off campus/abroad study.

Grade-Point Average

Students who choose to major and graduate in Africana Studies must have and maintain a minimum overall grade point average of 2.30, and the lowest acceptable grade for a course is a C-.

Free Electives 21 s.h.

AFRICAN AMERICAN STUDIES MINOR

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Required Credits **18 s.h.**

The African American Studies Minor consists of interdisciplinary curricular offerings that engage faculty and students in critical analysis, reflection and transformational thinking about African Americans within the framework of the multicultural diversity and global connectedness of American society. The African American Studies Program dates back to the late 1960s when the Civil Rights Movement across the nation and the Southern New Jersey region led to the establishment of the King Scholar Program (The Educational Opportunity Fund or EOF Program) in the Fall of 1968. Following the offering of the first Black History course by the History Department in 1969 in response to Black student demands, a slow but steady growth in African American and African curricular offerings over the course of the next two decades culminated in the formal establishment of the African American Studies minor in 1989.

To complete the 18 semester hours of course work required for the minor, students should take six semester hours of requirements and an additional twelve semester hours of electives selected from the related elective courses listed below. Overall, the 18 semester hours of course work completed for the minor must include offerings from at least three academic

departments. Students interested in pursuing the minor are encouraged to sign up in the RU Office of Career Advancement and to contact the coordinator for further information and advisement.

Core Requirements		6 s.h.
AFST11.104	Introduction to Africana Studies	
ENGL02.354	African/American Literature I	
or ENGL02.355	African/American Literature II	
or HIST05.377	Afro-American History Since 1865	
or HIST05.397	Sub-Saharan Africa Since 1800	
Electives		12 s.h.
AFST11.304	Africana Social/Political Thought	
AFST11.350	Topics: International Model African Union	
ANTH02.335	Archaeology of Ancient Egypt	
ANTH02.275	Anthropology of Race and Ethnicity	
ENGL02.116	Introduction to Global Literatures in English	
ENGL02.200	Gender, Sexuality, and Literature	
ENGL02.218	Multiethnic Literatures of the United States	
ENGL02.354	African American Literature I	
ENGL02.355	African/American Literature II	
ENGL02.365	U.S. Latino/a Literature	
ANTH02.202	Introduction to Cultural Anthropology	
GEOG16.140	World Regional Geography	
HIST05.376	African American History to 1865	
HIST05.394	Sub-Saharan Africa to 1800	
HIST05.397	Sub-Saharan Africa Since 1800	
HIST05.441	Imperialism/Colonialism	
HIST05.322	Civil War and Reconstruction	
HIST05.413	Comparative Race Relations	
HIST05.425	History of Feminism	
HIST05.422	Women in American History	
LAWJ05.330	Problems of World Justice	
LAWJ05.346	Women, Crime, & Criminal Justice	
LAWJ05.401	Law and Human Rights	
LAWJ05.205	Minorities, Crime & Justice	
MUSG06.115	Growth & Development of Jazz	
MUSG06.220	The Music of African Americans	
POSC07.323	Politics of Race/Poverty/Welfare	
POSC07.340	Civil Rights and Civil Liberties	
POSC07.324	Black Americans & American Politics	
PSY01.200	Psychology of Women & Cultural Experience	
PSY01.235	African American Psychology	
PSY01.105	Psychology of Ethnic Identity & Community in America	
PSY01.310	Psychology of Racism & Ethnocentrism	
RTF03.272	Images/Women in Film	
RTF03.280	African American Film History	
SOC08.230	Sociology of Minority Groups	
SOC08.330	Social Stratification in Contemporary Societies	
SOC08.488	Critical Race Theory: Social Justice, Advocacy and Intervention	
THD08.146	World Dance Forms	
THD07.301	African, African American Theatre	
THD08.311	African Influences on American Dance	
ZULU16.101	Zulu I	
ZULU16.102	Zulu II	

Bachelor of Arts in American Studies

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The American Studies major is a guided interdisciplinary program that offers students a rigorous and flexible major. The program in American Studies focuses upon concepts of citizenship and is ideal to pair with almost any pre-professional program that deals with the American people. Introduction to American Studies AMST13.101 acquaints students with basic interdisciplinary methodology and provides students with insight into popular culture and citizenship. Students will follow up this course with a rigorous methods course in Interdisciplinary Research and Writing AMST 13.301 that prepares

students for the upper level coursework.

In addition, you will study in the College of Communication and most of the departments in the College of Humanities & Social Sciences addressing issues in American society, culture, history, geography and popular culture. Students will also take an internship course to prepare themselves for their future careers.

The program will introduce you to the diversity of peoples who comprise America and to the United States' relationship to the world. The highlight of every student's career is the Senior Seminar in American Studies AMST13.402, an intense, discussion-led, capstone experience.

The major offers you the flexibility to tailor your program to your personal interests and the time to further explore those courses that interest you or that best apply to your specific career goals by taking courses in several disciplines on American topics. Students are encouraged to specialize by taking several courses from various departments on a similar topic.

Except for free electives, no course can be taken as Pass/Fail and all courses must be completed with a C- or better. Students who are not transfers must take a Rowan Seminar.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

- One free elective in Mathematics or Science (this course also satisfies a Math/Science Gen. Ed. Requirement)

Five introductory selections:

- American Government (this course also satisfies a Humanistic Literacy)
- Social Problems (this course also satisfies a Global Literacy)
- United States History to 1865 Or United States History Since 1865 (this course also satisfies a Humanistic Literacy)
- U.S. Literature I (this course also satisfies the Rowan Experience broad-based literature requirement)
- History of American Art (this course also satisfies an Artistic Literacy)

Required courses

AMST13.101	Introduction to American Studies
AMST13.301	Interdisciplinary Research and Writing (Prerequisite: COMP01.112)
AMST13.402	Senior Seminar in American Studies - WI (Prerequisite: AMST13.301 Interdisciplinary Research and Writing plus 5 courses in the major)

Core Choices

Eight American Studies Approved Courses (24 s.h.), six of which must be 300 or 400 level from the American Studies Approved Core Course list.

Those required credit hours will be composed of the following:

- Upper-level disciplinary requirement (18 s.h.)
  - One upper-level English course
  - One upper-level History course
  - Courses must come from a minimum of 4 disciplines

Topics requirement:

At least one of the Core Choice Courses must fulfill the following topic requirements, courses are labeled below in the American Studies Approved Core Course list.

- Diversity
- Gender
- Social Class
- U.S. in Global Perspective
- Media and Popular Culture

Internship Requirement: One course must be an internship

HIST05.495	Internship in History (I)
HSRV01.311	Field Experience for Human Services [I]
INTR20.399	Internship In Applied Liberal Arts [I]
ELEM02.448	Clinical Practice In Elementary Education [I] (Waived)

Note: Courses may double count for topics, Internship, and disciplinary requirements.

List of Eligible Courses by Discipline

D= Diversity, G=Gender, SC=Social Class, M=Media and Popular Culture, GL= U.S. in Global Perspective, I=Internship

American Studies

AMST13.320	American Studies for the Classroom

History

HIST05.150	U.S. History to 1865
HIST05.151	U.S. History since 1865
HIST05.321	U.S. History 1820-186
HIST05.322	Civil War and Reconstruction [D]
HIST05.324	Twentieth Century U.S.
HIST05.426	Colonial North America
HIST05.453	Gilded Age and Progressive Era
HIST05.334	Urban History of the U.S.
HIST05.338	America War to War
HIST05.427	History of the American Revolution & Early Republic
HIST05.371	U.S. Legal and Constitutional History to 1870
HIST05.372	U.S. Legal and Constitutional History since 1870
HIST05.373	Civil Rights and Black Power Movements (D)
HIST05.375	America Since 1945 [D, G, M]
HIST05.376	African American History to 1865 (D)
HIST05.377	African American History since 1865 [D]
HIST05.378	History of Camden
HIST05.407	History of World War II (GL)
HIST05.412	American Intellectual History
HIST05.414/415	U.S. Diplomatic History I/II [GL]
HIST05.422	Women in American History (G)
HIST05.429	Topics in U.S. History *(with approval from Coordinator, might fulfill other requirements)*
HIST05.436	U.S. Homefront 1941-1945
HIST05.438	History of the Vietnam War (GL)
HIST05.441	Imperialism and Colonialism [GL]
HIST05.471	History of the American West (D)
HIST05.472	Cultural History of the U.S. (M)
HIST05.474	U.S. Labor History (SC)
HIST05.475	History of NJ
HIST05.495	Internship in History (I)

English

ENGL02.113	Readings in U.S. Lit
ENGL02.200	Gender, Sexuality, and Literature [G]
ENGL02.205	Adolescent Literature
ENGL02.354	African American Literature I [D]
ENGL02.365	U.S. atino/a Literature [D]
ENGL02.355	African American Literature II [D]
ENGL02.313	U.S. Literature I
ENGL02.315	U.S. Literature II

ENGL02.317	Children's Literature: Texts and Contexts
ENGL02.322	Literature of the American Renaissance
ENGL02.324	American Realism And Naturalism
ENGL02.327	Modern American Poetry
ENGL02.423	The American Novel
ENGL02.424	American Dramatist
ENGL02.425	Contemporary Literature
ENGL05.301	American English Grammar

Africana Studies

AFST11.104	Introduction to Africana Studies [D, GL]
AFST11.304	Africana Social Thought [D, GL]

Anthropology

ANTH02.310	Indians of North America [D]
ANTH02.350	Comparative Cultures [GL]

Art History

ARHS03.310	History of American Art
ARHS03.230	Survey of Women Artists [G]

Communication Studies

CMS04.210	Mass Media and its Influences [M]
CMS04.215	Fiction to Film [M]
CMS04.310	Images of Gender in Popular Culture [M, G]
CMS04.315	Participatory Media [M]
CMS04.320	Communicating Gender [G, M]
CMS04.330	International Media Communication [GL, M]

Economics

ECON04.100	American Economic Systems

Geography

GEOG16.240	Geography of U.S. /Canada
GEOG16.302	Urban Geography [D, SC]
GEOG16.331	Geology of the National Parks
GEOG16.241	Geography of NJ [SC]
GEOG16.303	Political Geography [GL]

Interdisciplinary Studies

Other courses under this heading might apply to the major, with permission from Coordinator.

INTR01.130	Women and Gender in Perspective [G]
INTR20.399	Internship In Applied Liberal Arts [I]
INTR99.300	Environmental Internship [I]

Law and Justice

LAWJ05.202	American Police
LAWJ05.205	Minorities in Criminal Justice [D]
LAWJ05.312	Criminal Procedure II
LAWJ05.315	Criminal Justice and Social Conflict [D, SC]
LAWJ05.322	Illegal Drugs and Crime in America [D, SC]
LAWJ05.346	Women, Crime & Criminal Justice [G]
LAWJ05.335	Criminal Procedures I
LAWJ05.401	Law and Human Rights [GL]

Philosophy

PHIL09.228	American Philosophy
PHIL09.241	Philosophy and Society
PHIL09.393	Contemporary Moral Problems
PHIL09.328	Philosophy and Gender [G]

Political Science

POSC07.110	American Government
POSC07.220	State And Local Government
POSC07.230	Comparative Political Systems [GL]
POSC07.306	The Presidency
POSC07.310	American Constitutional Law
POSC07.311	Women in American Politics [G, M]
POSC07.320	International Relations [GL]
POSC07.321	Contemporary World Problems [SC, GL]
POSC07.323	Politics of Race, Poverty, and Welfare in the U.S. [D, G, SC, M]

POSC07.330	Contemporary U.S. Foreign Policy [GL]
POSC07.340	Civil Rights and Civil Liberties [D, G, SC]
POSC07.380	Politics On Film [M]
POSC07.400	American Political Thought [D, G, SC]
EDPA02.490	Public Service Internship [I]

Psychology

PSY01.200	Psychology of Women & Cultural Experience [G, D]
PSY01.235	African American Psychology [D]
PSY01.310	Psychology of Racism and Ethnocentrism [D]

RTF

RTF03.205	TV History and Appreciation [M]
RTF03.206	TV History and Appreciation, 1960s-1970s [M]
RTF03.272	Images of Women in Film [M, G]
RTF03.280	African American Film History [D, M]

Religion

REL10.210	Religion in America [G, D]
REL10.100	Religions of the World [GL]

Sociology

HSRV01.100	Introduction to Human Services [G, D]
HSRV01.311	Field Experience for Human Services [I]
SOC08.120	Introduction to Sociology
SOC08.220	Sociology of the Family
SOC08.221	Social Problems
SOC08.281	Sex and Sexuality [G]
SOC08.230	Sociology of Minority Groups [D, SC]
SOC08.320	Urban Sociology [D, SC]
SOC08.326	Socialization of the Child through Adolescence [G, D, SC]
SOC08.327	Comparative Education in Sociological Perspective [GL, SC]
SOC08.330	Social Stratification [G, D, SC]
SOC08.331	Classical Sociological Theory [G, D, SC]
SOC08.332	Contemporary Sociological Theory [G, D, SC]
SOC08.336	Sociology of Education [G, D, SC]
SOC08.362	Sociology Of Disability [D]
SOC08.365	Contemporary Jewish Life [D]
SOC08.370	Sociology of Women in Society [G]
SOC08.431	Social Psychology of City Life [SC]
SOC08.441	Sociology of Migration [D]
SOC08.450	Sociology of Ethnicity [D, G]
SOC08.488	Critical Race Theory [D, G]
SOC08.493	Gender Roles Seminar [G]

Theater

THD07.301	African, African-American Theatre: Intercultural Definitions [M, D]
THD07.360	Musical Theatre [M]

World Languages

ASL01.101	American Sign Language I
ASL01.102	American Sign Language II
ASL01.211	Intermediate American Sign Language I
ASL01.201	Intermediate American Sign Language II

Minor in American Studies

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The Minor in American Studies offers students a critical grounding in American society, history, and culture. It will serve students in a wide range of programs, especially those with a pre-professional emphasis. This credential would indicate that they have a deeper knowledge of America: its people, history, structures, and culture. In this minor, students begin with a course to introduce them to the field and interdisciplinary thinking and writing, AMST 13101 Introduction to American Studies. The second tier of classes provides a breadth of backgrounds in American history, literature, structures, and culture. Finally, students may customize and deepen their knowledge with the two-course upper-level requirement.

Required Courses 3 s.h.

AMST13.101	Introduction to American Studies

Interdisciplinary Options 12 s.h.

Choose one course from each section:

History 3 s.h.

HIST05.151	US History to 1865
HIST05.150	US History since 1865

Social Sciences 3 s.h.

POSC07.110	American Government
POSC07.230	Comparative Political Systems
SOC08.120	Introduction to Sociology

English 3 s.h

ENGL02.313	US Literature I
ENGL02.315	US Literature II

Culture 3 s.h.

REL10.210	Religion in America
GEOG16.240	US and Canada
RTF03.205	TV History and Appreciation
AFST11.104	Introduction to Africana Studies

Other American-themed lower-level courses may satisfy this requirement with permission from coordinator.

Electives 6 s.h.

Select two courses from this list, at least one must be upper level. * Pre-requisite: HIST 05304 Historical Methods or AMST 13301 Interdisciplinary Research and Writing.

AMST13.320	American Studies for the Middle School Classroom
AMST13.301	Interdisciplinary Research and Writing (Co-requisite AMST 13101 Introduction to American Studies)
HIST05.321	US History 1820-1861*
HIST05.322	Civil War and Reconstruction*
HIST05.324	Twentieth Century US*
HIST05.426	Colonial North America*
HIST05.334	Urban History of the US *
HIST05.453	Gilded Age and Progressive Era*
HIST05.338	America War to War*
HIST05.427	History of the American Revolution & Early Republic*
HIST05.371	US Legal and Constitutional History to 1870*
HIST05.372	US Legal and Constitutional History since 1870*
HIST05.373	Civil Rights and Black Power Movements *
HIST05.375	America Since 1945 *
HIST05.376	African American History to 1865 *
HIST05.377	African American History since 1865 *
HIST05.378	History of Camden
HIST05.407	History of World War II *
HIST05.412	American Intellectual History*
HIST05.422	Women in American History *
HIST05.429	Topics in US History (with approval from Coordinator)*
HIST05.436	US Homefront 1941-1945*
HIST05.438	History of the Vietnam War *
HIST05.441	Imperialism and Colonialism *
HIST05.471	History of the American West *
HIST05.472	Cultural History of the US *
HIST05.474	US Labor History *
HIST05.475	History of NJ *
HIST05.495	Internship in History *
ENGL02.200	Gender, Sexuality, and Literature
ENGL02.205	Adolescent Literature
ENGL02.354	African/American Literature I
ENGL02.365	U.S. Latino/a Literature
ENGL02.355	African\American Literature II
ENGL02.313	US Literature I (if not taken in the "English" bank)
ENGL02.315	US Literature II
ENGL05.301	American English Grammar
ANTH02.310	Indians of North America

ARHS03.310	History of American Art
ASL01.101	American Sign Language I
ASL01.102	American Sign Language II
CMS04.210	Mass Media and its Influences
CMS04.215	Fiction to Film
CMS04.310	Images of Gender in Popular Culture
CMS04.315	Participatory Media
CMS04.320	Communicating Gender
GEOG16.302	Urban Geography
GEOG16.241	Geography of NJ
GEOG16.303	Political Geography
INTR20.399	Internship in Applied Liberal Arts
LAWJ05.322	Illegal Drugs and Crime in America
LAWJ05.312	Criminal Procedure
LAWJ05.315	Criminal Justice and Social Conflict
LAWJ05.346	Women, Crime & Criminal Justice
LAWJ05.401	Law and Human Rights
PHIL09.228	American Philosophy
PHIL09.393	Contemporary Moral Problems
PHIL09.328	Philosophy and Gender [G]
POSC07.306	The Presidency
POSC07.310	American Constitutional Law
POSC07.311	Women in American Politics
POSC07.323	Politics of Race, Poverty, and Welfare in the US
POSC07.330	Contemporary US Foreign Policy
POSC07.340	Civil Rights and Civil Liberties
POSC07.380	Politics On Film
POSC07.400	American Political Thought
PSY01.310	Psychology of Racism and Ethnocentricism
SOC08.220	Sociology of the Family
SOC08.221	Social Problems
SOC08.281	Sex and Sexuality
SOC08.230	Sociology of Minority Groups
SOC08.320	Urban Sociology
SOC08.326	Socialization of the Child through Adolescence
SOC08.327	Comparative Education in Sociological Perspective
SOC08.330	Social Stratification
SOC08.331	Classical Sociological Theory
SOC08.336	Sociology of Education
SOC08.370	Sociology of Women in Society
SOC08.431	Social Psychology of City Life

* Pre-requisite: HIST05.304 Historical Methods or AMST13.301 Interdisciplinary Research and Writing

Bachelor of Arts in Area Studies
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The Area Studies Major offers concentration options in Asian Studies, European Studies, and Latin American Studies. Fundamentally, this interdisciplinary program is designed to teach students about methodological approaches used by different disciplines and encourage them to use these approaches to understand the diversity, influence, and complexity of the area under study. The cultural competence and language proficiency students gain through this program will prepare them to interact with and contribute to diverse populations with greater cultural awareness and sensitivity. Furthermore, the interdisciplinary foundation and core liberal arts career skills in critical thinking, research, and communication that the program develops enhance our students' preparation for graduate study, such as in the fields of area studies, international studies, international development, public policy, and law, as well as a wide variety of careers, including foreign and public service, international sales and business, humanitarian work, government, politics, international law, and global health care,

both abroad and with populations at home in the United States.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Non-Program Courses Required		18 s.h.
POSC07.230	Comparative Political Systems *(if not already taken in fulfillment of the Rowan Core Global Literacy requirement)*	3 s.h.
HIST05.120	World History since 1500 *(if not already taken in fulfillment of the Rowan Core Global Literacy requirement)*	3 s.h.
	Relevant first-semester language course *(if not skipped via placement exam/interview)*	3 s.h.
	Relevant second-semester language course *(if not skipped via placement exam/interview)*	3 s.h.
	Relevant third-semester language course *(if not skipped via placement exam/interview)*	3 s.h.
	Relevant fourth-semester language course *(if not skipped via placement exam/interview)*	3 s.h.
Major Requirements		30 s.h.
Foundational Courses Required		9 s.h.
POSC07.321	Contemporary World Problems	3 s.h.
IS25.300	Research Methods in International Studies	3 s.h.
IS25.400	Senior Seminar in International Studies	3 s.h.

Study Abroad or Internship Requirement

Study abroad on a credit-bearing program in a country in the area of concentration OR Internship (3 s.h.) with a focus on the area of concentration or its speakers. Internship credits (3 s.h.) count towards Concentration requirements (in place of one Concentration Elective below)

Concentration in Asian Studies

Fifth-semester Language Course Required*

JAPA08.212	Intermediate Japanese III	3 s.h.

*Credits earned through the study of another approved language such as Chinese may satisfy this requirement.

Introductory Area Studies Course Required

ENGL02.112	Readings in Asian Literature	3 s.h.

Modern History Course Required (choose one of the following)

HIST05.351	Modern Japan	3 s.h.
HIST05.355	Modern China	3 s.h.

Choose four of the following from at least three departments with at least two courses at the 300/400 level		12s.h.
ARHS03.231	Survey of Asian Art	3 s.h.
ENGL02.360	Asian American Literature	3 s.h.
GEOG16.343	Geography of Asia	3 s.h.
HIST05.356	Late Imperial China	3 s.h.
HIST05.408	Chinese Cultural History	3 s.h.
HIST05.438	History of the Vietnam War	3 s.h.
HIST05.446	Race, Identity, and History in East Asia	3 s.h.
MUSG06.447	Music in World Cultures I: Asia and Oceania	3 s.h.
PHIL09.330	Asian Thought	3 s.h.
PHRE11.310	Buddhism	3 s.h.
PHRE11.330	Daoism	3 s.h.
PHRE11.350	Spirituality and Healing	3 s.h.
POSC07.350	Introduction to Asian Political Systems	3 s.h.
REL10.230	Religions of Asia	3 s.h.
SOC08.391	Ethnic Minorities in China	3 s.h.

Concentration in European Studies

Fifth-semester Language Course Required (choose one of the following) *

SPAN05.212	Spanish Reading and Composition	3 s.h.
FREN02.212	French Reading and Composition	3s.h.
GERM03.212	German Reading and Composition	3 s.h.

*Credits earned through the study of another approved language such as Italian may satisfy this requirement.

Introductory Area Studies Course Required (choose one of the following) 3 s.h.

SPAN05.320	Spanish Civilization and Culture	3 s.h.
FREN02.320	French Civilization and Culture	3 s.h.
GERM03.320	German Civilization and Culture	3 s.h.

Modern History Course Required (choose one of the following) 3 sh

HIST05.315	Twentieth Century Europe to 1945	3 s.h.
HIST05.316	Twentieth Century Europe since 1945	3 s.h.

Choose four of the following from at least three departments with at least two courses at the 300/400 level. 12 sh

ENGL02.473	Twentieth Century British Literature	3 s.h.
ENGL02.482	Modern European Literature	3 s.h.
FREN02.100	Masterpieces of French Literature in English Translation	3 s.h.
FREN02.315	Introduction to French Literature	3 s.h.
FREN02.324	Appreciation of French Literature	3 s.h.
FREN02.325	Readings in Contemporary French Literature	3 s.h.
FREN02.326	The French Novel	3 s.h.
FREN02.421	The French Short Story	3 s.h.
GEOG16.342	Geography of Europe	3 s.h.
GEOG16.346	Geography of Russia and its Neighbors	3 s.h.
GERM03.100	Masterpieces of German Literature in English Translation	3 s.h.
HIST05.314	Europe 1871-1914	3 s.h.
HIST05.326	Britain since 1715	3 s.h.
HIST05.343	Russia to 1914	3 s.h.
. HIST05.344	Russia since 1914	3 s.h.
. HIST05.406	Nazi Germany and the Holocaust	3 s.h.
HIST05.407	History of World War II	3 s.h.
HIST05.419	Women in Modern Europe	3 s.h.
HIST05.420	British Empire and Commonwealth	3 s.h.
HIST05.441	Imperialism and Colonialism	3 s.h.
HIST05.443	Topics in Global History: Stalinism	3 s.h.
HIST05.445	History of the Cold War	3 s.h.
POSC07.341	Politics of Russia, Eastern Europe and Eurasia	3 s.h.
POSC07.346	Politics and Society of Great Britain	3 s.h.
POSC07.351	Russian Foreign Policy	3 s.h.
REL10.214	Religions of the Western World	3 s.h.
SOC08.399	Sociology of the Holocaust (WI)	3 s.h.
SPAN05.100	Masterpieces of Hispanic Literature in English Translation	3 s.h.
SPAN05.301	Appreciation of Hispanic Literature	3 s.h.
SPAN05.325	Readings in Contemporary Spanish Literature	3 s.h.
SPAN05.326	Spanish Novel	3 s.h.
SPAN05.400	History of the Spanish Language	3 s.h.
SPAN05.440	Special Topics (Peninsular Spanish)	3 s.h.
SPAN05.481	Generation of '98	3 s.h.
SPAN05.482	Contemporary Spanish Novel	3 s.h.

Concentration in Latin American Studies

Fifth-semester Language Course Required

SPAN05.212	Spanish Reading and Composition	3 s.h.

Introductory Area Studies Course Required

SPAN05.324	Spanish American Civilization and Culture	3 s.h.

Modern History Course Required

HIST05.350	Modern Latin America	3 s.h.

Choose four of the following from at least three departments with at least two courses at the 300/400 level.

ANTH02.210	Natives of South America	3 s.h.
ANTH02.326	The Maya	3 s.h.
ENGL02.365	U.S. Latino/a Literature	3 s.h.

GEOG16.344	Geography of Latin America	3 s.h.
HIST05.347	Colonial Latin America	3 s.h.
HIST05.362	History of Mexico & the Caribbean	3 s.h.
HIST05.409	Latin American Revolutions and Reform	3 s.h.
HIST05.411	Topics in Latin-American History	3 s.h.
HONR05.390	Linguistics and Cultures of Native South America	3 s.h.
HONR05.390	Modern Descendants of the Incas: Quechua Language, Culture and History	3 s.h.
	Approved internship	3 s.h.

Free Electives - at least 48 s.h.
Total Credits in Program 120 s.h.

Bachelor of Arts in International Studies

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International Studies is an interdisciplinary major designed to engage students in an in-depth examination of international politics, economics, history, society, and culture. Students will pursue one of five concentrations: International Business and Economics, Global and Comparative Perspectives, Global Health, Global Security, or Middle East and African Studies. International Studies majors in all concentrations will gain an understanding of major global issues and analyze their own society in a broader global context; they will also learn how to apply interdisciplinary approaches to global problems and issues and acquire strong research, critical thinking, and communication skills.

Students considering a major in International Studies are encouraged to consult with their advisor early in their academic career so they can develop a coherent program of study within their concentration. International Studies majors are very strongly encouraged to study abroad for at least a semester in a country relevant to their area of concentration. Students should also consider pursuing a double major in International Studies and another discipline to enhance their career prospects; students can complete all requirements to double major in International Studies and virtually any major in the College of Humanities & Social Sciences and Communication & Creative Arts within four years (120 credits). With careful planning, International Studies majors with a concentration in International Business and Economics could potentially earn a double major in the Rohrer College of Business such as Marketing, Management, or Entrepreneurship with 130 credits.

International Studies majors must have a minimum 2.0 overall G.P.A. to qualify for graduation.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All International Studies majors must complete the Rowan Experience requirements as described on page 4

Program Requirements

Non-Program Courses up to 27 s.h.

(may also fulfill Rowan Core or General Education Requirements)

ECON04.101	Introduction to Macroeconomics
ECON04.102	Introduction to Microeconomics

***One** of the following (3 s.h.)*

ENGL02.116	Introduction to Global Literatures in English
ENGL02.112	Readings in Asian Literature
GERM03.100	Masterpieces of German Literature in English Translation
FREN02.100	Masterpieces of French Literature in English Translation
SPAN05.100	Masterpieces of Hispanic Literature in English Translation
ITAL04.100	Masterpieces of Italian Literature in English Translation
THD07.440	Contemporary World Theatre

- Four semesters of a foreign language-- **in the same language if available (up to 12 s.h.)**
- Students may fulfill the language requirement by completing higher-level foreign language courses, e.g. students who pass the placement examination for first-year Spanish only need to complete second-year Spanish courses.

One of the following Experiential Learning Courses (0-6 s.h.)

AFST11.350	Topics in Africana Studies: Model African Union
EDPA02.490	Public Service Internship
INTR01.470	Semester Abroad
INTR20.390	Interdisciplinary Case Studies in the Liberal Arts
INTR20.395	Experiential Learning in the Humanities & Social Sciences
INTR20.399	Internship in the Applied Liberal Arts
IS25.350	Special Topics in International Studies: Model United Nations

Foundational Courses 12 s.h.

(may also fulfill Rowan Core or General Education Requirements)

The following (6 s.h.)

IS25.100	Global Challenges
HIST05.120	World History since 1500

One of the following (3 s.h.)

ANTH02.202	Cultural Anthropology
REL10.100	Religions of the World

One of the following (3 s.h.)

GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography
GEOG16.100	Earth, People, and Environment

Upper-Level and Capstone Courses 9 s.h.

IS25.300	Research Methods in International Studies –WI
POSC07.320	International Relations
IS25.400	Senior Seminar in International Studies

Concentrations 15 s.h.

Students choose one of the following concentrations:

- International Business and Economics
- Global and Comparative Perspectives
- Global Health
- Global Security
- Middle East and African Studies

Non-Program Required Courses	21-27 s.h.
Major Requirements	36 s.h.
Rowan Core/General Education, Rowan Experience, and Free Electives	57-63 s.h.
Total Credits	120 s.h.

Concentration Options (15 s.h. each)

Students must choose one concentration, and they should work with their advisor to develop a coherent plan of study within it. This is especially important for students pursuing the Global and Comparative Perspectives concentration. Students are very strongly encouraged to study abroad for at least a semester in a country relevant to their concentration.

International Business and Economics Concentration 15 s.h.

One of the following courses (3 s.h.)

MKT09.200	Principles of Marketing
MIS02.234	Management Information Systems

One of the following management courses (3 s.h.)

MGT98.242	Legal Environment of Business
MGT06.300	Organizational Behavior

Three of the following courses (9 s.h.)

ECON04.310	Global Economics
ECON04.307	Economic Development
ECON04.320	Contemporary Economic Systems
MGT06.330	Managing International Business
MKT09.379	International Marketing
SCL01.380	Global Supply Chain
	One 300-400 level course from any other International Studies Concentration

Global and Comparative Perspectives Concentration 15 s.h.

Students select five courses (15 s.h.) from the list below. At least three of the courses selected (9 s.h) must be 300-400 level courses from at least two different disciplines. The other two courses (6 s.h.) taken for the concentration may be any level or discipline.

ANTH02.202	Cultural Anthropology
ANTH02.321	Cultural Ecology
ANTH02.322	Sex and Sex Roles in a Cross Cultural Perspective
ANTH02.350	Comparative Cultures
ANTH02.250	Introduction to Anthropological Linguistics
ANTH02.370	Peasant Societies and Cultures of the World
CMS04.360	Intercultural Communication
ECON04.303	Principles of Economics: Global Perspectives
ECON04.307	Economics of Developing Nations
ECON04.310	Global Economics
ECON04.320	Contemporary Economic Systems
ENGL02.473	Global Modernisms
ENGL02.475	Special Topics in Global Literatures in English
GEOG16.100	Earth, People, and Environment
GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography
GEOG16.301	Economic Geography
GEOG16.303	Political Geography
HIST05.381	Modern Jewish History
HIST05.413	Comparative Race Relations
HIST05.415	US Foreign Relations Since 1900
HIST05.425	History of Feminisms
HIST05.441	Imperialism and Colonialism
HIST05.445	History of the Cold War
LAWJ05.175	Comparative and International Criminal Justice
LAWJ05.330	Problems in World Justice
LAWJ05.401	Law and Human Rights
MUSG06.447	Music in World Cultures - Asia and Oceana
MUSG06.448	Music in World Cultures – Africa, India, Near & Middle East
PHIL09.211	Ancient Philosophy
PHIL09.213	Modern Philosophy
POSC07.230	Comparative Political Systems
POSC07.321	Contemporary World Problems
POSC07.420	International Law
POSC07.421	International Organizations
REL10.100	Religions of the World
RTF03.294	Contemporary International Cinema
SOC15.322	Sociology of Population
SOC08.327	Comparative Education in a Sociological Perspective
THD07.440	Contemporary World Theatre
THD08.146	World Dance Forms
	One course from any other International Studies concentration

Global Health Concentration 15 s.h.

Both of the following courses (6 s.h.)

ANTH02.355	Global Health in Anthropological Perspective
PHIL09.341	Biomedical Ethics

Three of the following courses (9 s.h.). Note that these courses must come from at least two disciplines and that at least one must be a 300-400 level course.

ANTH02.221	Human Variation
ANTH02.215	Medical Anthropology
ANTH02.312	Anthropological Perspectives on Physical Growth and Development
ANTH02.420	Psychological Anthropology
CMS04.385	Constructing Health
ECON04.351	Health Economics
HIST05.447	History of Medicine in Africa
HLT00.302	Global Health
PHRE11.350	Spirituality and Healing
PHIL09.376	Philosophy of Medicine
SOC08.422	Social Determinants of Health: Theory, Method, and Intervention

Global Security Concentration 15 s.h.

Take this course

IS25.310	Global Security Clinic

Students should select 4 more courses (12 s.h.) from the following banks. Courses must be offered by at least two different departments. At least two courses must be at the 300- or 400- level. No more than one course can come from the "Context and Advanced Language Study" bank.

Global Security and the Environment Bank

EVSC01.121	Global Environmental Change
ENST94.101	Planet in Peril: Environmental Science in the 21st Century
GEOL01.133	Climate, Catastrophes, Civilizations and Collapses
ECON04.210	Environmental Economics
SOC08.400	Environment, Policy, and Society
IS25.350	Special Topics in International Studies (if environment-related)

Global Security and Health Bank

HLT00.302	Global Health
ANTH02.355	Global Health in Anthropological Perspective
POSC07.370	Special Topics in Political Science: Politics, Pathogens, and Pandemics in the World
IS25.350	Special Topics in International Studies (if health- related)
DPEM00.444	Emerging Health Threats: Risks and Surveillance
SOC08.451	Health Movements in the Americas

Global Security and Disaster Response Bank

DPEM00.280	Global Catastrophes
DPEM00.300	Bioterrorism and Weapons of Mass Destruction
SOC08.328	Sociology of Disasters and Crisis
DPEM00.325	Technology and Border Surveillance in Homeland Security
LAWJ05.326	International Terrorism
IS25.350	Special Topics in International Studies (if related to disaster response)
SOC08.490	Social Dynamics of Political Violence, Insurgency and Civil Unrest
GEOG16.334	The Geography of Natural Disasters

Context and Advanced Language Study Bank

POSC07.319	International Security
IS25.350	Special Topics in International Studies (if related to global security)
HIST05.444	Islamist Movements
LAWJ05.280	Homeland Security
LAWJ05.329	Intelligence, Policing, and Counterterrorism
POSC07.321	Contemporary World Problems
SOC08.441	Sociology of Migration: Contemporary Perspectives
GEOG16.301	Natural Resources, Capitalism, and Society
SPAN05.316	Spanish for Medical Emergencies and Disaster Response
SPAN05.441	Advanced Spanish Conversation
ARAB12.301	Advanced Arabic I
ARAB12.302	Advanced Arabic II

Middle East and African Studies Concentration 15 s.h.

Students select five courses (15 s.h.) from the list below. At least three of the courses selected (9 s.h.) must be 300-400 level courses from at least two different disciplines. The other two courses (6 s.h.) taken for the concentration may be any level or discipline. At least two semesters (6 s.h.) of foreign language taken for the International Studies non-program requirements should be related to the Middle East and African Studies Concentration, e.g. Arabic or French.

ANTH02.311	People and Cultures of Africa
GEOG16.345	Geography of Africa
AFST11.104	Introduction to Africana Studies
AFST11.304	Africana Social Thought
HIST05.394	Sub-Saharan Africa to 1800
HIST05.397	Sub-Saharan Africa since 1800
HIST05.413	Comparative Race Relations
HIST05.447	History of Medicine in Africa
HIST05.443	Topics in Global History: Children and Family in Africa
HIST05.437	Twentieth Century African Nationalism
HIST05.441	Imperialism and Colonialism
GEOG16.347	Geography of the Middle East
HIST05.308	Modern Middle East
HIST05.383	Islamic Civilizations

HIST05.404	Arab-Israeli Conflict
HIST05.417	Women in Islam
HIST05.439	Ottoman Empire
HIST05.444	Islamist Movements
POSC07.345	Government and Politics of the Middle East

Students may count up to six s.h. (two courses) of language and applied language courses in a related foreign language at the 300-400 level towards the Middle East and Africa concentration, e.g.:

FREN02.311	Advanced French Conversation
FREN02.410	Advanced French Composition
FREN02.300	French Phonetics
FREN02.400	History of the French Language

Study Abroad or transfer credits for other language-skills-focused and applied courses in French or Arabic.

International Studies Minor

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International Studies is an interdisciplinary minor that prepares students for careers in an increasingly interdependent world. Students are introduced to a wide range of economic, political, and environmental issues and they develop expertise in the culture, history, and languages of other parts of the globe.

International Studies minors are required to complete 2 courses from a bank of core courses, 3 additional courses from the core, or any of the area studies (African, Asian, Eastern European and Russian, Latin American and Iberian, Middle Eastern and Western European) banks, and the second semester of any foreign language, for a total of 18 credit hours. There may be other courses, not listed here, that are applicable with the approval of the Coordinator.

International Studies may be pursued in conjunction with major and minor programs, or as General Education, Multicultural/Global, Literature, Writing Intensive, or Rowan Seminar requirements. Study of a foreign language beyond the first year is recommended. Students can also pursue Study Abroad in partial fulfillment of the International Studies Minor.

Requirements

Core Courses: 6 hours from the core bank below.

Area Studies or core courses: 9 hours. Credits earned to fulfill this requirement must come from at least two departments. Six hours of credits for the minor must be at the 300 level or higher. These may be selected from either core or area banks.

2nd Semester Foreign Language (or CLEP equivalent). Neither the first nor the second semester of this language may count as an Area Studies course. Any additional foreign language credit in this language (at a higher level) or another language (at any level) may fill Area Studies requirements.

Additional Notes

Students who complete an approved study abroad semester will have their 300/400 level Area Studies requirement reduced by three hours. Students will also receive credits for specific courses related to international studies that they take abroad. As long as the study abroad semesters are approved by the home department and the university, there is no upper limit on the number of credits a student may apply to International Studies.

Students wishing to obtain credit for courses not listed in the Area Studies or Core Banks may submit course syllabi to the program coordinator. In general, any course that deals exclusively with the language, culture, or history of any of the listed geographic regions will count, but such decisions are at the discretion of the International Studies coordinator and should be obtained as soon as the student has access to the syllabus.

Internships in international trade, government, communications, business management and marketing can also provide students with valuable skills and work experience. For information about companies involved in such areas in southern New Jersey and Philadelphia, contact the CHSS Match Program. For information about international internship opportunities, visit the International Studies scholarships and internships page: https://chss.rowan.edu/centers/inter_majors/interdisciplinary_programs/internationalstudies/scholarships/Undergraduates.html . You may also contact your professors or the International Center.

Students with a strong academic background should consider applying for some of the scholarship programs that send graduating seniors abroad such as the Fulbright Program. For more information about these scholarships, visit

"International Opportunities" section of the International Studies website.

Both the Core Course bank and the Area Studies bank are located below. Please contact Dr. Carla Lewandowski, (lewandowskic@rowan.edu) with any questions.

International Studies Core

FIN04.435	International Financial Management
ECON04.307	Economic Development (Multicultural/Global)
ECON04.310	Global Economics
ECON04.320	Contemporary Economic Systems (M/G)
ENGL02.116	Introduction to Global Literatures in English (M/G) (LIT)
ANTH02.202	Cultural Anthropology (M/G)
ANTH02.350	Comparative Cultures (M/G)
ANTH02.250	Introduction to Anthropological Linguistics
GEOG16.110	Cultural Geography (M/G)
GEOG16.140	World Regional Geography (M/G)
GEOG16.301	Economic Geography (M/G)
GEOG16.303	Political Geography (M/G)
HIST05.101	The West in the World Since 1600
HIST05.120	World History Since 1500
HIST05.413	Comparative Race Relations: South Africa, Brazil and the US
HIST05.441	Imperialism and Colonialism
LAWJ05.175	Comparative and International Criminal Justice
LAWJ05.330	Problems in World Justice
LAWJ05.401	Law and Human Rights
MKT09.379	International Marketing
MGT06.330	Managing International Business
MUSG06.447	Music in World Cultures - Asia and Oceana (M/G)
MUSG06.448	Music in World Cultures – Africa, India, Near & Middle East
REL10.100	World Religions
POSC07.230	Comparative Political Systems (M/G)
POSC07.321	Contemporary World Problems (M/G)
POSC07.320	International Relations
SOC15.322	Sociology of Population Sociology
SOC08.327	Comparative Education in a Sociological Perspective
THD07.440	Contemporary World Theatre (WI) (LIT)
THD08.146	World Dance Forms (M/G)
THD08.151	Ethnic and Character Dance

African Studies

ARAB	All Arabic Classes
HIST05.394	Sub-Saharan Africa to 1800
HIST05.397	Sub-Saharan Africa since 1800
GEOG16.345	Geography of Africa
HIST05.417	Women in Islam
HIST05.437	Twentieth Century African Nationalism
HIST05.413	Comparative Race Relations
AFST11.104	Introduction to Africana Studies
AFST11.304	Africana Social Thought
THD08.311	African Influences in American Dance (M/G)
THD07.301	African, African-American Theater: Intercultural Definitions

Asian Studies

INTR01.136	Gateway to Asia (RS)
ARHS03.231	Survey of Asian Art
ARAB	All Arabic Classes
CHIN	All Chinese Classes
ENGL02.112	Readings in Asian Literature (M/G) (LIT)
GEOG16.343	Geography of Asia (M/G)
HIST05.356	Late Imperial China
HIST05.408	Chinese Cultural History
HIST05.355	Modern China
HIST05.438	History of the Vietnam War
HIST05.351	Modern Japan
HIST05.446	Race, Identity, and History in East Asia
JAP	All Japanese Courses
POSC07.350	Introduction to Asian Political Systems

PHRE11.310	Introduction to Buddhism
REL10.230	Religions of Asia
PHRE11.330	Introduction to Daoism
PHIL09.330	Asian Thought (M/G)
Eastern European and Russian Studies	
RUSS	All Russian Classes
GEOG16.346	Geography of Russia and Its Neighbors (M/G)
HIST05.343	Russia to 1914
HIST05.344	Russia since 1914
POSC07.341	Politics of Russia, Eastern Europe and Eurasia
POSC07.351	Russian Foreign Policy
Middle East Studies	
ARAB	All Arabic Courses
GEOG16.347	Geography of the Middle East (M/G)
HIST05.379	Ancient Egypt
HIST05.383	Islamic Civilizations
HIST05.307	Ancient Mediterranean World
HIST05.308	Modern Middle East
HIST05.417	Women in Islam
HIST05.439	Ottoman Empire
HIST05.444	Islamist Movements
HIST05.404	Arab-Israeli Conflict
POSC07.347	Government and Politics of the Middle East
Latin American and Iberian Studies	
SPAN	All Spanish Classes
ANTH02.210	Natives of South America (M/G)
GEOG16.344	Geography of Latin America (M/G)
HIST05.347	Colonial Latin America
HIST05.350	Modern Latin America
HIST05.362	History of Mexico & the Caribbean
HIST05.409	Latin American Revolutions and Reform
HIST05.411	Topics in Latin-American History
HONR05.390	Linguistics and Cultures of Native South America
HONR05.390	Modern Descendants of the Incas
Western European Studies	
ARHS03.103	Art History Survey I
ARHS03.104	Art History Survey II
ARHS03.205	Art History Survey III
ENGL02.309	British Literature I
ENGL02.311	British Literature II
ENGL02.330	Classical Literature in Translation
ENGL02.270	The English Novel
ENGL02.430	Anglo-Saxon and Medieval Literature
ENGL02.441	English Renaissance Literature
ENGL02.460	British Literature: The Long Eighteenth Century
ENGL02.471	English Romanticism
ENGL02.472	Victorian Literature
ENGL02.473	Twentieth Century British Literature
ENGL02.482	Modern European Literature
FREM	All French Classes
GERM	All German Classes
ITAL	All Italian Classes
GEOG16.342	Geography of Europe (M/G)
HIST05.100	The West in the World to 1660
HIST05.310	Medieval Europe History
HIST05.311	Renaissance and Reformation History
HIST05.312	Age of Enlightenment 1648-1789
HIST05.313	Age of Revolution 1760-1815
HIST05.314	Europe 1871-1914
HIST05.315	Twentieth Century Europe to 1945
HIST05.316	Twentieth Century Europe since 1945
HIST05.407	History of World War II
HIST05.380	Traditional Jewish History
HIST05.381	Modern Jewish History

HIST05.406	Nazi Germany and the Holocaust
HIST05.411	European Intellectual History since the 16th Century
HIST05.418	Women in Europe to 1700
HIST05.419	Women in Modern Europe
HIST05.327	Victorian Britain
REL10.328	Development of Western Religious Thought
SOC08.399	Sociology of the Holocaust

Combined Advanced Degree Program (CADP) B.A. in International Studies with an International Business and Economics Concentration and M.B.A.

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Overview

This accelerated dual degree program offers students an opportunity to earn a Bachelor of Arts in International Studies with a Concentration in International Business & Economics and a Master of Business Administration in five years. Students who meet the criteria listed below may apply to the program after their freshman year (at least 30 credits) or for transfer students, after earning 15 credits at Rowan. If admitted, students need to reach the benchmarks listed below before enrolling in Master of Business Administration courses as a senior. The 12 graduate credits will be applied towards the undergraduate program as well as the graduate program, i.e. students only need to earn 108 undergraduate credits. In addition to earning an M.B.A. more quickly, students in this program will save tuition through taking 12 credits of Master of Business Administration courses as a senior at undergraduate tuition rates.

CADP Undergraduate Program Requirements

Required Major Courses		36 s.h.
ENGL02.116	Introduction to Global Literatures in English	3 s.h.
or ENGL02.112	Readings in Asian Literature	3 s.h.
or GERM03.100	Masterpieces of German Literature in English Translation	3 s.h.
or FREN02.100	Masterpieces of French Literature in English Translation	3 s.h.
or SPAN05.100	Masterpieces of Hispanic Literature in English Translation	3 s.h.
or ITAL04.100	Masterpieces of Italian Literature in English Translation	3 s.h.
or THD07.440	Contemporary World Theatre	3 s.h.
HIST05.120	World History since 1500	3 s.h.
ANTH02.202	Cultural Anthropology	3 s.h.
or REL10.100	World Religions	3 s.h.
GEOG16.110	Cultural Geography	3 s.h.
or GEOG16.140	World Regional Geography	3 s.h.
or GEOG16.100	Earth, People, Environment	3 s.h.
IS25.100	Global Challenges	3 s.h.
IS25.300	Research Methods in International Studies (WI)	3 s.h.
POSC07.320	International Relations	3 s.h.
IS25.400	Senior Seminar in International Studies	3 s.h.
MKT09.200	Principles of Marketing	3 s.h.
or MIS02.234	Management Information Systems	3 s.h.
MGT98.242	Legal Environment of Business	3 s.h.
or MGT06.300	Organizational Behavior	3 s.h.
Three of the following courses:		
ECON04.310	Global Economics	3 s.h.
ECON04.307	Economic Development	3 s.h.
ECON04.320	Contemporary Economic Systems	3 s.h.
MGT06.330	Managing International Business	3 s.h.
MKT09.379	International Marketing	3 s.h.
SCL01.380	Global Supply Chain	3 s.h.
	One 300-400 level course from any other International Studies concentration	
Other Required Courses for the Major		6-24 s.h.
ECON04.101	Introduction to Macroeconomics	3 s.h.
ECON04.102	Introduction to Microeconomics	3 s.h.

Foreign Language I (students may test into higher level language courses) - 3 s.h.

Foreign Language II (must be the same language as Foreign Language I) - 3 s.h.

Foreign Language III (if available, the same language as Foreign Language II) - 3 s.h.

Foreign Language IV (must be the same language as Foreign Language III) - 3 s.h.

One of the following Experiential Learning Courses - 0-6 s.h.

AFST11.350	Topics in Africana Studies: Model African Union
EDPA02.490	Public Service Internship
INTR01.470	Semester Abroad
INTR20.390	Interdisciplinary Case Studies in the Liberal Arts
INTR20.395	Experiential Learning in the Humanities & Social Sciences
INTR20.399	Internship in the Applied Liberal Arts
IS25.350	Special Topics in International Studies: Model United Nations

Required Master of Business Administration Prerequisite Courses

15-18 credits; students can complete these requirements in 15 credits if they take Foundations of Accounting in place of Accounting I and Accounting II. 15-18 s.h.

MATH03.125	Calculus: Techniques and Applications	3 s.h.
or MATH01.130	Calculus I	3 s.h.
STAT02.260	Statistics I	3 s.h.
ACC03.210	Principles of Accounting I	3 s.h.
AND		
ACC03.211	Principles of Accounting II	3 s.h.
OR		
ACC03.405	Foundations of Accounting	3 s.h.
MGT06.305	Operations Management	3 s.h.
FIN04.300	Principles of Finance	3 s.h.

Rowan Experience, Rowan Core/General Education, and Free Elective Courses 48 s.h.

Four approved graduate-level Master of Business Administration courses may substitute for any of the free elective courses. No more than 12 graduate credits total may be used to replace undergraduate coursework.

Total Required Credits for the Undergraduate Portion of the Program 120 or 108** s.h. total

**The first number is the official number of credits required for the undergraduate degree; however, the second number reflects the actual number of credits students will take through undergraduate coursework since 12 of the graduate credits are completed in the senior year and count towards both the undergraduate and graduate degrees.

CADP Graduate Program Requirements

Required Master of Business Administration Courses taken as an Undergraduate CADP student 12 s.h.

ACC03.500	Managerial Accounting	3 s.h.
MGT07.550	Operations Analytics	3 s.h.
MGT06.515	Employee Engagement and Performance	1.5 s.h.
MGT06.567	Responsible Leadership: Aligning the Interests of Stakeholders, Profit, and Planet	1.5 s.h.
MIS02.501	Information Systems for Managers	1.5 s.h.
MKT09.511	Marketing Management Fundamentals	1.5 s.h.

Master of Business Administration Courses taken as a Graduate CADP Student 24 s.h.

FIN04.500	Financial Decision Making	3 s.h.
MGT06.629	Managing Organizational Strategy	3 s.h.
	MBA Concentration Elective	
	MBA Concentration Elective	
	MBA Concentration Elective	
	MBA Elective or Course for Second Concentration	
	MBA Elective or Course for Second Concentration	
	MBA Elective or Course for Second Concentration	

Total Required Credits for the Graduate Portion of the Program 36 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire Combined Advanced Degree Program 138 s.h.

Requirements for Admission: Applications will be considered on a rolling basis. If you are interested in applying for this program, please email the Coordinator of International Studies, Dr. Carla Lewandowski, lewandowskic@rowan.edu. International Studies majors with a Concentration in International Business & Economics who have a GPA of at least 3.3 and have passed Calculus: Techniques and Applications (MATH03.125) OR Calculus I (MATH01.130) AND Statistics I (STAT02.260) with at least a C may be admitted into this program as early as the summer after freshman year (30 credits). All students who are interested in the program are encouraged to contact the Coordinator of International Studies during their freshman year, however, to ensure they take the courses necessary to complete the program on schedule. Students

should also review the program guide and suggested sequence carefully and remain in touch with the Coordinator to ensure that they are following the curriculum.

Junior Admission: After earning 60 credits, students who apply to the program must meet the criteria listed below:

- International Studies major with an International Business & Economics Concentration;
- Minimum overall GPA of 3.3 in undergraduate coursework;
- Completion of at least five of the Master of Business Administration prerequisite courses listed below with at least a C in each course:
  - Calculus: Techniques and Applications (MATH03.125) OR Calculus I (MATH01.130)
  - Statistics I (STAT02.260)
  - Introduction to Macroeconomics (ECON04.101)
  - Introduction to Microeconomics (ECON04.102)
  - Principles of Accounting I (ACC03.210) and
  - Principles of Accounting II (ACC03.211)
  - Or Foundations of Accounting (ACC03.405)
- Completion of the International Studies requirements listed below:
  - At least one year of Foreign Language study (or equivalent placement testing)
  - At least three of the International Studies foundational and upper-level/capstone courses
  - At least one course that counts towards the International Business & Economics Concentration

Requirements for Beginning Master of Business Administration Program as a Senior (90 credits): To begin the Master of Business Administration program in their senior year, students who have been accepted into this accelerated dual degree program must meet the criteria listed below by the spring of their junior year.

- Complete at least 90 credits with a 3.3 overall GPA;
- Complete all prerequisites for the M.B.A. with a grade of at least C:
  - Calculus: Techniques and Applications (MATH03.125) OR Calculus I (MATH01.130)
  - Statistics I (STAT02.260)
  - Introduction to Macroeconomics (ECON04.101)
  - Introduction to Microeconomics (ECON04.102)
  - Principles of Accounting I (ACC03.210) and
  - Principles of Accounting II (ACC03.211)
  - Or Foundations of Accounting (ACC03.405)
  - Principles of Marketing (MKT09.200)
  - Operations Management (MGT06.305)
  - Principles of Finance (FIN04.300)
- Complete or enrolled in the International Studies requirements listed below:
- Two years of a foreign language or at least intermediate level proficiency in a foreign language
- At least four of the seven International Studies foundational and upper-level/capstone requirements including Research Methods in International Studies (IS25.300)

At least two of the five required courses for the International Business & Economics Concentration.

Students who meet these criteria should submit to the Coordinator of International Studies the material listed below, preferably in January of their junior year, so they may enroll in M.B.A. courses during pre-registration.

A statement of purpose (300-500 words); Names and email addresses of two professors who will provide letters of recommendation (preferably one from the Rohrer College of Business). Ask your recommenders to send their recommendations to the Coordinator of International Studies via email--or in hard copy if they prefer.

Students who complete the requirements listed above and gain permission to take M.B.A. courses as a senior will meet with the Director of M.B.A. program, preferably before preregistration, to review course work and requirements for the M.B.A. The International Studies coordinator will meet with students who do not meet the criteria and have not gained permission to take M.B.A. courses to discuss the best alternative for the student, e.g. graduating with a B.A. in International Studies with a concentration in International Business and Economics and possibly a minor in business.

Requirements for Graduation: To graduate from this accelerated dual degree program with a Bachelor of Arts and a Master of Business Administration, students must:

- Complete all requirements for the International Studies Bachelor of Arts with an International Business & Economics Concentration, including Rowan Core/General Education and Rowan Experience requirements;
- Complete all prerequisites for the Master of Business Administration program;
- Complete all requirements for the Master of Business Administration, which is a level III program at Rowan. In level III programs, students must achieve a 3.0 overall GPA with no grade lower than C and no more than two Cs.

Student Status: Students will be expected to maintain satisfactory progress through the program: maintain an overall 3.3 GPA, earn at least Cs in all Master of Business Administration prerequisite courses, and meet the level III criteria in the Master of Business Administration program, i.e. achieve a 3.0 overall GPA with no grade lower than C and no more than two Cs. Any student who fails to maintain satisfactory progress as described above will be placed on probation within the program for one semester. If the student's performance still does not improve, he/she will be dropped from the accelerated program. Students with documented extenuating circumstances may request an exception to this requirement by obtaining written approval of the Master of Business Administration Coordinator.

Students enrolled in this accelerated Bachelor of Arts/Master of Business Administration program may take up to 12 credits of graduate courses at the undergraduate rate in their senior year providing they meet the criteria listed above. Beyond this, students will pay graduate tuition rates for their Master of Business Administration courses.

Contingency for Students who do not Complete the Master of Business Administration Program: Students who are dropped from the graduate program or choose not to complete the Bachelor of Arts/Master of Business Administration Program may earn a Bachelor of Arts in International Studies with a Concentration in International Business & Economics (or any other International Studies concentration) once they have completed all requirements for that undergraduate degree, achieved at least a 2.0 GPA, and earned at least 120 credits. Students may count up to 12 credits of their graduate courses towards their Bachelor of Arts requirements; these courses will count as free electives towards the 120 credits required for a Bachelor of Arts.

Dual Degree (4 +1 program): B.A. in Anthropology with a Diversity and Inclusion subfield and MA in Diversity and Inclusion

Overview

This 4 +1 accelerated dual degree program offers students an opportunity to earn a B.A. in Anthopology with a Diversity and Inclusion subtrack and an M.A. in Diversity and Inclusion in five years. Students may apply to the program after earning their Sophomore year (at least 60 credits) or, for transfer students, after earning 15 credits at Rowan. The 12 graduate credits will be applied towards the undergraduate program as well as the graduate program, i.e. students only need to earn 108 undergraduate credits. In addition to earning an M. A. more quickly, students in this program will save tuition through taking 12 credits of M.A. courses as a senior at undergraduate tuition rates.

4 + 1 Undergraduate Program Requirements

Required Major Courses: 36 s.h.

BA in Anthropology

In addition to the standard **Rowan Core and Rowan Experience** requirements (21 s.h.), students must take:

Non Program Courses: 18 s.h.

- Any foreign language (3 s.h.)
- Same foreign language (3 s.h.)
- GEOG16.110 Cultural Geography or GEOG16.140 World Regional Geography(3 s.h.) (counts towards Global Literacy.
- PHIL09.250/251 Biomedical Ethics, PHIL09.341 Introduction to Ethics, PHIL 09.322 Business Ethics, PHIL09.346 Feminist Ethics, or 09.323 Environmental Ethics
- Humanistic or Global Literacy course
- Any Rowan Core Course

Major Requirements

Foundational Courses	15 s.h.
Required Upper Level and Capstone Courses	10 s.h.
Anthropology Electives	12 s.h.
Total	37 s.h.

Foundational Courses 15 s.h.

All students must take:

ANTH02.202	Cultural Anthropology	3 s.h.
ANTH02.203	Introduction to Archaeology	3 s.h.
ANTH02.221	Human Variation	3 s.h.
ANTH02.250	Introduction to Anthropological Linguistics	3 s.h.
ANTH02.295	Introduction to Qualitative Research	3 s.h.

Upper Level and Capstone Courses 10 s.h.

ANTH02.395	Anthropological Theory	3 s.h.
ANTH02.450	Anthropology Senior Seminar (WI)	3 s.h.
ANTH02.315	Forensic Anthropology or ANTH02.324 Archaeological Field Methods	4 s.h.

Anthropology Electives 12 s.h.

Students must take 4 courses from the Elective bank including 3 Upper Level courses (9 s.h.) For this dual major, student must choose to use their elective credits for a new subfield track, Diversity and Inclusion. A subfield track is a recommended selection of courses that represents a focused area of study and completes defined requirements for degree completion.

Diversity and Inclusion Subfield

ANTH02.310	Indians of North America	3 s.h.
ANTH02.275	Anthropology of Race and Ethnicity	3 s.h.
ANTH02.322	Sex and Sex Roles	3 s.h.
ANTH02.350	Comparative Cultures	3 s.h.

Free Electives

Students shall take 32 Free Elective credits.

Total Required Credits for the Undergraduate Portion of the Program 120 or 108** s.h. total. **The first number is the official number of credits required for the undergraduate degree; however, the second number reflects the actual number of credits students will take through undergraduate coursework since 12 of the graduate credits are completed in the senior year and count towards both the undergraduate and graduate degrees.

4 + 1 Graduate Program Requirements

MA in Diversity and Inclusion

Graduate Level Courses

Required Diversity and Inclusion Graduate Courses taken as an undergraduate		12 s.h.
DI68.501	Introduction to Diversity and Inclusion	3 s.h.
ANTH02.510	Qualitative Methods	3 s.h.
Two out of the following three courses:		
HIST05.519	History of Social Movements	3 s.h.
ENGL02.530	Diversity and Inclusion in Literature	3 s.h.
PHIL09.521	Philosophical Approaches to Diversity, Equity, and Identity	3 s.h.
Core Courses (Undergraduate and Graduate Courses)		6 s.h.
Any of one the following four courses not taken as within their Undergraduate degree:		
PHIL09.521	Philosophical Approaches to Diversity, Equity and Identity	3 s.h.
HIST05.519	History of Political and Social Movements	3 s.h.
ENGL02.530	Diversity, Equity, and Inclusion in U.S. Literature	3 s.h.
SOC08.573	Critical Race Theory: Application and Intervention	3 s.h.
Capstone Courses (Pre-requisites: all core courses)		6 s.h.
DI68.590	Foundations in Applied Diversity and Inclusion	3 s.h.
DI68.591	Capstone in Applied Diversity and Inclusion	3 s.h.
Elective Courses: Choose two		6 s.h.
CJ09.529	Community Justice	3 s.h.
CJ09.530	International Criminal Law Seminar	3 s.h.
CJ09.525	Altruism, Cooperation, and Criminal Justice	3 s.h.
SOC08.575	Social Determinants of Health: Theory and Interv in Urban Settings	3 s.h.
SOC08.599	Urban Environmental Health	3 s.h.
SOC08.600	Social Experience of City Life and Urban Inequalities	3 s.h.
HIST05.561	Early American History Seminar	3 s.h.
HIST05.562	Nineteenth Century American History Seminar	3 s.h.
HIST05.563	American History after 1917	3 s.h.
MAWR01.630	Writing Difference	3 s.h.
MAPR01.541	Understanding and Writing Grants and Proposals	1 s.h.
CASE90.512	Examining Intersectionality	3 s.h.
CASE90.710	Power and Privilege: Social Construction of Difference	3 s.h.
CASE90.513	History of Urban Education and Communities	3 s.h.
CASE90.535	Disability Studies	3 s.h.
DI68.520	Topics in Diversity and Inclusion	3 s.h.
Total credit hours BA 120 (inclusive of 12 graduate hours) + remaining MA 18		138 s.h.
Total Required Credits for the Graduate Portion of the Program		30 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 138 s.h.

Requirements for Admission: Students may be admitted to this program as early as the fall of their Junior year (30 credits). Students are encouraged to apply as early as possible to ensure timely completion of the program, but assuming they've taken the required courses listed below, they may apply at a later point. Transfer students with at least 60 credits may apply after they have earned at least 15 credits at Rowan, i.e. in their second semester at Rowan. Students must earn a C minimum

grade in M.B.A. prerequisite courses as noted below and at least a C- in all courses that count towards the International Studies major.

Junior Admission: After earning 60 credits, students who apply to the program must meet the criteria listed below:

- Anthropology with a Diversity and Inclusion subfield track
- Minimum overall GPA of 3.3 in undergraduate coursework;
- Successful completion of
  - ANTH02.221 Human Variation,
  - ANTH02.202 Cultural Anthropology,
  - ANTH02.295 Qualitative Research
  - One course in the Diversity and Inclusion subfield track.
- 3.3 GPA in the major and overall.
- Enrollment in ANTH02.395 Anthropological Theory and one other course in the Diversity and Inclusion subfield track.

Anthropology majors must also submit the following to be considered for admission to the program.

- BA/MA application form.
- One letter of recommendation from an undergraduate professor

Requirements for Beginning M.A. Program as a Senior 90 credits:

- Anthropology with a Diversity and Inclusion subfield track
- Minimum overall GPA of 3.3 in undergraduate coursework;
- Successful completion of
  - ANTH 02.221 Human Variation,
  - ANTH 02.202 Cultural Anthropology,
  - ANTH 02.295 Qualitative Research
  - One course in the Diversity and Inclusion subfield track.
- 3.3 GPA in the major and overall.
- Enrollment in ANTH 02.395 Anthropological Theory and one other course in the Diversity and Inclusion subfield track.

Anthropology majors must also submit the following to be considered for admission to the program.

- BA/MA application form.
- One letter of recommendation from an undergraduate professor

Requirements for Graduation: To graduate from this accelerated dual degree program with a B.A. and an M.B.A., students must:

- Complete all requirements for the Anthropology B.A. including General Education and Rowan Experience requirements;
- Complete all prerequisites for the M.A. program;
- Complete all requirements for the M.A., which is a level II program at Rowan. Completion of all requirements for the BA in Anthropology, subfield Diversity and Inclusion with a grade of C- or better in undergraduate courses and a C or better in graduate level courses. Completion of all requirements for the MA in Diversity and Inclusion (30 Credit hours) with GPA of at least 2.75, earning no grades lower than a C. Students may repeat a graduate course once when the minimum GPA has not been met.

Student Status: Students will be expected to maintain satisfactory progress through the program: maintain an overall 2.75 GPA, earn at least C-s in all M.A. courses, and meet the level II criteria in the M.A. program, i.e. achieve a 2.75 overall GPA. Students who enroll in the 4+1 program who do not maintain satisfactory progress or who wish to discontinue the program may apply up to 12 credits of graduate work, if completed with a C or better, to their undergraduate free elective bank. Students enrolled in this accelerated B.A./M.B.A. program may take up to 12 credits of graduate courses at the undergraduate rate in their senior year providing they meet the criteria listed above. Beyond this, students will pay graduate tuition rates for their M.A. courses.

Contingency for Students who do not Complete the M.B.A. program: Students who are dropped from the graduate program or choose not to complete the B.A./M. A. program may earn a B.A. in Anthopology once they have completed all requirements for that undergraduate degree, achieved at least a 2.0 GPA, and earned at least 120 credits. Students may count up to 12 credits of their graduate courses towards their B.A. requirements; these courses will count as free electives towards the 120 credits required for a B.A. If all 12 credits are attained, the student may receive a Graduate Certificate in Diversity and Inclusion.

Dual Degree (4 +1 program): B.A. in History and MA in Diversity and Inclusion

Overview

This 4 +1 accelerated dual degree program offers students an opportunity to earn a B.A. in History and an M.A. in Diversity and Inclusion in five years. Students may apply to the program after earning their sophomore year (at least 60 credits) or, for transfer students, after earning 15 credits at Rowan. The 12 graduate credits will be applied towards the undergraduate program as well as the graduate program, i.e. students only need to earn 108 undergraduate credits. In addition to earning an M. A. more quickly, students in this program will save tuition through taking 12 credits of M.A. courses as a senior at undergraduate tuition rates.

4 + 1 Undergraduate Program Requirements

Required Major Courses: 42 s.h.

BA in History

Non-Program Courses 18-24 s.h.

	Two courses in the same world language
	Any Political Science course
	Any Geography or Anthropology Course
ENGL02.116	Introduction to Global Literatures in English
or	
ENGL02.112	Readings in Asian Literature
ECON04.101	Introduction to Economics-Macroeconomics
or	
ECON04.102	Introduction to Economics- Microeconomics

Major Requirements 30 s.h.

Foundational Courses 12 s.h.

HIST05.100	West and the World to 1660
HIST05.101	West and the World since 1660
or	
HIST05.120	World History After 1500
HIST05.306	Historical Methods

Upper-Level and Capstone Courses 18 s.h.

HIST05.300-05.400	Any 300 or 400 level course
HIST05.300-05.400	Any 300 or 400 level course
HIST05.300-05.400	Any 300 or 400 level Global History course
HIST05.300-05.400	Any 300 or 400 level Global History course
HIST05.400-05.499	A 400 level course
HIST05.492	Seminar in History (must be have 90 credits)

Free Electives

Students shall take 39 Free Elective credits.

Total Required Credits for the Undergraduate Portion of the Program 120 or 108** s.h. total. **The first number is the official number of credits required for the undergraduate degree; however, the second number reflects the actual number of credits students will take through undergraduate coursework since 12 of the graduate credits are completed in the senior year and count towards both the undergraduate and graduate degrees.

4 + 1 Graduate Program Requirements

MA in Diversity and Inclusion (As a Graduate Student)

Required Diversity and Inclusion Graduate Courses taken as an undergraduate 12 s.h.

DI68.501	Introduction to Diversity and Inclusion	3 s.h.
ANTH02.510	Qualitative Methods	3 s.h.
Two out of the following three courses:		
HIST05.519	History of Social Movements	3 s.h.
ENGL02.530	Diversity and Inclusion in Literature	3 s.h.
PHIL09.521	Philosophical Approaches to Diversity, Equity, and Identity	3 s.h.

Core Courses (Undergraduate and Graduate Courses) 6 s.h.

Any of one the following four courses not taken as within their Undergraduate degree:

PHIL09.521	Philosophical Approaches to Diversity, Equity and Identity	3 s.h.
HIST05.519	History of Political and Social Movements	3 s.h.
ENGL02.530	Diversity, Equity, and Inclusion in U.S. Literature	3 s.h.
SOC08.573	Critical Race Theory: Application and Intervention	3 s.h.

Capstone Courses (Pre-requisites: all core courses) 6 s.h.

DI68.590	Foundations in Applied Diversity and Inclusion	3 s.h.

DI68.591	Capstone in Applied Diversity and Inclusion	3 s.h.
Elective Courses: Choose two		6 s.h.
CJ09.529	Community Justice	3 s.h.
CJ09.530	International Criminal Law Seminar	3 s.h.
CJ09.525	Altruism, Cooperation, and Criminal Justice	3 s.h.
SOC08.575	Social Determinants of Health: Theory and Interv in Urban Settings	3 s.h.
SOC08.599	Urban Environmental Health	3 s.h.
SOC08.600	Social Experience of City Life and Urban Inequalities	3 s.h.
HIST05.561	Early American History Seminar	3 s.h.
HIST05.562	Nineteenth Century American History Seminar	3 s.h.
HIST05.563	American History after 1917	3 s.h.
MAWR01.630	Writing Difference	3 s.h.
MAPR01.541	Understanding and Writing Grants and Proposals	1 s.h.
CASE90.512	Examining Intersectionality	3 s.h.
CASE90.710	Power and Privilege: Social Construction of Difference	3 s.h.
CASE90.513	History of Urban Education and Communities	3 s.h.
CASE90.535	Disability Studies	3 s.h.
DI68.520	Topics in Diversity and Inclusion	3 s.h.
Total credit hours BA 120 (inclusive of 12 graduate hours) + remaining MA 18		138 s.h.

Total Required Credits for the Graduate Portion of the Program 30 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 138 s.h.

Requirements for Admission:

Qualified applicants will apply for admission to the 4+1 BA/MA dual degree program in the fall semester of their junior year. Review of applications will be conducted by the coordinator of Diversity and Inclusion. Students may be admitted to this program as early as the fall of their Junior year (30 credits). Students are encouraged to apply as early as possible to ensure timely completion of the program, but assuming they've taken the required courses listed below, they may apply at a later point. Transfer students with at least 60 credits may apply after they have earned at least 15 credits at Rowan, i.e. in their second semester at Rowan.

History majors must meet the following requirements to apply to the program:

- Successful completion of 60 credits of coursework
- Successful completion of ANTH 02.202 Cultural Anthropology, HIST 05.306 Historical Methods, and at least one upper-level history course.
- 3.0 GPA in the major and overall.
- Enrollment in 2 upper-level history courses.

History majors must also submit the following to be considered for admission to the program.

- BA/MA application form.
- One letter of recommendation from an undergraduate professor

Requirements for Graduation: To graduate from this accelerated dual degree program with a B.A. and an M.B.A., students must:

- Complete all requirements for the History B.A. including General Education and Rowan Experience requirements;
- Complete all prerequisites for the M.A. program;
- Complete all requirements for the M.A., which is a level II program at Rowan. Completion of all requirements for the BA in History with a grade of C- or better in undergraduate courses and a C or better in graduate-level courses. Completion of all requirements for the MA in Diversity and Inclusion (30 Credit hours) with GPA of at least 2.75, earning no grades lower than a C. Students may repeat a graduate course once when the minimum GPA has not been met.

Student Status: Students will be expected to maintain satisfactory progress through the program: maintain an overall 2.75 GPA, earn at least C-s in all M.A. courses, and meet the level II criteria in the M.A. program, i.e. achieve a 2.75 overall GPA. Students who enroll in the 4+1 program who do not maintain satisfactory progress or who wish to discontinue the program may apply up to 12 credits of graduate work, if completed with a C or better, to their undergraduate free elective bank. Students enrolled in this accelerated B.A./M.B.A. program may take up to 12 credits of graduate courses at the undergraduate rate in their senior year providing they meet the criteria listed above. Beyond this, students will pay graduate tuition rates for their M.A. courses.

Contingency for Students who do not Complete the M.B.A. program: Students who are dropped from the graduate program or choose not to complete the B.A./M.A. program may earn a B.A. in History once they have completed all requirements for that undergraduate degree, achieved at least a 2.0 GPA, and earned at least 120 credits. Students may count up to 12 credits of their graduate courses towards their B.A. requirements; these courses will count as free electives towards the 120 credits required for a B.A. If all 12 credits are attained, the student may receive a Graduate Certificate in Diversity and Inclusion.

Dual Degree (4 +1 program): B.A. in Africana Studies and MA in Diversity and Inclusion

Overview

This 4 +1 accelerated dual degree program offers students an opportunity to earn a B.A. in History and an M.A. in Diversity and Inclusion in five years. Students may apply to the program after earning their Sophomore year (at least 60 credits) or, for transfer students, after earning 15 credits at Rowan. The 12 graduate credits will be applied towards the undergraduate program as well as the graduate program, i.e. students only need to earn 108 undergraduate credits. In addition to earning an M. A. more quickly, students in this program will save tuition through taking 12 credits of M.A. courses as a senior at undergraduate tuition rates.

4 + 1 Undergraduate Program Requirements

Required Major Courses: 30 s.h.

BA in Africana Studies

Non-Program Courses 6 s.h.

- One world language course: Zulu, Arabic, French, Spanish or Swahili
- Experiential Learning Requirement

Major Requirements: 30 s.h.

Foundational Courses	9 s.h.
Africana Electives	12 s.h.
World/Comparative Electives	6 s.h.
Capstone Course	3 s.h.
Total	30 s.h.

Foundational Courses 9 s.h.

AFST11.104	Introduction to Africana Studies	3 s.h.
HIST05.394	Sub-Saharan Africa to 1800	3 s.h.
AFST11.304	Africana Social & Political Thought	3 s.h.

Africana Electives 12 s.h.

Four of the following courses:

ZULU16.101	Elementary Zulu I	3 s.h.
ZULU16.102	Elementary Zulu II	3 s.h.
ANTH02.311	Peoples & Cultures of Africa	3 s.h.
AFST11.350	Topics: Tangled Politics and Natural Hair	3 s.h.
AFST11.350	Topics: International Model African Union	3 s.h.
AFST11.350	Topics: Black Masculinity	3 s.h.
AFST11.350	Topics: #BlackLivesMatter	3 s.h.
ARAB12.101	Elementary Arabic I	3 s.h.
ARAB12.102	Elementary Arabic II	3 s.h.
CMS01.406	African American Culture in Media	3 s.h.
ECON04.360	Urban Economics	3 s.h.
ENGL02.354	African American Literature I	3 s.h.
ENGL02.355	African American Literature II	3 s.h.
ENGL02.365	U.S. Latino/a Literature	3 s.h.
ENGL02.218	Multiethnic Literatures of the United States	3 s.h.
ENGL02.362	Native American Literature	3 s.h.
GEOG16.354	Geography of Africa	3 s.h.
GEOG16.344	Geography of Latin America	3 s.h.
HIST05.397	Sub-Saharan Africa Since 1800	3 s.h.
HIST05.437	20th Century African Nationalism	3 s.h.
HIST05.322	Civil War & Reconstruction	3 s.h.
HIST05.376	African American History to 1865	3 s.h.
HIST05.377	African American History Since 1865	3 s.h.
HIST05.373	Civil Rights and Black Power Movements	3 s.h.
HIST05.429	Proseminar (Must focus on an African American/Africana topic)	3 s.h.
HIST05.443	Global Proseminar (Must focus on an African topic)	3 s.h.
HIST05.260	Traditional Latin America	3 s.h.
HIST05.350	Modern Latin America	3 s.h.
HIST05.360	Latin America Revolution & Reform	3 s.h.
HIST05.362	History of Mexico & the Caribbean	3 s.h.
HIST05.370	Topics in Latin American History (Must focus on an African American/Africana topic)	3 s.h.

LAWJ05.205	Minorities, Crime, and Justice	3 s.h.
MUSG06.220	The Singing Music of African Americans	3 s.h.
MUS40.344	Hip Hop Culture: Music, Lifestyle, Fashion and Politics	3 s.h.
MUS06.115	Growth & Development of Jazz	3 s.h.
POSC07.324	Black Americans & American Politics	3 s.h.
POSC07.340	Civil Rights and Civil Liberties	3 s.h.
POSC07.323	Politics of Class, Gender, Race in America	3 s.h.
POSC07.347	Politics & Societies of Africa	3 s.h.
POSC07.441	Contemporary Problems of Modern Africa	3 s.h.
PSY01.235	African American Psychology	3 s.h.
PSY01.310	Psychology of Racism & Ethnocentrism	3 s.h.
PHIL09.327	Philosophy of Race	3 s.h.
RTF03.280	African American Film History	3 s.h.
SOC08.120	Sociology of Minority Groups	3 s.h.
SOC08.488	Critical Race Theory: Social Justice, Advocacy and Intervention	3 s.h.
SPAN05.323	Spanish American Literature	3 s.h.
SPAN05.324	Spanish American Civilization & Culture	3 s.h.
SPAN05.327	Spanish American Poetry	3 s.h.
SPAN05.328	Spanish American Theatre	3 s.h.
SPAN05.326	Spanish American Novel	3 s.h.
THD07.301	African/African American Theatre	3 s.h.
THD08.311	African Influences in American Dance	3 s.h.
	Relevant special topics courses in any discipline Must be approved by Coordinator	3 s.h.

Comparative/World Electives

Two of the following courses:

ANTH02.210	Natives of South America	3 s.h.
ECON04.310	Global Economics	3 s.h.
ECON04.225	Women in the Economy	3 s.h.
ENGL02.116	Readings in Non-Western Literature	3 s.h.
ENGL02.200	Women in Literature	3 s.h.
GEOG16.110	Cultural Geography	3 s.h.
GEOG16.140	World Regional Geography	3 s.h.
HIST05.120	World History Since 1500	3 s.h.
HIST05.383	Islamic Civilizations	3 s.h.
HIST05.417	Women in Islam	3 s.h.
HIST05.413	Comparative Race Relations: South Africa, Brazil, and The U.S.	3 s.h.
HIST05.422	Women in American History	3 s.h.
HIST05.425	History of Feminisms	3 s.h.
HIST05.441	Imperialism & Colonialism	3 s.h.
INTR01.130	Women in Perspective	3 s.h.
INTR01.200	Issues in Women's Health	3 s.h.
LAWJ05.330	Problems in World Justice	3 s.h.
LAWJ05.346	Women, Crime, and Criminal Justice	3 s.h.
LAWJ05.401	Law & Human Rights	3 s.h.
MKT09.379	International Marketing	3 s.h.
MUSG06.448	Music in World Cultures: Africa, India, Near and Middle East	3 s.h.
POSC07.230	Comparative Political Systems	3 s.h.
POSC07.321	Contemporary World Problems	3 s.h.

Capstone Course

AFST11.450	Senior Seminar in Africana Studies
AFST11.350	Topics: Model African Union (Must write a research paper on their chosen African country)

Free Electives

Students shall take 63 Free Elective credits.

Total Required Credits for the Undergraduate Portion of the Program 120 or 108** s.h. total. **The first number is the official number of credits required for the undergraduate degree; however, the second number reflects the actual number of credits students will take through undergraduate coursework since 12 of the graduate credits are completed in the senior year and count towards both the undergraduate and graduate degrees.

4 + 1 Graduate Program Requirements

Required Diversity and Inclusion Graduate Courses taken as an undergraduate 12 s.h.

DI68.501	Introduction to Diversity and Inclusion	3 s.h.
ANTH02.510	Qualitative Methods	3 s.h.
Two out of the following three courses:		
HIST05.519	History of Social Movements	3 s.h.
ENGL02.530	Diversity and Inclusion in Literature	3 s.h.
PHIL09.521	Philosophical Approaches to Diversity, Equity, and Identity	3 s.h.
Core Courses (Undergraduate and Graduate Courses)		6 s.h.
Any one of the following four courses not taken as within their Undergraduate degree:		
PHIL09.521	Philosophical Approaches to Diversity, Equity and Identity	3 s.h.
HIST05.519	History of Political and Social Movements	3 s.h.
ENGL02.530	Diversity, Equity, and Inclusion in U.S. Literature	3 s.h.
SOC08.573	Critical Race Theory: Application and Intervention	3 s.h.
Capstone Courses (Pre-requisites: all core courses)		6 s.h.
DI68.590	Foundations in Applied Diversity and Inclusion	3 s.h.
DI68.591	Capstone in Applied Diversity and Inclusion	3 s.h.
Elective Courses:		6 s.h.
Choose two of the following courses		
CJ09.529	Community Justice	3 s.h.
CJ09.530	International Criminal Law Seminar	3 s.h.
CJ09.525	Altruism, Cooperation, and Criminal Justice	3 s.h.
SOC08.575	Social Determinants of Health: Theory and Interv in Urban Settings	3 s.h.
SOC08.599	Urban Environmental Health	3 s.h.
SOC08.600	Social Experience of City Life and Urban Inequalities	3 s.h.
HIST05.561	Early American History Seminar	3 s.h.
HIST05.562	Nineteenth Century American History Seminar	3 s.h.
HIST05.563	American History after 1917	3 s.h.
MAWR01.630	Writing Difference	3 s.h.
MAPR01.541	Understanding and Writing Grants and Proposals	1 s.h.
CASE90.512	Examining Intersectionality	3 s.h.
CASE90.710	Power and Privilege: Social Construction of Difference	3 s.h.
CASE90.513	History of Urban Education and Communities	3 s.h.
CASE90.535	Disability Studies	3 s.h.
DI68.520	Topics in Diversity and Inclusion	3 s.h.
Total credit hours BA 120 (inclusive of 12 graduate hours) + remaining MA 18		138 s.h.
Total Required Credits for the Graduate Portion of the Program		30 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 138 s.h.

Requirements for Admission:

Qualified applicants will apply for admission to the 4+1 BA/MA dual degree program in the fall semester of their junior year. Review of applications will be conducted by the coordinator of Diversity and Inclusion. Students may be admitted to this program as early as the fall of their Junior year (30 credits). Students are encouraged to apply as early as possible to ensure timely completion of the program, but assuming they've taken the required courses listed below, they may apply at a later point. Transfer students with at least 60 credits may apply after they have earned at least 15 credits at Rowan, i.e. in their second semester at Rowan.

Africana Studies majors must meet the following requirements to apply to the program:

Successful completion of 60 credits of coursework

Successful completion of AFST 11.104 Introduction to Africana Studies, AFST 11.304 Africana Social and Political Thought and at least two additional upper-level courses from the Africana Studies program guide.

3.0 GPA in the major and overall.

Enrollment in 2 upper-level courses from the Africana Studies program guide.

Africana Studies majors must also submit the following to be considered for admission to the program.

- BA/MA application form.
- One letter of recommendation from an undergraduate professor

Requirements for Graduation: To graduate from this accelerated dual degree program with a B.A. and an M.B.A., students must:

- Complete all requirements for the Africana Studies B.A. including General Education and Rowan Experience requirements;
- Complete all prerequisites for the M.A. program;

- Complete all requirements for the M.A., which is a level II program at Rowan. Completion of all requirements for the BA in Africana Studies with a grade of C- or better in undergraduate courses and a C or better in graduate level courses. Completion of all requirements for the MA in Diversity and Inclusion (30 Credit hours) with GPA of at least 2.75, earning no grades lower than a C. Students may repeat a graduate course once when the minimum GPA has not been met.

Student Status: Students will be expected to maintain satisfactory progress through the program: maintain an overall 2.75 GPA, earn at least C-s in all M.A. courses, and meet the level II criteria in the M.A. program, i.e. achieve a 2.75 overall GPA. Students who enroll in the 4+1 program who do not maintain satisfactory progress or who wish to discontinue the program may apply up to 12 credits of graduate work, if completed with a C or better, to their undergraduate free elective bank. Students enrolled in this accelerated B.A./M.B.A. program may take up to 12 credits of graduate courses at the undergraduate rate in their senior year providing they meet the criteria listed above. Beyond this, students will pay graduate tuition rates for their M.A. courses.

Contingency for Students who do not Complete the M.B.A. program: Students who are dropped from the graduate program or choose not to complete the B.A./M. A. program may earn a B.A. in Africana Studies once they have completed all requirements for that undergraduate degree, achieved at least a 2.0 GPA, and earned at least 120 credits. Students may count up to 12 credits of their graduate courses towards their B.A. requirements; these courses will count as free electives towards the 120 credits required for a B.A. If all 12 credits are attained, the student may receive a Graduate Certificate in Diversity and Inclusion.

Bachelor of Arts in Liberal Studies: Humanities/Social Science

Cindy Finer
Program Advisor
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856.256.4599
finer@rowan.edu

The Liberal Studies: Humanities/Social Science major is a quality liberal arts program that offers students the opportunity to pursue multiple areas of study in the humanities and social sciences. The ability to combine diverse areas of interest is highly desired by traditional as well as non-traditional students to enrich their lives and prepare for productive rewarding careers. This structured yet versatile major provides an excellent interdisciplinary education for increased marketability upon graduation.

Program Requirements

Major courses will be completed in two program sequences. Students must choose one subject from approved Program A Sequences and one from approved Program B Sequences or two may be chosen from Program A Sequences. A minimum number of Free Electives is also required and dependent upon the combined total credits earned in the Program Sequences. Courses used to fulfill the requirements of Program A Sequences may not be used to fulfill requirements for Program B Sequences. Courses eligible for Program A Sequence requirements but not used to fulfill that requirement may be used to fulfill Program B Sequence requirements. Courses used toward Program A and B Sequence completion are not eligible to complete General Education Requirements. The Liberal Studies: Humanities/Social Science program requires a minimum GPA of 2.0 for graduation. In addition, a minimum of 30 credits must be earned at Rowan University to satisfy residency requirements.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Other Requirements

Additional History/Humanities/Language courses	6 s.h.
Additional Social and Behavioral Science courses	6 s.h.
Additional Non-Program courses	11 s.h.

The Liberal Studies: Humanities/Social Science major promotes regular academic advising and consultation with the program advisor for students to follow a clear sequence of courses both in general education and the major Program Sequences for degree completion.

Program Sequence: A Choices

Africana Studies

Required Credits		**18 s.h.**
Introductory Level Courses		6 s.h.
AFST11.104	Introduction to Africana Studies (M/G)	
And choose one course from:		
ENGL02.354	African American Lit I (M/G)	
ENGL02.365	US Latino/aLiterature (M/G)	
SOC08.230	Sociology of Minority Groups (M/G)	
INTR01.130	Women in Perspective	
Advanced Level Courses		9 s.h.
AFST11.304	Africana Social/Political Thought	
Choose one course from:		
AFST11.305	Research Methods in Africana Studies	
HIST05.306	Historical Methods (M/G)	
LAWJ05.380	Criminal Justice Research	
POSC07.360	Methods & Statistics in Political Science Research	
SOC08.375	Sociological Research Methods	
GEOG16.350	Quantitative Methods in Geography	
PSY01.200	Psychology of Women and Cultural Experience (M/G)	
And choose one course from:		
PSY01.310	Psychology of Racism & Ethnocentrism (M/G)	
ENGL02.355	African American Lit II	
HIST05.347	Traditional Latin America	
HIST05.350	Modern Latin America	
HIST05.362	History of Mexico and the Caribbean	
HIST05.376	African American History to 1865	
HIST05.377	African American History since 1865	
HIST05.394	Sub-Saharan Africa to 1800	
HIST05.397	Sub-Saharan Africa since 1800	
Senior Level Capstone		3 s.h.
AFST11.450	Africana Studies Senior Seminar WI	

American Studies

Required Credits		**21 s.h.**
Introductory Level Courses		3 s.h.
AMST13.101	Introduction to American Studies	
Advanced Level Courses		15 s.h.
Choose one course from:		
HIST05.321	US History 1820-1861	
HIST05.322	Civil War & Reconstruction	
HIST05.324	Twentieth Century US	
HIST05.426	Colonial North America 1500-1775	
HIST05.453	Gilded Age & Progressive Era 1877-1914	
HIST05.338	America from War to War	
HIST05.371	US Legal & Constitutional History to 1870	
HIST05.372	US Legal & Constitutional History since 1870	
HIST05.373	Civil Rights/Black Power Movement	
HIST05.375	America since 1945: The Modern Era	
HIST05.407	History of World War II	
HIST05.412	Intellectual History of US	
HIST05.472	Cultural History of US	
HIST05.334	Urban History of US	
HIST05.436	US Home front 1941-1945	
HIST05.438	History of the Vietnam War	
HIST05.470	Issues in American History	
HIST05.471	History of the American West	
HIST05.474	US Labor History	
HIST05.475	History of New Jersey	
HIST05.495	Internship in History	
PHIL09.228	American Philosophy	
POSC07.400	American Political Thought	
ARHS03.310	History of American Art (ACE)	
Choose one course from:		
GEOG16.302	Urban Geography	
HIST05.273	American Military History	
GEOG16.241	Geography of New Jersey	
LAWJ05.312	Criminal Procedure II	
LAWJ05.322	Illegal Drugs & Crime in America	
PHIL09.241	Philosophy & Society	
PHIL09.392	Contemporary Moral Problems (M/G)	
PHIL09.393	Contemporary Moral Problems-WI	
POSC07.308	Current Problems in American Politics	
POSC07.310	American Constitutional Law	
POSC07.340	Civil Rights & Civil Liberties	
SOC08.320	Urban Sociology	
SOC08.326	The Socialization of the Child through Adolescence	
SOC08.330	Social Stratification	
SOC08.331	Classical Social Theory	
SOC08.332	Contemporary Sociological Theory	
SOC08.336	Sociology of Education	
SOC08.431	Social Psychology of City Life	
Choose one course from:		
ENGL02.228	Genre Studies: Short Fiction	
ENGL02.313	US Literature I	
ENGL02.315	US Literature II	
ENGL02.322	Literature of the American Renaissance	
ENGL02.327	Modern American Poetry	
ENGL02.423	The American Novel	
ENGL02.424	American Dramatists	
ENGL02.425	Contemporary Literature	
ENGL05.301	American English Grammar	
RTF03.372	American Film Directors	
THD07.360	Musical Theatre	
Choose one course from:		
ANTH02.310	Indians of North America (M/G)	
ANTH02.350	Comparative Cultures	

ENGL02.200	Gender, Sexuality, and Literature	
ENGL02.354	African/American Literature I (M/G)	
ENGL02.365	US Latino/a Literature (M/G)	
ENGL02.355	African/American Literature II (M/G)	
HIST05.376	Afro-American History to 1865	
HIST05.377	Afro-American History since 1865	
HIST05.422	Women in American History	
LAWJ05.346	Women, Crime & Criminal Justice	
PHIL09.328	Philosophy & Gender (M/G)	
PHIL09.329	Philosophy & Gender-WI	
POSC07.311	Women & American Politics (M/G)	
POSC07.323	Politics of Race, Poverty & Welfare in the US	
PSY01.200	Psychology of Women & Cultural Experience	
REL10.210	Religion in America (M/G)	
RTF03.272	Images of Women in Film	
SOC08.230	The Sociology of Minority Groups (M/G)	
SOC08.370	The Sociology of Women in Society	
SOC08.493	Seminar on Gender Roles	
Choose one course from:		
ECON04.307	Economic Development (M/G)	
ECON04.310	Global Economic	
ECON04.320	Contemporary Economic Systems (M/G)	
GEOG16.303	Political Geography (M/G)	
HIST05.414	Diplomatic History of the US to 1900	
HIST05.415	Diplomatic History of the US since 1900	
HIST05.441	Imperialism & Colonialism	
POSC07.230	Comparative Political Systems (M/G)	
POSC07.321	Contemporary World Problems (M/G)	
POSC07.320	International Relations	
POSC07.330	Contemporary US Foreign Policy	
POSC07.420	International Law	
POSC07.421	International Organizations	
SOC08.327	Comparative Education in Sociological Perspective	
Senior Level Capstone		3 s.h.
AMST13.402	Senior Seminar in American Studies	
AMST13.301	Interdisciplinary Research and Writing (prerequisite College Comp 2)	

Applied Spanish

Required credits		**18 s.h.**
Introductory Level Courses		3 s.h.
SPAN05.212	Spanish Reading and Composition*	
Advanced Level Courses		12 s.h.
Choose four courses from:		
SPAN05.305	Oral Spanish	
SPAN05.300	Spanish Phonetics	
SPAN05.312	Spanish for Business	
SPAN05.313	Spanish for Medical Personnel	
SPAN05.320	Spanish Civilization and Culture	
SPAN05.324	Spanish American Civilization and Culture (M/G)	
SPAN05.340	Intro to Spanish Translation	
Senior Level Capstone		3 s.h.
SPAN05.411	Advanced Spanish Conversation**	

*Upon declaring the Applied Spanish Program Sequence, all students are required to take the **STAMP 4S Spanish Placement Exam** for initial course placement. Contact the Spanish Placement Coordinator, Esther Mas (mas@rowan.edu), for information regarding this exam.

All students must take the **STAMP 4S Spanish Placement Exam again, as a final assessment of proficiency, while enrolled in "Advanced Spanish Conversation."

Economics

Required credits		**21 s.h.**
Introductory Level Courses		9 s.h.
ECON04.101	Introduction to Macroeconomics	
ECON04.102	Introduction to Microeconomics	
MATH03.125	Calculus T&A	

Advanced Level Courses		9 s.h.
ECON04.292	Statistics for Economists	
ECON04.302	Intermediate Microeconomics	
ECON04.392	Econometrics	
Senior Level Capstone		3 s.h.
ECON04.492	Seminar in Economics (WI)	

Geography

Required credits		**21-22 s.h.**
Introductory Level Courses		9-10 s.h.
GEOG16.160	Intro to Mapping and Geographical Information Systems	
And choose **two** courses from:		
GEOG16.100	Earth, People, and the Environment (M/G)	
GEOG16.110	Cultural Geography (M/G)	
GEOG16.130	Earth Sciences Lab I	
GEOG16.140	World Regional Geography (M/G)	
Advanced Level Courses		9 s.h.
Choose **three** courses from:		
GEOG16.301	Economic Geography (M/G)	
GEOG16.302	Urban Geography	
GEOG16.303	Political Geography (M/G)	
GEOG16.304	Population Geography (M/G)	
GEOG16.338	Climatology	
GEOG16.332	Geomorphology	
GEOG16.334	The Geoscience of Natural Disasters	
PLAN31.280	Intro to Planning	
GEOG16.240	Geography of US and Canada	
GEOG16.241	Geography of New Jersey	
GEOG16.342	Geography of Europe (M/G)	
GEOG16.343	Geography of Asia (M/G)	
GEOG16.344	Geography of Latin America (M/G)	
GEOG16.345	Geography of Africa	
GEOG16.346	Geography of Soviet Union (M/G)	
GEOG16.347	Geography of Middle East (M/G)	
Senior Level Capstone		3 s.h.
GEOG16.355	Foundations in Geographic Knowledge (WI)	
GEOG16.490	Senior Seminar WI	

History

Required credits		**18 s.h.**
Introductory Level Courses		6 s.h.
Choose two courses from:		
HIST05.150	US History to 1865	
HIST05.151	US History since 1865	
HIST05.100	Western Civilization to 1660	
HIST05.101	Western Civilization since 1660	
HIST05.120	World History after 1500 (M/G)	
Advanced Level Courses		9 s.h.
HIST05.306	Historical Methods WI	
Choose one 300/400 level Global History Elective		
Choose one 300/400 level History Elective		
Senior Level Capstone		3 s.h.
HIST05.492	Seminar in History WI	

Law & Justice Studies

Required credits		**21 s.h.**
Introductory Level Courses		3-9 s.h.
LAWJ05.175	Survey of Criminal Justice	
And choose **up to two** courses from:		
LAWJ05.201	Intro to Courts	
LAWJ05.255	Criminal Law	
LAWJ05.202	American Police	
LAWJ05.200	Introduction to Corrections	
LAWJ05.120	Introduction to Security	
LAWJ05.285	Criminal Investigation	

LAWJ05.290	Forensic Law	
LAWJ05.276	Parole/Probation & Corrections	
LAWJ05.274	Criminal Justice and Community Relations	
Advanced Level Courses		9-15 s.h
Choose **three to five** courses from:		
LAWJ05.369	Theories of Crime & Criminality	
LAWJ05.380	Criminal Justice Research	
LAWJ05.401	Law & Human Rights (M/G)	
LAWJ05.335	Criminal Procedure I	
LAWJ05.312	Criminal Procedure II	
LAWJ05.361	Introduction to Juvenile Justice	
LAWJ05.320	Civil Aspects of Law Enforcement	
LAWJ05.310	Criminal Jurisprudence	
LAWJ05.305	Law and Evidence	
LAWJ05.367	Theories of Justice	
LAWJ05.205	Minorities and Criminal Justice	
LAWJ05.346	Women, Crime and Criminal Justice	
LAWJ05.315	Criminal Justice and Social Conflict	
LAWJ05.330	Problems in World Justice	
LAWJ05.337	Treatment of the Offender	
LAWJ05.342	Counseling and Guidance of the Offender	
LAWJ05.395	Incarceration Experience	
Senior Level Capstone		3 s.h.
Choose **one** course from:		
LAWJ05.479	Seminar in Police Science WI	
LAWJ05.469	Seminar in Law WI	
LAWJ05.465	Seminar in Social Justice WI	
LAWJ05.461	Seminar in Corrections WI	

Philosophy

Required credits		**21 s.h.**
Introductory Level Courses		6-9 s.h.
PHIL09.120	Introduction to Philosophy (M/G)	
or PHIL09.121	Introduction to Philosophy WI (M/G)	
And choose **one or both** of the following:		
PHIL09.110	Logic of Everyday Reasoning	
PHIL09.130	Introduction to Symbolic Logic	
Advanced Level Courses		9-12 s.h.
PHIL09.211	World Philosophy I WI (M/G) *or*	
PHIL09.213	World Philosophy II WI (M/G)	
And choose **two or three** philosophy courses at the 200, 300 or 400 level		
Senior Level Capstone		3 s.h.
PHRE11.490	Senior Seminar in Philosophy and Religion	

World Religions

Required Credits		**21 s.h.**
Introductory Level Courses		6 s.h.
PHIL09.120	Intro to Philosophy (M/G)	
Or		
PHIL09.121	Intro to Philosophy (WI) (M/G)	
REL10.100	Religions of the World (M/G)	
Advanced Level Courses		12 s.h.
One course at the 100 level or above		
One course at the 200 level or above		
Two courses at the 300 level or above		
Must include minimum of **one** Philosophy and **one** Religion Studies course		
Senior Level Capstone		3 s.h.
PHRE11.490	Senior Seminar in Philosophy and Religion	

Political Science Program

Required credits		**21 s.h.**
Introductory Level Courses: 3- 6 credits		
POSC07.110	American Government (required)	
POSC07.200	Survey of Western Political Theory (optional)	

Advanced Level Courses 12-15 s.h.

POSC07.360	Methodology & Statistics in Political Science Research

And choose **three or four** Political Science courses at the 200, 300, or 400 level, with the exception of Public Service Internship (EDPA02.490), which is ineligible.

Senior Level Capstone 3 s.h.

POSC07.489	Seminar in Political Science (WI)

Sociology

Required credits **18 s.h.**

Introductory Level Courses 6 s.h.

SOC08.120	Introduction to Sociology

And choose **one** course from:

SOC08.221	Social Problems
SOC08.230	Minority Groups (M/G)
SOC08.223	Sociology of Social Welfare
SOC08.220	Sociology of the Family (M/G)
SOC08.269	Self and Society

Advanced Level Courses 9 s.h.

SOC08.331	Classical Social Theory

And choose **two** courses from:

SOC08.401	Human Service Organizations
SOC08.323	Sociology of Social Work
SOC08.339	Sociological Practice
SOC08.333	Sociology of Work
SOC08.336	Sociology of Education
SOC08.370	Sociology of Women
SOC08.353	Sociology of Complex Organizations
SOC08.400	Environment, Policy and Society
SOC08.325	Deviant Behavior and Social Control (WI)
SOC08.431	Social Psychology of City Life
SOC09.323	Sociology of Crime and Criminal Law
SOC08.330	Social Stratification
SOC08.440	Selected Topics
SOC08.320	Urban Sociology

Senior Level Capstone 3 s.h.

SOC08.427	Sociological Imagination (WI)

PROGRAM SEQUENCE: B CHOICES

Advertising in the Workplace

Required Credits **21 s.h.**

Introductory Level Courses 3 s.h.

CMS04.210	Mass Media

Advanced Level Courses 15 s.h.

ADV04.330	Introduction to Advertising
ADV04.375	Advertising Copywriting
PR06.310	Intro to PR and Advertising Research
ADV04.421	Account Planning
ADV04.360	Integrated Marketing Communication

Senior Level Capstone 3 s.h.

ADV04.432	Media Planning

Applied Computing *(Effective Fall 2019)*

Required Credits **18-19 s.h.**

Introductory Level Courses 7 s.h.

CS04.103	Computer Science and Programming (4 cr.)
INTR01.266	Computers and Society (WI)

Advanced Level Courses 11-12 s.h.

*Choose **one** of the following options:*

Option 1: Flexible Model

CS04.171	Creating Android Applications *(prerequisite CS04.113 Intro to Object-Oriented Programming)*
CS01.105	Web Literacy
CS01.190	Introduction to Computer Game Modeling

CS01.210	Introduction to Networks and Data Communications
CS01.211	Principles of Information Security
CS01.205	Computer Lab Techniques *(prerequisite CS04.103)*
CS04.210	Advanced Programming Workshop (2 s.h) *(prerequisite CS04.103)*
CS04.225	Principles of Data Structures
CS10.271	Introduction to Android Programming
CS10.275	Introduction to iOS Programming
CS10.344	Concepts in Computing Technologies

Option 2: Addition of Fundamental Computing CUGS

*Choose **three** courses from:*

CS04.171	Creating Android Applications *(prerequisite CS04.113 Intro to Object-Oriented Programming)*
CS01.105	Web Literacy
CS01.210	Introduction to Networks and Data Communications
CS01.211	Principles of Information Security

*And choose **one** course from Option 1.*

Option 3: Addition of Computer Programming CUGS

CS01.205	Computer Lab Techniques *(prerequisite CS04.103)*
CS04.210	Advanced Programming Workshop (2 cr.) *(prerequisite CS04.103)*

*Choose **one** course from:*

CS10.271	Introduction to Android Programming
CS10.275	Introduction to iOS Programming
CS04.225	Principles of Data Structure
CS10.344	Concepts in Computing Technologies

*And choose **one** course from Option 1.*

Art History *(Updated January 2018)*

Required Credits **18 s.h.**

Introductory Level Courses 6 s.h.

ARHS03.103	Art History Survey I: Prehistory to Medieval
ARHS03.104	Art History Survey II: Renaissance to Modern

Advanced Level Courses 9 s.h.

*Choose **three** courses in Art History at the 200, 300 or 400 level.*

Senior Level Capstone 3 s.h.

*Choose **one** course in Art History at the 300 or 400 level*

Asian Studies

Required Credits **18 s.h.**

Introductory Level Courses 3-6 s.h.

Choose **one or two** courses from:

INTR01.136	Gateway to Asia
CHIN07.101	Elementary Chinese I
CHIN07.102	Elementary Chinese II
CHIN07.201	Intermediate Chinese I
CHIN07.211	Intermediate Chinese II
JAPA08.101	Elementary Japanese I
JAPA08.102	Elementary Japanese II
ENGL02.112	Readings in Asian Literature (LIT) (M/G)
POSC07.350	Asian Political Systems
PHRE11.310	Introduction to Buddhism (M/G)
REL10.230	Religions of Asia (M/G)

Advanced Level Courses 9-12 s.h.

Choose **three or four** courses from:

HIST05.355	Modern China
HIST05.351	Modern Japan
HIST05.408	Chinese Cultural History
PHIL09.330	Asian Thought (M/G)
PHRE11.330	Introduction to Daoism (M/G)
GEOG16.343	Geography of Asia (M/G)
ARHS03.231	Survey of Asian Art

Senior Level Capstone 3 s.h.

Choose one course (must be an Asia-related topic and requires the writing of a research paper)

PHRE11.440	Selected Topics in Philosophy and Religion Studies
PHRE11.490	Senior Seminar in Philosophy and Religion Studies

HIST05.429	Topics in History	
HIST05.492	Senior Seminar in History	

Dance

Required Credits		**23 s.h.**
Introductory Level Courses		6 s.h.
THD08.135	Elements of Dance (3 cr.)	
THD08.140	Dance Improvisation I (1.5 cr.)	
THD08.141	Dance Improvisation II (1.5 cr.)	
Advanced Level Courses		17 s.h.
THD08.465	Dynamics of Human Movement (3 cr.)	
THD08.225	Dance Composition I (3 cr.)	
And choose **9 credits** from:		
THD08.237	Modern Dance I (3 cr.)	
THD08.377	Modern Dance II (3 cr.)	
THD08.378	Modern Dance III (3 cr.)	
THD08.378	Modern IV (1.5 cr.)	
THD08.246	Fundamentals of Ballet (3 cr.)	
THD08.247	Advanced Ballet (repeat up to 9 credits)	
THD08.256	Fundamentals of Jazz (3 cr.)	
THD08.257	Advanced Jazz (up to 9 credits)	
THD08.202	Fundamentals of Tap (3 cr.)	
THD08.203	Advanced Tap (up to 9 credits)	
THD08.222	Dance Musical Theatre (3 cr.)	
THD08.146	World Dance Forms (3 cr.)	
THD08.436	Dance History (3 cr.)	
THD08.315	Creative Dance for Children (3 cr.)	
THD08.337	Choreography (3 cr.)	
Senior Level Capstone		2 s.h.
THD07.460	Senior Project in Theatre Arts (2cr.)	

English *(Effective Fall 2019)*

Required credits:		**18 s.h.**
Introductory Level Courses		6 s.h.
ENGL02.101	Critical Methods I for English Majors	
ENGL02.202	Critical Methods II for English Majors	
Advanced Level Courses:		12 s.h.
*Choose **two** courses from:*		
ENGL02.313	U.S. Literature I	
and ENGL02.315	U.S. Literature II	
or		
ENGL02.309	British Literature I	
and ENGL02.311	British Literature II	
And choose one course from:		
ENGL02.200	Gender, Sexuality, and Literature (M/G)	
ENGL02.218	Introduction to Multi-Ethnic Literatures of the U.S.	
ENGL02.362	Native American Literature	
ENGL02.228	Genre: Short Fiction	
ENGL02.234	Genre: Drama	
ENGL02.235	Genre: Poetry	
ENGL02.305	Contemporary Children's Literature for Non-Majors	
ENGL02.317	Children's Literature: Texts & Contexts	
ENGL02.322	Literature of the American Renaissance	
ENGL02.324	American Realism and Naturalism	
ENGL02.327	Modern and Contemporary American Poetry	
ENGL02.330	Classical Literature in Translation	
ENGL02.340	Literary Theory	
ENGL02.345	Shakespeare I	
ENGL02.354	African American Literature I (M/G)	
ENGL02.355	African American Literature II (M/G)	
ENGL02.360	Asian American Literature	
ENGL02.365	Latino/a Literatures of the U.S.	
ENGL05.301	American English Grammar	

*And choose **one** course from (or another 300-level course from the previous bank)*:*

ENGL02.417	Special Topics in Literature
ENGL02.270	The English Novel
ENGL02.423	American Novel
ENGL02.424	American Drama
ENGL02.430	Anglo-Saxon and Medieval Literature
ENGL02.440	Chaucer
ENGL02.441	English Renaissance Literature
ENGL02.445	Shakespeare II
ENGL02.460	British Literature: The Long Eighteenth Century
ENGL02.470	Special Topics in Multiethnic American Literatures
ENGL02.475	Special Topics in Global Literatures in English
ENGL02.471	English Romanticism
ENGL02.472	Victorian Literature
ENGL02.473	Twentieth Century British and Irish Literature
ENGL02.482	Modern European Literature

*Please note that Senior Seminar (ENGL02.499) is not an eligible course for the upper-level elective requirement.

Journalism

Required Credits		**21 s.h.**
Introductory Level Courses		3 s.h.
JRN02.205	Journalism Principles & Practices	
Advanced Level Courses		15 s.h.
JRN02.310	News Reporting I	
JRN02.321	Online Journalism I	
And choose **three** courses from:		
JRN02.320	Radio News	
JRN02.341	Broadcast News Writing	
JRN02.335	Media Law	
JRN02.411	Copyediting	
JRN02.313	Magazine Article Writing	
JRN02.319	Media Ethics	
JRN02.311	News Reporting II	
JRN02.312	Feature Writing	
Senior Level Capstone		3 s.h.
JRN02.410	Journalism Senior Seminar (WI)	

Mathematics

Required Credits		**22 s.h.**
Introductory Level Courses		8 s.h.
MATH01.130	Calculus I (4 cr.)	
MATH01.131	Calculus II (4 cr.)	
Advanced Level Courses		11 s.h.
(additional prerequisites may be required*)		
Choose **11** credits from:		
MATH01.205	Tech Tools for Discovering Math (2 cr.)	
MATH01.210	Linear Algebra (3 cr.)	
MATH01.230	Calculus III (4 cr.)	
MATH01.231	Ord. Diff. Equation (3 cr.)	
MATH01.310	College Geometry (4 cr.)	
MATH01.330	Introduction to Real Analysis (3 cr.)	
MATH01.331	Real Analysis II (3 cr.)	
MATH01.332	Numerical Analysis (3 cr.)	
MATH01.340	Modern Algebra I (3 cr.)	
MATH01.341	Modern Algebra II (3 cr.)	
MATH01.352	Theory of Numbers (3 cr.)	
MATH01.354	Introduction to Topology (3 cr.)	
MATH01.386	Intro. to Partial Differential Equations (3 cr.)	
MATH01.410	History of Math (3 cr.)	
MATH01.430	Introduction to Complex Analysis (3 cr.)	
MATH03.400	Application of Mathematics (3 cr.)	
MATH03.411	Deterministic Mod. in Op. Research (3 cr.)	
MATH03.412	Stochastic Mod. in Op. Research (3 cr.)	
STAT02.360	Probability & Random Variables (3 cr.)	
STAT02.361	Mathematical Statistics (3 cr.)	

STAT02.371	Stat Design of Exp. I (3 cr.)	
JRN02.310	News Reporting I	
JRN02.318	Enterprise Journalism	
Senior Level Capstone		3 s.h.

Choose **one** 300/400 level Rowan University Math Department course from the list above

Perspectives of Business

Required Credits		**24 s.h.**
Introductory Level Courses		12 s.h.
BUS01.105	Business Perspectives	

And choose **three** courses from:

MGT98.242	Legal Environment of Business	
MKT09.200	Principles of Marketing	
MIS02.234	Management Information Systems	
ENT06.240	Entrepreneurship and Innovation	
Advanced Level Courses		9 s.h.
ACC03.210	Principles of Accounting I	
ACC03.211	Principles of Accounting II	
BUS01.401	Issues in Business: Directed Research (WI)	
Senior Level Capstone		3 s.h.
BUS01.303	Business Practicum	

*Business Practicum (BUS01.303) requires 150 hours of internship experience in a business setting. Before registering for Business Practicum, students must complete the Business Practicum Application, obtain internship supervisor's signature, and receive approval of the faculty supervisor.

Physical Sciences: Chemistry

Required Credits		**23-24 s.h.**
Introductory Level Courses		4 s.h.
CHEM06.100	Chemistry I	
Advanced Level Courses		16 s.h.
CHEM06.101	Chemistry II	
CHEM07.200	Organic Chemistry I	
CHEM07.201	Organic Chemistry II	
CHEM09.250	Quantitative Analysis	
Senior Level Capstone		3-4 s.h.

Advanced Chemistry course subject to approval

Physical Sciences: General (Chemistry and Physics)

Required Credits		**24 s.h.**
Introductory Level Courses		8 s.h.
CHEM06.100	Chemistry I	

And choose **one** course from:

PHYS00.220	Introductory Mechanics	
PHYS00.210	Physics I w/out Calculus	
Advanced Level Courses		8 s.h.
CHEM06.101	Chemistry II	

And choose **one** course from:

PHYS00.222	Introductory Electricity & Magnetism	
PHYS00.211	Physics II w/out Calculus	
Senior Level Capstone		8 s.h.
PHYS00.300	Modern Physics	
CHEM09.250	Quantitative Analysis	

Physical Sciences: Physics

Required Credits		**20 s.h.**
Introductory Level Courses		4 s.h.
PHYS00.150	Physics of Everyday Life	
Advanced Level Courses		12 s.h.

Choose **one** course from:

PHYS00.220	Introductory Mechanics	
PHYS00.210	Physics I w/out Calculus	

And choose **one** course from:		
PHYS00.222	Introductory Electricity & Magnetism	
PHYS00.211	Physics II w/out Calculus	
And choose **one** course from:		
ASTR11.230	Astronomy and Astrophysics	
PHYS00.340	Optics and Light	
Senior Level Capstone		4 s.h.
PHYS00.300	Modern Physics	

Physics

Required Credits		**18 - 20 s.h.**
Introductory Level Courses		4 s.h.
PHYS00.220	Introductory Mechanics (4 cr.)	
Advanced Level Courses		11 - 12 s.h.
PHYS00.222	Introductory Electricity & Magnetism (4 cr.)	
PHYS00.300	Modern Physics (4 cr.)	
And choose **one** course from:		
PHYS00.310	Analytical Mechanics (4 cr.)	
PHYS00.320	Electricity and Magnetism I (4 cr.)	
PHYS00.410	Quantum Mechanics (4 cr.)	
PHYS00.430	Statistical Physics (3 cr.)	
PHYS00.340	Optics and Light (4 cr.)	
Senior Level Capstone		3 - 4 s.h.
Choose **one** course from:		
PHYS00.440	Advanced Laboratory (4 cr.)	
PHYS00.250	Physics Research (3 cr.)	

Public Relations in the Workplace

Required Credits		**18 s.h.**
Introductory Level Courses		3 s.h.
PR06.350	Introduction to Public Relations	
Advanced Level Courses		12 s.h.
ADV04.330	Introduction to Advertising	
PR06.310	Intro to Public Relations and Advertising Research	
PR06.301	Basic Public Relations Writing	
ADV04.360	Integrated Marketing Communication	
Senior Level Capstone		3 s.h.
PR99.362	Public Opinion	

Theater

Required Credits		**22 s.h.**
Introductory Level Courses		7 s.h.
THD07.111	Colloquium I (0.5 cr.)	
THD07.112	Colloquium II (0.5 cr.)	
THD07.201	Intro to Theatre and Dance	
THD07.105	Intro to Performance	
Advanced Level Courses		12 s.h.
Choose **12 credits** from:		
THD07.230	Stagecraft Fundamentals	
THD07.231	Stagecraft II (1.5 cr.)	
THD08.140	Dance Improvisation I (1.5 cr.)	
THD08.141	Dance Improvisation II (1.5 cr.)	
THD07.235	Acting I	
THD07.236	Acting II	
THD07.339	Theatre History to 1700	
THD07.340	Theatre History 1700 – 1956	
THD08.436	Dance History	
THD07.203	Costuming I (1.5 cr.)	
THD07.205	Costuming II (1.5 cr.)	
THD07.310	Foundation of Theatrical Design	
THD08.126	Movement for the Actor	
THD07.103	Speech for the Stage	
THD08.222	Dance for the Musical Theatre	
THD07.360	Musical Theatre	
THD07.363	Singing for the Actor	

THD07.405	Seminar in Theatre	
THD07.430	Directing I	
Senior Level Capstone		3 s.h.
THD07.440	Contemporary World Theater (WI) (LIT) (ACE)	

Urban Studies

Required Credits		**18 s.h.**
Introductory Level Courses		3 – 6 s.h.
Choose **one or two** courses from:		
HIST05.151	United States History Since 1865	
INTR01.130	Women and Gender in Perspective	
SOC08.120	Introduction to Sociology	
ECON04.102	Introduction to Microeconomics	
GEOG16.160	Introduction to Mapping & Geographic Information Systems	
POSC07.220	State and Local Government	
Advanced Level Courses		9 - 12 s.h.
Choose **three or four** courses from:		
ECON04.360	Urban Economics	
ECON04.210	Environmental Economics	
GEOG16.302	Urban Geography	
PLAN31.383	Metropolitan and Regional Planning	
HIST05.334	Urban History of the United States	
HIST05.474	U.S. Labor History	
SOC08.320	Urban Sociology	
SOC08.431	Social Psychology of City Life	
SOC08.422	Social Determinants of Health: Theory, Methods and Intervention	
LAWJ05.381	Crime Mapping and Analysis	
POSC07.323	Politics of Race, Crime, Poverty and Wealth in the US	
HIST05.378	History of Camden	
Senior Level Capstone		3 s.h.
Choose **one** course from:		
HIST05.474	U.S. Labor History	
SOC08.405	Applied Community Development	
INTR20.399	Internship In Applied Liberal Arts (MUST BE IN AN URBAN SETTING/ORGANIZATION)	

Or other Senior Level course approved by the Urban Studies Coordinator

Women's and Gender Studies

Required Credits		**18 s.h.**
Introductory Level Courses		3 s.h.
INTR01.130	Women and Gender in Perspective	
Advanced Level Courses		12 s.h.
Choose **four** courses from:		
ANTH02.322	Sex and Sex Roles in Cross Cultural Perspective	
ARHS03.340	Survey of Women Artists	
ARHS03.425	Special Topics: Art and the Women's Movement	
CMS04.320	Communicating Gender	
CMS04.310	Images of Gender in Popular Culture	
ENGL02.200	Gender, Sexuality, and Literature	
HIST05.417	Women in Islam	
HIST05.418	Women in Europe to 1700	
HIST05.419	Women in Modern Europe	
HIST05.422	Women in American History	
HIST05.425	History of Feminism	
HIST05.455	Gender, Sexuality, and History	
LAWJ05.346	Women, Crime and Criminal Justice	
PHIL09.328	Philosophy and Gender	
POSC07.311	Women in American Politics	
PSY01.200	Psychology of Women and Cultural Experience	
RTF03.272	Images of Women in Film	
SOC08.370	Sociology of Women	
SOC08.440	Selected Topics: Men and Masculinity	
SOC08.493	Seminar on Gender Roles	

Various Selected Special Topics Courses *(as approved by the WGS Council)*

Senior Level Capstone 3 s.h.
Choose **one** course from:

ANTH02.322	Sex and Sex Roles in Cross Cultural Perspective
CMS04.320	Communicating Gender
HIST05.425	History of Feminism
HIST05.455	Gender, Sexuality, and History
LAWJ05.346	Women, Crime, and Criminal Justice
PHIL09.328	Philosophy and Gender
SOC08.370	Sociology of Women

Various Selected Special Topics Courses *(as approved by the WGS Council)*

Writing Arts

Required Credits **22 s.h.**

Introductory Level Courses 3 s.h.

WA01.200	Introduction to Writing Arts *(prerequisite College Comp 2)*

Advanced Level Courses 15 s.h.

WA01.301	The Writer's Mind (WI) *(prerequisites College Comp 2 and 45 credits)*
WA01.301	Writing, Research, and Technology (WI) *(prerequisites College Comp 2, WA01.200 and 60 credits)*

*And choose **one** course from:*

WA07.290	Creative Writing I *(prerequisite College Comp 2)*
WA07.309	Writing Children's Stories *(prerequisite 30 credits)*

*And choose **two** courses from:*

WA01.201	How Writer's Read
WA01.250	Tutoring Writing
WA01.302	Introduction to Technical Writing
WA01.304	Writing Creative Nonfiction (WI)
WA01.322	Writing for the Workplace (WI)
WA01.325	Scientific Writing and Rhetoric
WA01.326	Writing for Nonprofits
WA01.330	Medical Writing and Rhetoric
WA01.350	Rhetorics of Style
WA01.358	Writing and Craft for Elementary Student
WA07.290	Creative Writing I *(if not previously taken)*
WA07.291	Creative Writing II
WA07.309	Writing Children's Stories *(if not previously taken)*
WA07.391	Writing Fiction
WA07.395	Writing Poetry
WA07.415	Writing the Young Adult Novel
CMS04.325	Linguistics
ENGL05.301	American English Grammar
JRN02.313	Magazine Article Writing
JRN02.317	Publication Layout and Design
RTF03.393	Screenwriting I: Writing the Short
RTF03.493	Screenwriting II: Writing the Feature

Senior Level Capstone 4 s.h.

WA01.445	Senior Seminar: Methods of Analysis and Evaluation of Writing (3 cr.) *(prerequisites College Comp 2, WA01.200, and 90 credits)*
WA01.450	Portfolio Seminar (1 cr.) *(prerequisites WA01.300, WA01.301, and completion of OR enrollment in WA01.445)*

ASIAN STUDIES MINOR

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The Asian Studies minor is an interdisciplinary program available to students of all majors. This program is designed to increase the students' understanding of Asian culture and to promote a sophisticated cross-cultural appreciation of our expanding global community. This program is of value to students who are interested in developing careers in business, education, communication and engineering. Those who fulfill a total of eighteen credits of Required Courses, Core Courses and Electives will be awarded a certificate in Asian Studies upon completion of their degree.

The Minor requirements are as follows:

Required Courses (3 s.h.)

ENGL02.112	Readings in Asian Literature
INTR01.136	Gateway to Asia (RS)
POSC07.350	Introduction to Asian Political Systems

Core Courses (9 s.h.)

ARHS03.231	Surveying Asian Art
CHIN07.101	Elementary Chinese I
CHIN07.102	Elementary Chinese II
CHIN07.201	Intermediate Chinese I
CHIN07.211	Intermediate Chinese II
GEOG16.343	Geography of Asia
HIST05.355	Modern China
HIST05.351	Modern Japan
HIST05.356	Late Imperial China
HIST05.408	Chinese Cultural History
HIST05.446	Race, Identity and History in East Asia
JAPA08.101	Elementary Japanese I
JAPA08.102	Elementary Japanese II
JAPA08.201	Intermediate Japanese I
JAPA08.211	Intermediate Japanese II
JAPA08.212	Intermediate Japanese III
PHIL09.231	Asian Thought
PHRE11.330	Daoism (M/G)
PHRE11.310	Buddhism
REL10.230	Religions of Asia
SOC08.391	Ethnic Minorities in China

Elective Courses (6 s.h.)

ANTH02.202	Intro to Cultural Anthropology
ANTH02.350	Comparative Cultures
ANTH02.420	Culture and Personality
ECON04.307	Economics of Developing Nations
ECON04.310	International Economics
ECON04.320	Contemporary Economic Systems
ENGL02.116	Introduction to Global Literatures in English
FIN04.435	International Finance and Management
GEOG16.140	World Regional Geography
HIST05.120	World History since 1550
HIST05.441	Imperialism and Colonialism
INTR01.130	Women in Perspective
LAWJ05.330	Problems of World Justice
MKT09.379	International Marketing
MUSG06.447	Music In World Cultures I: Asia and Oceania
MUSG06.448	Music In World Cultures II: Africa, India, Near & Middle East
PHRE11.350	Spirituality and Healing
POSC07.230	Comparative Political Systems
POSC07.321	Contemporary World Problems
POSC07.320	International Relations
POSC07.421	International Organizations
REL10.100	World Religions
SOC08.220	The Sociology of the Family
SOC08.221	Social Problems
SOC15.322	The Sociology of Population
THD07.440	Contemporary World Theater
THD08.146	World Dance Forms

JEWISH STUDIES MINOR

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Program Requirements 18 s.h.

Jewish Focus Core (9 credits from among the following:)

HIST05.404	Arab-Israeli Conflict	3 s.h.

Prerequisite of Historical Methods course required only for History majors

HIST05.406	Jewish Holocaust 1933-1945	3 s.h.

Prerequisite of Historical Methods course required only for History majors

REL10.301	Introduction to Judaism	3 s.h.
REL10.214	Religions of the Western World	3 s.h.
SOC08.365	Contemporary Jewish Life	3 s.h.
SOC08.399	Sociology of the Holocaust	3 s.h.
SPAN05.440/HONR05.390	Christians, Jews, and Muslims in Medieval Spain	3 s.h

Contextual Core (9 credits from among the following:)

HIST05.308	Modern Middle East	3 s.h.
or GEOG16.347	Geography of the Middle East	3 s.h.
or POSC07.345	Government and Politics of the Middle East	3 s.h.
REL10.100	Religions of the World	3 s.h.
REL10.240	Introduction to Bible	3 s.h.
SOC08.230	Minority Groups	3 s.h.
SOC08.322	Sociology of Religion	3 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN JEWISH STUDIES

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The Certificate in Undergraduate Study (CUGS) in Jewish Studies is a multi-departmental program designed to complement and enhance a student's major program, as well as to prepare students for graduate studies and professional careers, including those in Jewish studies, clergy, ethnic/racial studies, leadership in multicultural and religious organizations. Its purpose is to allow students to study in greater depth the historical, sociological and religious context of contemporary Jews and Jewish life. The CUGS provides an interdisciplinary survey of issues related to contemporary Jews and a comparison to other ethnic and cultural groups in the United States and abroad.

Certificate of Undergraduate Study in Jewish Studies 12 s.h.

The requirements include the following:

A total of 12 credit hours are required to complete the CUGS. The Jewish focus courses must provide at least 6 credit hours, but may provide all 12 credit hours required. Up to 6 credits may come from the "contextual focus" courses.

Jewish focus courses (each worth 3 credits) include:

REL10.301	Judaism
REL10.214	Religions of the Western World
SOC08.365	Contemporary Jewish Life

And one of the following courses which focus on a specific period in Jewish history:

HIST05.406	Jewish Holocaust 1933-1945 (prerequisite: HIST05.306 Historical Methods)
or SOC08.399	Sociology of the Holocaust (prerequisite: SOC08.120 or SOC08.121)
or SPAN05.440/HONR05.390	Christians, Jews, and Muslims in Medieval Spain

Contextual focus courses (each worth 3 credits) include

REL10.340	Selected Topics in Religion Studies: Interreligious Dialogue
SOC08.320	Minority Groups (prerequisite Introduction to Sociology SOC08.120 or SOC08.121)

One of the following courses

REL10.100	Religions of the World
or REL10.240	Introduction to Bible

One of the following courses:

HIST05.308	Modern Middle East (prerequisite Historical Methods HIST05.404)
or GEOG16.347	Geography of the Middle East
or POSC07.345	Government and Politics of the Middle East
or HIST05.404	Arab-Israeli Conflict (prerequisite Historical Methods HIST05.306)

The CUGS in Jewish Studies will be awarded when at least 6-12 semester credits of the Jewish focus courses and/or up to 6 semester credits in the contextual focus courses have been completed. Completion of all required coursework must be in accordance with University requirements for good standing.

MINOR IN LATIN AMERICAN STUDIES

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Christine Larsen-Britt
Advisor
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The Minor in Latin American Studies, which may be declared in the World Languages Department in Bunce Hall, Suite 305, with Christine Larsen-Britt (advise@rowan.edu), or at the University Advising Center, Suite 323, Savitz Hall, offers students both breadth and depth, encouraging them to draw connections between different academic approaches in order to understand the diversity, influence, and complexity of Latin America. The cultural competence gained through this program will prepare students to interact with and contribute to diverse populations with greater cultural awareness and sensitivity. Furthermore, the interdisciplinary foundation that this program provides will also enhance students' preparation for a wide variety of careers both in Latin America and with Latino populations at home in the U.S., such as in foreign and public service, international sales and business, humanitarian work, government, politics, international law, and global health care.

This 18 s.h. minor is open to all students. For Spanish Placement Exam information, please contact Esther Mas at mas@rowan.edu. All courses must be passed with a letter grade of "C-" or better and no courses may be taken P/NC. Students planning to study abroad must meet with their Advisor in order to determine course equivalents. For more information, visit our website, Department of World Languages or contact the Department for the latest details.

Minor in Latin American Studies 18 s.h.

Required Courses (6 credits):

HIST05.350	Modern Latin America
AND GEOG16.344	Geography of Latin America

Required Spanish Language Proficiency (0 – 3 credits):

SPAN05.211	Spanish Reading and Conversation

OR STAMP 4S Spanish Placement Exam result indicating equivalent proficiency (placement into fifth-semester, Spanish Reading and Comp. SPAN05.212)

Elective Courses (9-12 credits):

Choose three or four of the following courses from at least three different categories (three electives are selected if "Spanish Reading and Conversation," above, is taken; if not, four electives are chosen from below):

Category 1: Native Americans in Latin America:

ANTH02.210	Natives of South America
ANTH02.326	The Maya
HONR05.390	Linguistics and Cultures of Native South America
QUEC10.100	Modern Descendants of the Incas: Quechua Language, Culture and History

Category 2: History of Latin America:

HIST05.347	Traditional Latin America
HIST05.362	History of Mexico & the Caribbean
HIST05.409	Latin American Revolutions and Reform
HIST05.411	Topics in Latin-American History

Category 3: Latino and Hispanic Literature in English:

ENGL02.365	U.S. Latino/a Literature
SPAN05.100	Masterpieces of Hispanic Lit. in English Translation

Category 4: Hispanic Language, Literature, and Culture in Spanish:

SPAN05.212	Spanish Reading and Composition
SPAN05.324	Spanish American Civilization and Culture
SPAN05.301	Appreciation of Hispanic Literature
SPAN05.327	Spanish American Poetry
SPAN05.328	Spanish American Theatre

SPAN05.383	Spanish American Short Story
SPAN05.426	Spanish American Novel
SPAN05.440	Special Topics (Spanish American)
SPAN05.450	Internship in Spanish (Spanish American)

CERTIFICATE OF UNDERGRADUATE STUDY IN MIDDLE EAST STUDIES (CUGS)

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The CUGS in Middle East Studies aims to develop students' understanding of the history of the Middle East from the rise of Islam in the 7th century C.E. and the complexity of contemporary issues and problems; it also aims to develop skills that will help students professionally after they graduate.

The Middle East Studies CUGS requires 12 s.h. or four courses taken from at least two departments:

HIST05.383	Islamic Civilizations*
or HIST05.439	Ottoman Empire *

*Note: HIST05.306 Historical Methods is a prerequisite for both courses; students enrolled in this CUGS can receive a prerequisite waiver after completing COMP01.112 College Composition II; contact Ms. Christine Larsen-Britt, Larsen-britt@rowan.edu, for a waiver.

POSC07.345	Government and Politics of the Middle East
or HIST05.308	Modern Middle East*

*Note: HIST05.306 Historical Methods is a prerequisite; non-History majors can receive a waiver completing COMP01.112 College Composition II.

Two electives at any level from courses listed below. Students enrolled in this CUGS may get a prerequisite waiver for any of the history courses listed.

HIST05.383	Islamic Civilizations (if not taken as a core course)
HIST05.439	Ottoman History (if not taken as a core course)
HIST05.308	Modern Middle East (if not taken as a core course)
POSC07.345	Government and Politics of the Middle East (if not taken as a core course)
HIST05.404	Arab-Israeli Conflict (HIST05.306 Historical Methods is a prerequisite)
HIST05.417	Women in Islam (HIST05.306 Historical Methods is a prerequisite)
HIST05.444	Islamist Movements (HIST05.306 Historical Methods is a prerequisite)
GEOG16.347	Geography of the Middle East
LAWJ05.415	International Terrorism
POSC07.489	Seminar in Political Science*

*Note: POSC07.360 Methods and Statistics in Political Science Research is a prerequisite) with approval of Dr. Somdahl, coordinator of the Middle East Studies CUGS, and a final paper written about the Middle East.

ARAB12.101	Elementary Arabic I
or ARAB12.102	Elementary Arabic II
or ARAB12.201	Intermediate Arabic I
or ARAB12.211	Intermediate Arabic II

(i.e. only one language course may count towards the CUGS).

URBAN STUDIES MINOR

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New Jersey, the nation's most urban and most densely populated state, provides a compelling laboratory for the study of urbanism, urban places and associated problems such as sprawl, segregation, income disparity, poverty, crime, health and other issues. The Urban Studies minor provides a format for students to engage in a systematic, yet wide ranging, study of urbanism on a local, national and global scale. The Urban Studies minor is interdisciplinary and available to students from all majors.

Students are required to complete at least 21 credits (seven courses). Of these, at least 9 credits (three courses) must be taken in the Urban Studies Core. Among these Core courses, students must take courses in three of the following five subject areas: Economics, Geography, History, Political Science, and Sociology. An additional 12 credits (four courses) must be completed from either the remaining Urban Studies Core classes, from the related disciplinary clusters detailed below, or

from the list of eligible elective courses following the cluster listing. Students may take up to, but not more than, three of these additional courses from a single Department. Thus, no student can count more than four courses from one department toward their Urban Studies Minor (one of the Core classes and up to three additional courses). The minor may be pursued in conjunction with a major program; it can also be integrated with general education requirements.

Core Courses

Economics Courses	
ECON04.360	Urban Economics
ECON04.210	Environmental Economics
Geography Course	
GEOG16.302	Urban Geography
History Courses	
HIST05.334	Urban History of the United States
HIST05.474	U.S. Labor History
Political Science	
TBA	
Sociology Courses	
SOC08.320	Urban Sociology
SOC08.431	Social Psychology of City Life
Recomended Courses	
GEOG16.302	Urban Geography
PLAN31.383	Metropolitan and Regional Planning
HIST05.378	History of Camden
POSC07.220	State and Local Government
POSC07.323	The Politics of Poverty: Class, Gender, and Race in America
POSC07.324	The Politics of Race in American Society
SOC08.422	Social Determinants of Health: Theory, Methods and Intervention
SOC08.405	Applied Community Development
SOC08.441	Sociology of Migration: Contemporary Perspectives
SOC08.442	Environmental Justice: Race, Class, and Gender
SOC08.450	Sociology of Ethnicity and Politics
SOC08.488	Critical Race Theory: Social Justice, Advocacy and Intervention
SOC08.490	Social Dynamics of Political Violence, Insurgency and Civil Unrest

WOMEN'S AND GENDER STUDIES MINOR

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The Women's and Gender Studies program offers an interdisciplinary global minor, with courses open to students in all majors. Courses from the minor may also be used as electives or as part of the general education requirements. The major objectives of the minor are to increase knowledge about women and gender; to examine women's and men's roles across disciplines; to stimulate re-evaluations of the gender roles in society; to increase awareness of the status of women globally; and to value the contributions of women across cultures and time periods. Women's and Gender Studies courses provide an opportunity for intensive study and in-depth analysis.

The successful completion of eighteen (18) semester hours, including the core course, is required. Students interested in pursuing a minor should contact the Coordinator of the program for further information and advisement. They should also declare the minor through the University Advising Center.

Each student enrolled in the Women's and Gender Studies minor is required to:

1. Take the core course, Women and Gender in Perspective OR Honors Women and Gender in Perspective (INTR01.130)
2. Take fifteen (15) credits of approved Women's and Gender Studies courses (ranked First and Second Tier) of which nine (9) credits must be from the First Tier. If a student is taking a course that has significant gender content but is not listed below, please contact the Coordinator to consider the course for fulfilling program requirements.

Required Core Course (3 s.h.)

INTR01.130	Women and Gender in Perspective **OR** Honors Women and Gender in Perspective

First Tier Courses (minimum of three courses [9 s.h.] required for minor

ANTH02.322	Sex and Sex Roles in Cross Cultural Perspective
ARHS03.230	Survey of Women Artists
ARHS03.425	Special Topics: Art and the Women's Movement
CMS04.310	Images of Gender in Popular Culture
CMS04.320	Communicating Gender
CMS04.327	Communicating Women and Nonbinary Identity in Sports
ENGL02.200	Gender, Sexuality and Literature
HIST05.417	Women in Islam
HIST05.418	Women in Europe to 1700
HIST05.419	Women in Modern Europe
HIST05.423	Women in Early American History
HIST05.424	Women in Modern American History
HIST05.425	History of Feminisms
HIST05.455	Gender, Sexuality and History
LAWJ05.346	Women, Crime and Criminal Justice
PHIL09.328	Philosophy and Gender
PHIL09.329	Philosophy and Gender (Writing Intensive)
POSC07.311	Women in American Politics
PSY01.200	Psychology of Women and Cultural Experience
REL10.355	Sex and the Bible
RTF03.272	Images of Women in Film
SOC08.370	Sociology of Women in Society
SOC08.440	Selected Topics: Men and Masculinity
SOC08.493	Seminar on Gender Roles

Second Tier Courses (maximum of two courses [6 s.h.] counted toward minor)

CMS04.323	Images of Athletes in Popular Culture
CMS04.375	Special Topics: Images of Identity
ENGL02.205	Adolescent Literature
ENGL02.362	Native American Literature
ENGL02.365	U.S. Latino/a Literature
ENGL02.305	Contemporary Children's Literature
ENGL02.317	Honors Children's Literature: Texts and Contexts
HIST05.429	Special Topics: History of Witchcraft
HIST05.443	Special Topics: Childhood and Youth in Africa
HIST05.450	History of Childhood and Youth in America
PHIL09.260	Philosophy and Ethics of Love
POSC07.323	The Politics of Poverty: Class, Gender, and Race in America
PSY01.423	Seminar: Eating Disorders
PSY05.310	Psychology of Human Sexuality
RTF01.402	Special Topics: Queer Film
RTF03.485	Deconstructing Disney
SOC08.220	Sociology of the Family
SOC08.281	Sexuality and Society

CERTIFICATE OF UNDERGRADUATE STUDY IN WOMEN, GENDER, AND MEDIA

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Women's and Gender Studies is an interdisciplinary field that examines gender roles in the complex contexts of culture and society, raising important questions about social, political, economic, and cultural institutions. The Certificate of Undergraduate Study in Women, Gender, and Media fosters intellectual development and professional preparation by drawing upon academic areas such as art history, communications studies, film studies, and literature, broaden understanding of gender and diversity issues in media.

Certificate of Undergraduate Study in Women, Gender, and Media 12 s.h.

The requirements include the following core course:

INTR01.130	Women and Gender in Perspective **OR** Honors Women and Gender in Perspective

And three electives drawn from the course list below:

ARHS03.340	Survey of Women Artists
CMS04.310	Images of Gender in Popular Culture
CMS04.320	Communicating Gender
ENGL02.200	Gender, Sexuality, and Literature
RTF03.272	Images of Women in Film

CERTIFICATE OF UNDERGRADUATE STUDY IN WOMEN, GENDER, AND SOCIETY

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Gender pervades all aspects of social life including, but by no means limited to, education, employment, marriage, and parenting. The interdisciplinary nature of the Certificate of Undergraduate Study in Women, Gender, and Society will provide a solid foundation to students who seek a better understanding of the social construction of gender. The study of how society shapes gender roles and vice-versa will enrich our students' understanding of contemporary social phenomena. Embodiments of gender affect social relations across many vectors of institutional structures and personal relationships. The Certificate of Undergraduate Study in Women, Gender, and Society will equip students with the tools to analyze these issues and prepare them to assume leadership roles in their professional and personal lives.

Certificate of Undergraduate Study in Women, Gender, and Society 12 s.h.

The requirements include the following core course:

INTR01.130	Women and Gender in Perspective **OR** Honors Women and Gender in Perspective

And three electives drawn from the course list below:

ANTH02.322	Sex and Sex Roles in a Cross Cultural Perspective
LAWJ05.346	Women, Crime, and Criminal Justice
HIST05.423	Women in Early American History
HIST05.424	Women in Modern American History
PHIL09.328	Philosophy and Gender **OR**
PHIL09.329	Philosophy and Gender (Writing Intensive)
POSC07.311	Women in American Politics
PSY01.200	Psychology of Women and Cultural Experience
SOC08.370	Sociology of Women

College of Science and Mathematics

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Mission

The College of Science & Mathematics is dedicated to excellence in undergraduate and education and research and increasing the number of students choosing these fields of study. We promote a student-centered approach to learning in a research-rich environment both inside and outside of the classroom. We are committed to providing our students with outstanding degree programs in basic and applied sciences and mathematics and preparing them to function in a multi-cultural and economically interdependent world. As a result, we are preparing students to succeed in quality graduate/professional programs and careers in industry, education, research, government and health professions. The College of Science & Mathematics plays an essential role in educating non-science majors. For these majors, we will provide a sound grounding in the essentials of science and mathematics that will enable them to better understand the world in which they live and the role of science and scientific thinking in their society.

Departments

The departments in the College are: Biological & Biomedical Sciences, Chemistry & Biochemistry, Computer Science, Mathematics, Physics & Astronomy, and Psychology.

Programs Offered

The College provides General Education courses in the natural sciences, behavioral sciences, and mathematics. These courses give our students a breadth of knowledge while developing skills in oral and written communication, quantitative reasoning, computing, critical thinking, and research. Our students go on to acquire a depth of knowledge in one of the major programs in the College. Expert faculty who have distinguished themselves in their disciplines through research, scholarship, and other professional activities help our students learn both in the classroom, through engaging lectures and interactive pedagogical approaches, and outside of the classroom, through laboratories and research projects. Our faculty care genuinely about the success of our students and make themselves available for advising, mentoring, and academic discussion.

The College also offers pre-professional programs in medicine and allied health. Articulation agreements between Rowan University and professional schools of dentistry, medicine, medical technology, optometry, podiatry and veterinary science help our students make a smooth transition to those schools.

Undergraduate Degree Programs

Biological Sciences BS

Biological Sciences BA

Bioinformatics BS

Biochemistry BS

Biophysics BS
Chemistry BS
Chemistry BA
Computer Science BS
Computing and Informatics BA
Mathematics - BS/BA
Molecular and Cellular Biology - BS
Physics - BS/BA
Psychology - BA
Psychological Science - BS
Translational Biomedical Sciences - BS

Undergraduate Minors

Applied Mathematics
Astronomy
Biological Sciences
Chemistry
Computer Science
Data Science
Mathematics
Materials Science
Neuroscience (Bio & Psychology)
Physics
Psychology
Pre-Medical
Statistics & Operations Research

Certificates and Post-Baccalaureates

Certificate of Undergraduate Study (CUGS)
Biological Sciences
- Biotechnology

Chemistry & Biochemistry
- Pharmaceutical Science

Computer Science
- Computer Programming
- Cyber Security
- Fundamental Computing
- Mobile Application Development
- Blockchain Technologies and Cryptocurrencies

Mathematics
- Statistics

Molecular & Cellular Biosciences
- Bioinformatics
- Biotechnology

Physics & Astronomy
- Health Physics

Psychology
- Industrial Organizational Psychology

Post-Baccalaurates

Applied Behavior Analysis
Applied Pre-Health Studies

Accelerated Degree Programs – Masters Degrees

B.A./B.S. in Biological Sciences and M.A in STEM Education

B.S. in Biochemistry and M.S. in Pharmaceutical Sciences
B.S. in Chemistry and M.S. in Pharmaceutical Sciences
B.A./B.S. in Chemistry and M.A in STEM Education
B.S. in Biochemistry and M.S. in Cell & Molecular Biology (SOM-GSBS)
B.S. in Biological Sciences and M.S. in Cell & Molecular Biology (SOM-GSBS)
B.S. in Bioinformatics and M.S. in Bioinformatics
B.S. in Bioinformatics and M.S. in Cell & Molecular Biology (SOM-GSBS)
B.S. in Molecular & Cellular Biology and M.S. in Cell & Molecular Biology (SOM-GSBS)
B.S. in Computer Science and M.S. in Computer Science
B.S. in Computer Science and M.S. in Data Science
B.S. in Computer Science and M.S. in Bioinformatics
B.A. in Computing and Informatics and M.S. in Bioinformatics
B.S. in Translational & Biomedical Sciences and M.S. in Cell & Molecular Biology (SOM-GSBS)
B.S. in Biophysics and M.S. in Cell & Molecular Biology (SOM-GSBS)
B.S. in Physics and M.S. in Data Analytics
B.A./B.S. in Physics and M.A in STEM Education
Physical Science and M.A in STEM Education
B.S. in Mathematics and M.A. in Mathematics
B.A./B.S. in Mathematics and M.A in STEM Education
BS. in Mathematics and M.S. in Data Science

Accelerated Degree Programs – Medical Degrees
B.S. in Biology and M.D degree (CMSRU)
B.S. in Biology and D.O degree (Rowan SOM)
B.S. in Biochemistry and M.D. degree (CMSRU)
B.S. in Biochemistry and D.O degree (Rowan SOM)
B.S. in Biophysics and M.D. degree (CMSRU)*
B.S. in Biophysics and D.O degree (Rowan SOM)*
B.S. in Molecular & Cellular Biosciences and M.D. degree (CMSRU)**
B.S. in Molecular & Cellular Biosciences and D.O degree (Rowan SOM)**

Concentrations
Psychology

Department of Biological & Biomedical Sciences

Stephen Bentivenga
Department Head
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The Biological & Biomedical Sciences Department offers several liberal arts majors, minors, and programs for students interested in the multidisciplinary study of the processes that shape and control all life. Students in these programs and courses receive diverse training in life sciences, chemistry, mathematical and computational skills, and physical sciences. Research opportunities for students and innovative curricula combine to prepare students interested in multiple career paths and competitive pursuit of graduate and professional training to enter the biomedical research and healthcare workforces.

Our major programs, Biological Sciences (B.A. and B.S.), Bioinformatics (B.S.), Translational Biomedical Sciences (B.S.), and Molecular & Cellular Biology (B.S.), are well-rounded but also flexible enough that students can specialize in a particular area of interest. Coursework for these majors prepares students for success in a range of life science careers and includes the development of scientific skills and an understanding of biological principles. Each of the B.S. degrees provide opportunities for students to pursue careers in medical, biomedical, and research-related fields. These programs align with Rowan University's affiliations with multiple health profession schools, including schools of medicine, dentistry, optometry, physical therapy, podiatry, radiation therapy, toxicology, and veterinary medicine. Students interested in pursuing a career in K-12 education may complete a double major in biology and subject matter education or choose an accelerated pathway leading to an M.A. degree in STEM education. Each of these options can lead to the Biological Sciences Certificate required for public school teaching.

Students are encouraged to become engaged in research with faculty members, including required laboratory research experiences in the Bioinformatics, Translational Biomedical Sciences, and Molecular & Cellular Biology majors. Such research opportunities are a unique experience, allowing a student to work closely with faculty members, and potentially network with faculty and students at Rowan's affiliated medical schools, Cooper Medical School and the Rowan University School of Osteopathic Medicine. Several accelerated programs have been developed that support dual B.S.-M.S., B.S.-M.D.,

and B.S.-D.O. degrees.

Students majoring in any of these programs may participate in any of several minors and CUGS offered by Rowan University. Programs well-suited to our majors include the Pre-Medical minor, and Medical Social Science minor, Chemistry minor, and Neuroscience minor.

The Biological & Biomedical Sciences Department also supports a variety of other programs on campus as well as General Education. The Department offers a number of courses intended for non-majors, including:

BIOL01.110	Human Biology
BIOL20.100	Introduction to Natural Resources
BIOL01.112	General Biology: Environmental Focus
BIOL01.113	General Biology: Human Focus
BIOL01.115	General Biology: Plants & People

All departmental majors should be aware that the above courses may not be counted towards their degrees.

BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES

Students majoring in Biology are required to take a four-semester introductory sequence. While this sequence offers greater content knowledge coverage compared to a traditional Biology I & II sequence, it also includes extensive development of skills in the areas of reading and researching primary literature, scientific writing, experimental design, and data analysis.

Beyond the core sequence, majors must take an additional 22 semester hours of Biology courses which must include at least four different laboratory courses. A course in Special Topics in Biological Sciences is required during the student's Senior year. A grade of C or higher must be earned in each biology course. An average grade of C is also required for the chemistry, physics, math, and statistics courses listed below. The B.S. can also be combined with the Master of Arts in STEM Education in an Accelerated Dual Degree Program. The Master of Arts in STEM Education is described in the Graduate Catalog under the College of Education.

The Department of Biological & Biomedical Sciences advises all students that all Biology courses may require observation of, dissection of, manipulation of and experimentation with living or preserved organisms. These exercises are an integral part of biology courses and provide an essential experience.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required (Comprehensive Education or Core) Courses: (may also fulfill General Education or Rowan Core Requirements)

BIOL01.104	Introduction to Evolution and Scientific Inquiry
CHEM06.100	Chemistry I
PHIL09.369	Philosophy of Science
or PHIL09.376	Philosophy of Medicine
MATH01.130	Calculus I

Required (Foundational) courses for the Bachelor of Science in Biological Sciences

*BIOL01.106	Introduction to Genetics
*BIOL01.203	Introduction to Cell Biology
BIOL01.204	Introduction to Ecology
CHEM06.101	Chemistry II
CHEM07.200	Organic Chemistry I
CHEM07.201	Organic Chemistry II
PHYS00.210	Physics I
PHYS00.211	Physics II
STAT02.280	Biometry

*Transfer students who have taken the equivalent of BIOL01.100 (Biology I) and BIOL01.101 (Biology II) at another institution are required to take BIOL01.202 (Biological Skills for Transfer Students), which will allow them to take BIOL01.204. This will complete the introductory sequence and allow them to take most Biology electives.

Additional Required Courses

BIOL01.445	Special Topics (Senior Seminar)	
or BIOL01.475	(Lab/Field Research)	3 s.h.

Biology Electives 22 s.h

Students may choose electives from any 300 or higher-level Biology courses, as well as one 200-level course such as BIOL10.210 (Human Anatomy and Physiology I) and BIOL10.212 (Human Anatomy and Physiology II). Students may

count one 200-level course toward the requirement of four elective lab courses for the major.

Total credits in program **120 s.h.**

BACHELOR OF ARTS IN BIOLOGICAL SCIENCES

Students majoring in Biology are required to take a four-semester introductory sequence. While this sequence offers greater content knowledge coverage compared to a traditional Biology I & II sequence, it also includes extensive development of skills in the areas of reading and researching primary literature, scientific writing, experimental design, and data analysis.

Beyond the core sequence, majors for the Bachelor of Arts must take an additional 15 semester hours of Biology courses which must include at least three different 300-level laboratory courses. A course in Special Topics in Biological Sciences is required during the student's Senior year. A grade of C or higher must be earned in each biology course. The B.A. can also be combined with the Master of Arts in STEM Education in an Accelerated Dual Degree Program. This 5-year program allows students to earn both degrees and teaching certification with 1 (or even 2) fewer years than the standard path. The Master of Arts in STEM Education is described in the Graduate Catalog under the College of Education.

The Department of Biological & Biomedical Sciences advises all students that all Biology courses may require observation of, dissection of, manipulation of and experimentation with living or preserved organisms. These exercises are an integral part of biology courses and provide an essential experience.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required (Comprehensive Education or Core) Courses: (may also fulfill General Education or Rowan Core Requirements)

BIOL01.104	Introduction to Evolution and Scientific Inquiry
CHEM06.100	Chemistry I
PHIL09.369	Philosophy of Science
or PHIL09.376	Philosophy of Medicine

Required (Foundational) courses for the Bachelor of Arts in Biological Sciences

*BIOL01.106	Introduction to Genetics
*BIOL01.203	Introduction to Cell Biology
BIOL01.204	Introduction to Ecology
CHEM06.101	Chemistry II
PHYS00.210	Physics I without Calculus
PHYS00.211	Physics II without Calculus
STAT02.280	Biometry
or STAT02.260	Statistics 1

*Transfer students who have taken the equivalent of BIOL01.100 (Biology I) and BIOL01.101 (Biology II) at another institution are required to take BIOL01.202 (Biological Skills for Transfer students), which will allow them to take BIOL01.204. This will complete the introductory sequence and allow them to take most Biology electives.

Additional Required Courses

BIOL01.445	Special Topics (Senior Seminar)	3 s.h.

Biology Electives 15 s.h

Students may choose electives from any 300 or higher-level, laboratory-based Biology courses

Total credits in program **120 s.h.**

BACHELOR OF SCIENCE IN BIOINFORMATICS

Bioinformatics is a multidisciplinary field of study that uses computational and statistical tools to answer large biological questions. The advent of next-generation DNA/RNA sequencing and other high-throughput biological techniques has resulted in extremely large datasets. In this program, students will learn underlying biological concepts as well as how to store, process and interpret such datasets.

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General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Non-Program Courses (19 s.h.)

CHEM06.100	Chemistry I
MATH01.130	Calculus I
PHIL09.369	Philosophy of Science- WI
or PHIL09.376	Philosophy of Medicine- WI
PHYS00.220	Introductory Mechanics
PHYS00.222	Introductory Electricity & Magnetism
or PHYS00.221	Introductory Thermodynamics, Fluids, Waves, & Optics

Major Requirements (77 s.h.)

Foundational Courses

CHEM06.101	Chemistry II
MATH01.131	Calculus II
MCB01.101	Foundations in Biology for Biomedical Sciences I
MCB01.102	Foundations in Biology for Biomedical Sciences II

Mid-Level Courses

BINF07.310	Introduction to Bioinformatics
CHEM07.200	Organic Chemistry I
CHEM07.201	Organic Chemistry II
CS04.103	Computer Science & Programming
CS04.225	Principles of Data Structures
STAT02.284	Statistics for Biomedical Sciences

Upper-level Courses

BINF05.355	Bioinformatics - Biological Applications
BINF05.360	Programming for Molecular Biology
BINF07.595	Bioinformatics - Biochemical Applications
BIOL22.335	Advanced Genetics
CHEM07.348	Biochemistry
CS01.205	Computer Laboratory Techniques
CS04.301	Bioinformatics - Computational Aspects
TBS01.220	Translational Biomedical Research I
or CHEM05.440	Chemistry Research I
or BIOL01.475	Biology Lab/Field Research

BINF Restricted Elective Courses

Students should choose five courses in consultation with an advisor. At least two BINF Restricted Electives must be 4 sh lab courses, minimum of 17 sh total.

BIOL01.310	Advanced Evolution
BIOL01.430	Advanced Cell Biology
BIOL01.445	Special Topics in Biological Sciences –WI
BIOL01.405	Conservation Biology
BIOL01.428	Developmental Biology
BIOL11.330	Microbiology
BIOL11.405	Environmental Microbiology
BIOL20.310	Advanced Ecology
CHEM07.407	Advanced Biochemistry Lecture
CHEM07.409	Advanced Biochemistry Laboratory
CHEM07.410	Medicinal Chemistry
CHEM07.431	Advanced Topics in Biochemistry
CHEM08.305	Biophysical Chemistry
CHEM08.410	Survey of Molecular Modeling Methods
CS04.113	Introduction to Object Oriented Programming
CS04.114	Object Oriented Programming & Data Abstraction
CS06.205	Computer Organization

CS06.390	Introduction to Systems Simulation & Modeling
CS07.370	Introduction to Information Visualization
MCB01.201	Molecular Biology Methods
MCB01.306	Translational Cell Biology Lecture
MCB01.307	Translational Cell Biology Lab
MCB01.320	Introduction to Virology
MCB01.334	Medical Biochemistry
MCB01.414	General Aspects of Infectious Agents
MCB01.421	Fundamentals in Cell Culture Techniques
MCB10.345	Human Physiology
MCB11.338	Immunology
MCB22.410	Concepts of Human Genetics
MCB22.450	Molecular Genetics
MCB01.308	Special Topics in Molecular and Cellular Biosciences- WI
TBS01.230	Translational Biomedical Research II

Total Program Credits Required for this Major/Degree 120 s.h.

Completion of 120 semester hours of course work, including the non-program, major and elective courses as well as all Rowan Core and Rowan Experience requirements, with a minimum GPA of 2.0 is mandatory for graduation. Students must receive a grade of C or better in all courses satisfying Non-Program and Major requirements.

BACHELOR OF SCIENCE IN TRANSLATIONAL BIOMEDICAL SCIENCES

Translational Biomedical Sciences is a program that provides diverse training in life sciences, mathematics, statistics, and the physical sciences. This major's 'bench-to-bedside' focus translates innovative basic science data to improved biomedical and clinically-related outcomes, by turning scientific innovations into diagnostic tools, therapeutics, etc. Students are immersed in cutting-edge research within faculty laboratories while learning the underlying molecular concepts that drive cellular and organismal systems. This program prepares students for competitive entry into the biomedical workforce and graduate degree programs.

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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Non-Program Courses (19 s.h.)

CHEM06.100	Chemistry I
MATH01.130	Calculus I
PHIL09.369	Philosophy of Science- WI
or PHIL09.341	Biomedical Ethics
or PHIL09.376	Philosophy of Medicine- WI
PHYS00.220	Introductory Mechanics
PHYS00.222	Introductory Electricity & Magnetism
or PHYS00.221	Introductory Thermodynamics, Fluids, Waves, & Optics

Major Requirements (83 s.h.)

Foundational Courses

CHEM06.101	Chemistry II
MATH01.131	Calculus II
MCB01.101	Foundations in Biology for Biomedical Sciences I
MCB01.102	Foundations in Biology for Biomedical Sciences II

Mid-level Courses

CHEM07.200	Organic Chemistry I
CHEM07.203	Organic Chemistry II for Biomedical Sciences

STAT02.284	Statistics for the Biomedical Sciences
TBS01.105	Introduction to Biomedical Sciences I
TBS01.110	Introduction to Biomedical Sciences II
TBS01.220	Translational Biomedical Research I

Upper-level Courses

CHEM07.348	Biochemistry
MCB01.306	Translational Cell Biology (Lecture)
MCB01.334	Medical Biochemistry
MCB01.360	Biophysics I
MCB10.345	Human Physiology
TBS01.230	Translational Biomedical Research II
TBS01.320	Translational Biomedical Research III
TBS01.330	Translational Biomedical Research IV
TBS01.315	Instrumentation for Biomedical Sciences
TBS01.450	Biomedical Frontiers Seminar I
TBS01.451	Biomedical Frontiers Seminar II

TBS Restricted Elective Courses

Students should choose five courses in consultation with an advisor. At least two TBS Restricted Electives must be 4 sh lab courses, minimum of 17 sh total.

BINF07.399	Bioinformatics – Biochemical Applications
BINF05.360	Programming for Molecular Biology
BIOL11.330	Microbiology
BIOL22.335	Genetics
BIOL01.428	Developmental Biology
BIOL01.430	Advanced Cell Biology
BIOL01.445	Special Topics in Biological Sciences- WI
CHEM07.490	General Aspects of Pharmacology
CHEM05.430	Advanced Topics in Chemistry
CHEM06.301	Inorganic Chemistry
CHEM07.405	Introduction to Polymer Chemistry
CHEM07.410	Medicinal Chemistry
CHEM07.470	Organic Spectroscopic Analysis
CHEM07.431	Advanced Topics in Biochemistry
CHEM07.464	Advanced Organic Chemistry I-WI
CHEM07.492	Pharmaceutical Chemistry
CHEM07.357	Chemical Biology
CHEM09.420	Supramolecular Chemistry
CHEM09.411	Electrochemistry
MCB11.338	Immunology
MCB22.410	Concepts in Human Genetics
MCB22.450	Molecular Genetics
MCB01.414	General Aspects of Infectious Agents
MCB10.481	Cellular & Molecular Neuroscience
MCB01.421	Fundamentals in Cell Culture Techniques
MCB01.307	Translational Cell Biology Lab
MCB01.308	Special Topics in Molecular and Cellular Biosciences- WI
PHYS00.300	Modern Physics
PHYS00.320	Electricity & Magnetism I
PHYS00.321	Electricity & Magnetism II
PHYS00.410	Quantum Mechanics I
PHYS00.411	Quantum Mechanics II
PHYS00.430	Statistical Physics
PHYS00.325	Electric Circuits
PHYS00.340	Optics and Light
PHYS00.371	Biophysics II: Biomaterials
PHYS00.475	Radiation Physics
PHYS00.470	Selected Topics in Advanced Physics
PSY10.315	Physiological Psychology
PSY10.480	Cognitive Neuroscience
TBS01.420	Translational Biomedical Research V
TBS01.430	Translational Biomedical Research VI
TBS01.370	Advanced Biomedical Instrumentation

Total Program Credits Required for this Major/Degree 120 s.h.

Completion of 120 semester hours of course work, including the non-program, major and elective courses as well as all Rowan Core and Rowan Experience requirements, with a minimum GPA of 2.0 is mandatory for graduation. Students must receive a grade of C or better in all courses satisfying Major requirements.

BACHELOR OF SCIENCE IN MOLECULAR AND CELLULAR BIOLOGY

Molecular and Cellular Biology focuses on the study of the processes that govern living organisms. Comprehensive curricula cover theory and laboratory methods, allowing students to carry out and understand molecular and biomedical research. The program provides students a solid foundation in the life sciences preparing them for careers in highly competitive health professions programs such as medical school, dental school, and pharmacy school.

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General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Non-Program Courses (19 s.h.)

CHEM06.100	Chemistry I
MATH01.130	Calculus I
PHIL09.369	Philosophy of Science- WI
or PHIL09.376	Philosophy of Medicine- WI
PHYS00.220	Introductory Mechanics
or PHYS00.210	Physics I
PHYS00.222	Introductory Electricity & Magnetism
or PHYS00.211	Physics II

Major Requirements (64 s.h.)

Foundational Courses

CHEM06.101	Chemistry II
MATH01.131	Calculus II
MCB01.101	Foundations in Biology for Biomedical Sciences I
MCB01.102	Foundations in Biology for Biomedical Sciences II

Mid-level Courses

BINF07.310	Introduction to Bioinformatics
CHEM07.200	Organic Chemistry I
CHEM07.203	Organic Chemistry II for Biomedical Sciences
MCB01.201	Molecular Biology Methods
STAT02.284	Statistics for the Biomedical Sciences

Upper-level Courses

MCB01.333	Cellular Biochemistry
or CHEM07.348	Biochemistry
MCB01.306	Translational Cell Biology (Lecture)
MCB01.307	Translational Cell Biology Lab
MCB22.450	Molecular Genetics
TBS01.220	Translational Biomedical Research I
or CHEM05.440	Chemistry Research I
or BIOL01.475	Biology Lab/Field Research

MCB Restricted Elective Courses

Students must choose at least four courses in consultation with an advisor. At least 2 courses must be from Bank 1, at least 2 lab courses (4 sh) overall, a minimum of 14 sh total.

Course options - Bank 1

BINF05.355	Bioinformatics – Biological Applications
BINF05.360	Programming for Molecular Biology
BINF07.399	Bioinformatics – Biochemical Applications

BIOL01.428	Developmental Biology
BIOL11.330	Microbiology
BIOL22.335	Advanced Genetics
BIOL01.445	Special Topics in Biological Sciences- WI
CHEM07.357	Chemical Biology
CHEM07.407	Advanced Biochemistry Lecture
CHEM07.464	Advanced Organic Chemistry I (Lecture) – WI
CHEM07.431	Advanced Topics in Biochemistry
CHEM08.410	Survey of Molecular Modeling Methods
CHEM09.420	Supramolecular Chemistry
MCB01.320	Introduction to Virology
MCB01.360	Biophysics I
MCB01.414	General Aspects of Infectious Agents
MCB01.421	Fundamentals in Cell Culture Techniques
MCB11.338	Immunology
MCB22.410	Concepts in Human Genetics
MCB01.308	Special Topics in Molecular and Cellular Biosciences - WI
TBS01.230	Translational Biomedical Research II
TBS01.315	Instrumentation for Biomedical Sciences
TBS01.450	Biomedical Frontiers Seminar I
TBS01.451	Biomedical Frontiers Seminar II

Course options - Bank 2

BIOL07.301	Comparative Vertebrate Anatomy
CHEM07.410	Medicinal Chemistry
CHEM07.490	General Aspects of Pharmacology
CHEM07.492	Pharmaceutical Chemistry
MCB01.334	Medical Biochemistry
MCB10.345	Human Physiology
MCB10.481	Cellular & Molecular Neuroscience
PSY10.315	Physiological Psychology

Total Program Credits Required this Major/Degree 120 s.h.

Completion of 120 semester hours of course work, including the non-program, major and elective courses as well as all Rowan Core and Rowan Experience requirements, with a minimum GPA of 2.0 is mandatory for graduation. Students must receive a grade of C or better in all courses satisfying Major requirements.

MINOR IN BIOLOGICAL SCIENCES

The Minor in Biology consists of 23-24 semester hours. In keeping with the policy of the Biology major, any Biology grade below a C will not count towards the Minor.

*BIOL01.104	Introduction to Evolution and Scientific Inquiry
*BIOL01.106	Introduction to Genetics
*BIOL01.203	Introduction to Cell Biology
BIOL01.204	Introduction to Ecology

Two (2) additional Biology courses, both of which must be 300-level or above.

*Transfer students who have taken the equivalent of BIOL01.100 (Biology I) and BIOL01.101 (Biology II) at another institution are required to take BIOL01.202 (Biological Skills for Transfer Students), which will allow them to take BIOL01.204. This will complete the introductory sequence and allow them to take most Biology electives.

PRE-MEDICAL MINOR

healthadvising@rowan.edu

This minor is open to any major at Rowan University and is intended primarily for non-biology majors who intend to enter medical or professional school following graduation at Rowan. The minor involves 22-23 s.h. The courses incorporated into the minor are those most often required or recommended for admission to accredited medical schools in the United States. These courses are as follows:

BIOL22.335	Advanced Genetics
PHYS00.211	Physics II
MATH01.131	Calculus I
CHEM07.348	Biochemistry
or BIOL14.440	Introduction to Biochemistry
	One Psychology Course

Plus one of the following:

CHEM09.250	Quantitative Analysis
BIOL07.301	Comparative Vertebrate Anatomy

BIOL01.428	Developmental Biology
BIOL11.330	Microbiology

If you are uncertain whether a pre-medical minor is the right fit for you, please schedule an appointment with health advising to discuss the available options.

CERTIFICATE OF UNDERGRADUATE STUDY IN BIOINFORMATICS

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The Certificate of Undergraduate Study (CUGS) in Bioinformatics provides a sequence of courses on handling and understanding big biological data, enabling students to pursue advanced bioinformatics or other biomedical programs. This CUGS provides the specialization in bioinformatics: 1). Expand the knowledge base and expertise of students in the life and information sciences. 2). Develop skill sets required for bioinformatics and computational biology work. 3). Encourage hands-on research experience, allowing students to perform novel research in bioinformatics.

Certificate of Undergraduate Study in Bioinformatics 12/13 s.h.

The requirements include the following four courses:

STAT02.284	Statistics for the Biomedical Sciences	3 s.h.
or STAT02.280	Biometry	4 s.h.
CS01.205	Computer Laboratory Techniques	3 s.h.
BINF07.310	Introduction to Bioinformatics	3 s.h.

To be awarded the CUGS in Bioinformatics, students must complete all courses required for the CUGS in Bioinformatics with at least a 2.0 average. The interdisciplinary nature makes this CUGS suited for students majoring in Biomedical and Translational Sciences, Biological Sciences, Biochemistry, Biomedical Engineering, Mathematics, Computer science, and other science and engineering.

CERTIFICATE OF UNDERGRADUATE STUDY IN BIOTECHNOLOGY

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The Certificate of Undergraduate Study (CUGS) in Biotechnology provides content knowledge and laboratory skills to students pursuing careers in bioengineering, biomedicine, molecular biology, biotechnology, and pharmaceutical research. Students will have a deep understanding of several aspects of biotechnology, including concepts, laboratory techniques, communication skills, and critical thinking skills that are vital to a biotechnology career. Students will know how to perform fundamental biotechnology techniques including mammalian cell culture, microbial culture, genetic engineering, manipulation and characterization of viruses and immune cells, cloning, nucleic acid analysis and manipulation, PCR, DNA sequencing, protein analysis, and bioinformatics.

Certificate of Undergraduate Study in Biotechnology 15 s.h.

The requirements include the following four courses:

BIOL22.335	Advanced Genetics
or MCB22.450	Molecular Genetics
MCB01.421	Fundamentals in Cell Culture Techniques
BIOL11.330	Microbiology
or MCB01.320	Introduction to Virology
or MCB11.338	Immunology
BINF07.310	Introduction to Bioinformatics

To be awarded the CUGS in Biotechnology, students must complete all courses required for the CUGS in Biotechnology with at least a 2.0 average. The pre-requisites for these courses make this CUGS ideal for Rowan students in the following majors: Biology, Bioinformatics, Chemistry, Biochemistry, Biophysics, Translational Biomedical Sciences (TBS), Molecular and Cellular Biology (MCB), and Biomedical Engineering. In addition, post-baccalaureate students interested in enhancing their biotechnology training are encouraged to pursue this CUGS. **NOTE: THIS PROGRAM MAY NOT BE OFFERED EVERY YEAR.**

Dual Degree (4 + 1 program): B.S. in Bioinformatics + M.S. in Cell and Molecular Biology (SOM-GSBS).

Overview

This 4 +1 accelerated dual degree program allows high-achieving Rowan Bioinformatics majors to obtain the B.S. and M.S. in a five-year period (rather than the traditional period of six years if both degrees were completed independently). This would create a "3.5+1.5" program in which students would be enrolled as undergraduates in the first semester of their fourth year but would enroll in graduate level courses in the second semester of this year. By beginning graduate-level studies in their fourth year, highly talented and motivated students will be able to complete both degrees on an accelerated timeline. The B.S./M.S. dual degree program will enable students to obtain advanced graduate level training in the biomedical sciences which will prepare them for careers in industry or further graduate study.

4 + 1 Undergraduate Program Requirements

Bioinformatics Core Courses		23 s.h.
BINF07.310	Introduction to Bioinformatics	3 s.h.
BINF05.355	Bioinformatics - Biological Applications	3 s.h.
BIOL22.335	Advanced Genetics	4 s.h.
CHEM07.348	Biochemistry	4 s.h.
BINF07.595	Advanced Bioinformatics - Biochemical Applications	3 g.s.h.
CS01.541	Advanced Bioinformatics - Computational Aspects	3 g.s.h.
	Thesis track: Masters Research I	3 g.s.h.
Introductory Science, Math and Computer Science Core		54 s.h.
MCB01.101	Foundations in Biology for Biomedical Sciences I	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Sciences II	4 s.h.
CHEM06.100	Chemistry I	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.201	Organic Chemistry II	4 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
STAT02.284	Statistics for the Biomedical Sciences	4 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory Electricity & Magnetism	4 s.h.
or PHYS00.221	Introductory Thermodynamics	4 s.h.
CS04.103	Computer Science & Programming	4 s.h.
CS01.205	Computer Laboratory Techniques	3 s.h.
CS04.225	Principles of Data Structures	3 s.h.
Focus Restricted Electives:		12 s.h.*
BIOL01.310	Advanced Evolution	4 s.h.
BIOL01.405	Conservation Biology	4 s.h.
BIOL01.428	Developmental Biology	4 s.h.
BIOL01.430	Advanced Cell Biology	4 s.h.
BIOL01.445	Special Topics in Biological Sciences (WI)	4 s.h.
BIOL11.330	Microbiology	4 s.h.
BIOL11.405	Environmental Microbiology	4 s.h.
BIOL20.310	Advanced Ecology	4 s.h.
MCB22.410	Concepts in Human Genetics	4 s.h.
MCB22.450	Molecular Genetics	4 s.h.
MCB01.306	Translational Cell Biology (Lecture)	4 s.h.
MCB01.307	Translational Cell Biology Lab	4 s.h.
MCB11.338	Immunology	4 s.h.
MCB01.320	Introduction to Virology	4 s.h.
MCB01.421	Fundamentals in Cell Culture Techniques	4 s.h.
MCB10.345	Human Physiology	4 s.h.
MCB01.414	General Aspects of Infectious Agents	4 s.h.
MCB01.334	Medical Biochemistry	4 s.h.
MCB01.201	Molecular Biology Methods	4 s.h.
TBS01.230	Translational Biomedical Research II	3 s.h.
CHEM08.305	Biophysical Chemistry	4 s.h.
CHEM07.407	Advanced Biochemistry Lecture	3 s.h.
CHEM07.409	Advanced Biochemistry Laboratory	2 s.h.
CHEM07.431	Advanced Topics in Biochemistry	3 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
CHEM08.410	Survey of Molecular Modeling Methods	3 s.h.

CHEM07.357	Chemical Biology	3 s.h.
CS04.113	Introduction to Object Oriented Programming	4 s.h.
CS04.114	Object Oriented Programming and Data Abstraction	4 s.h.
CS04.222	Data Structures and Algorithms	4 s.h.
CS06.205	Computer Organization	3 s.h.
CS06.390	Introduction to Systems Simulation and Modeling	3 s.h.
CS07.370	Introduction to Information Visualization	3 s.h.

*CMB graduate courses taken as part of the accelerated B.S.-M.S. program will count toward and fulfill the remaining 6 s.h. Restricted Upper-Level Elective Course credit required for the BS Bioinformatics degree (see below).

Rowan Experience, General Education, and Free Elective Courses 32 s.h.

Four approved graduate-level M.B.A. courses may substitute for any of the free elective courses. No more than 12 graduate credits total may be used to replace undergraduate coursework.

Total Required Credits for the Undergraduate Portion of the Program 120 or 108** s.h. total **The first number is the official number of credits required for the undergraduate degree; however, the second number reflects the actual number of credits students will take through undergraduate coursework since 12 of the graduate credits are completed in the senior year and count towards both the undergraduate and graduate degrees.

4 + 1 Graduate Program Requirements

Required M.S. Courses taken as an Undergraduate 4 + 1 student 9 s.h.

CMB00.702	Molecular Biology of the Cell	4 s.h.
CMB00.809	Dept Seminar Series	1 s.h.
CMB00.802	Experimental Design	2 s.h.
or		
CMB00.803	Scientific Writing	2 s.h.
CMB00.682	Lab rotation C M.S. CMB	1 s.h.
CMB00.683	Lab rotation D M.S. CMB	1 s.h.

Required M.S. Courses taken as a Graduate 4 + 1 Student 18 s.h.

CMB00.801	Bioethics in Science and Medicine	2 s.h.
CMB00.802	Experimental Design	2 s.h.
or		
CMB00.803	Scientific Writing	2 s.h.
CMB00.804	Critical Readings in Cell & Molecular Biology	2 s.h.
CMB00.690	Thesis Research/M.S.	5 s.h.
CMB00.699	M.S. Thesis Continuation (2 semesters)	5 + 5 s.h.‡
CMB00.809	Department Seminar Series (no tuition, only fee)	1 s.h.‡

Alternate Focus Courses 4-8 s.h.

Alternate courses permit the M.S. student to tailor the program to special needs for career development and research interests.

*The available Alternate Focus Courses are subject to change in response to student and faculty interests. If a student has a specific interest in a topic covered by a course offered by another GSBS program, this course may be substituted for one Alternate Focus Courses with permission of the student's Advisory Committee and the GSBS Executive Council:

CMB00.805	Cell Culture and Stem Cells	2 s.h.
CMB00.806	Graduate Genetics	2 s.h.
CMB00.808	Molecular Oncology	2 s.h.
CMB00.810	Biomolecular Interactions	2 s.h.
MBS00.602	Antimicrobial Drugs: Mechanisms of Action and Resistance	2 s.h.
MBS00.603	Basic Immunology	2 s.h.
MBS00.604	Cancer Chemotherapy	2 s.h.
MBS00.605	Developmental Biology	2 s.h.
MBS00.606	Essential Neuroscience	3 s.h.
MBS00.609	Mechanisms of Disease	2 s.h.
MBS00.610	Microbiology	3 s.h.
MBS00.611	Pathophysiology of the Cardiovascular System	3 s.h.
MBS00.612	Principles of Pharmacology	3 s.h.
MPI00.504	Topics in Molecular Pathology and Immunology	4 s.h.
MPI00.601	Techniques in Molecular Diagnostics	2 s.h.

Total Required Credits for the Graduate Portion of the Program 36 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 148 s.h.

Requirements for Admission:

Applicants to the accelerated program will submit all application materials by January 15 of the spring semester of their third year at Rowan (nominally "junior" year). Applications will be reviewed by the GSBS admissions committee and students will be notified by February 1. Junior Admission - Students who apply to the program must meet the criteria listed below:

- A minimum overall GPA of 3.0 in undergraduate coursework
- A complete online GSBS application including personal statement
- A letter of nomination/recommendation from 2 faculty members affiliated with the Bioinformatics Program.
- Official GRE General Exam score

Requirements for Graduation

To graduate from the accelerated B.S./MS dual degree program in Bioinformatics and Cell and Molecular Biology, students must meet the following requirements:

- Completion of all requirements for the Accelerated B.S. in Bioinformatics
- Completion of all requirements for the Accelerated M.S. in Cell and Molecular Biology
- Maintain satisfactory progress through the program.

Upon completion of the requirements above, the student will be granted both a Bachelor of Science and a Master of Science in Cell and Molecular Biology.

Student Status:

Students enrolled in the accelerated B.S./M.S. Program will pay undergraduate fees for all courses until they have reached the required number of credits as part of the "3.5" years (i.e. 105 credits). Beyond this, students will pay graduate credit for graduate courses. Students will not be allowed to take GSBS graduate courses at the undergraduate rate. Students must maintain full time student status during the entire 5-year program.

Students will be expected to maintain satisfactory progress through the program. Satisfactory progress will be defined by the following parameters:

- Completion of the required Cell and Molecular Biology courses at the end of fourth year of study.
- Earning at least a grade of B in all graduate courses taken during that period.

Any student who fails to maintain satisfactory progress as described above will be dropped from the graduate program. If the student has not already earned the B.S. in Bioinformatics, he/she will be readmitted into the B.S. subject to the requirements of that program. Students with extenuating circumstances may request an exception to this requirement by obtaining written approval of the GSBS Executive Council and the Undergraduate Advisor, and other approvals if needed under University policy.

Contingency for Students who do not Complete the M.S. program: Students who enter the accelerated M.S. program but do not maintain satisfactory progress or opt-out of the M.S. degree will be allowed to apply up to 18 credits of Cell and Molecular Biology coursework credits as free-electives toward the Bioinformatics B.S. degree. If the student opts out before 18 credits have been completed in the Cell and Molecular Biology program, any remaining credits to make up the required 120 credits for the undergraduate B.S. Bioinformatics degree will be taken using traditional coursework at the Glassboro campus.

Dual Degree (4 + 1 program): B.S. in Translational & Biomedical Sciences + M.S. in Cell and Molecular Biology (SOM-GSBS)

This 4 +1 accelerated dual degree program allows high-achieving Rowan TBS majors to obtain a Bachelor of Science in Translational & Biomedical Sciences and Master of Science in Cell and Molecular Biology in only a five-year period (rather than the traditional period of six years if both degrees were completed independently). This "3.5+1.5" allows students to enroll in graduate level courses in the second semester of their fourth year. By beginning graduate-level studies in their fourth year, highly talented and motivated students will be able to complete both degrees on an accelerated timeline. The Bachelor of Science/Master of Science dual degree program will enable students to obtain advanced graduate level training in the biomedical sciences to further prepare them for careers in industry or additional graduate or professional study.

The Translational & Biomedical Sciences B.S. is a 120-credit program. The Cell and Molecular Biology M.S. is a 36-credit program. This B.S./M.S. accelerated degree is structured so that students complete partial requirements for the B.S. in Translational & Biomedical Sciences, but can replace up to 17 credit hours of required undergraduate coursework with credits fulfilled by graduate coursework required for the M.S. degree program. In order to apply for the Accelerated program, please contact the Coordinator at mcb@rowan.edu.

General Education

All students starting *before* Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All International Studies majors must complete the Rowan Experience requirements as described on page 4

Introductory Science and Math Courses		50 s.h.
PHIL09.369	Philosophy of Science	3 s.h.
or PHIL09.341	Biomedical Ethics	3 s.h.
or PHIL09.376	Philosophy of Medicine	3 s.h.
PHYS00.220	Intro Mechanics	4 s.h.
PHYS00.222	Intro Electricity/Magnetism	4 s.h.
or PHYS00.221	Introductory Thermodynamics, Fluids, Waves, & Optics	4 s.h.
TBS01.105	Intro Biomed Sciences I	2 s.h.
TBS01.110	Intro Biomed Sciences II	2 s.h.
MCB01.101	Foundations in Biology for Biomedical Sciences I	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Sciences II	4s.h.
CHEM06.100	Chemistry I	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.203	Organic Chemistry II for BMS	4 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
STAT02.284	Statistics for Biomed Sciences	3 s.h.

Required Biomedical Science Core Courses		21 s.h.
MCB10.345	Human Physiology	4 s.h.
CHEM07.348	Biochemistry	4 s.h.
TBS01.315	Instrumentation for Biomedical Sciences	3 s.h.
MCB01.306	Translational Cell Biology	3 s.h.
MCB01.334	Medical Biochemistry	3 s.h.
MCB01.360	Biophysics I	4 s.h.

Required Research Courses		10 s.h.
TBS01.220	Translational Biomedical Research I	3 s.h.
TBS01.230	Translational Biomedical Research II	3 s.h.

*2 s.h. provided by CMB Research Courses taken as part of accelerated M.S. program

Required Biomedical Science Focus Courses		12 s.h.
Choose three of the following:		
TBS01.370	Advanced Biomedical Instrumentation	4 s.h.
BINF07.399	Bioinformatics – Biochemical Applications	3 s.h.
MCB01.414	General Aspects of Infectious Agents	3 s.h.
CHEM07.490	General Aspects of Pharmacology	3 s.h.

*3 s.h. provided by CMB Courses taken as part of accelerated M.S. program

TBS Restricted Electives	12 s.h.
*12 s.h. provided by CMB Courses taken as part of accelerated M.S. program	
General Education, Rowan Experience, and Free Elective Courses	15 s.h.
Total Hours Required for Graduation (with Gen Ed Courses)	120 s.h.

Completion of 120 semester hours of course work including the core and electives as well as all Rowan University General Education and Rowan Experience requirements with a minimum GPA of 2.0 are required for graduation. No grade of C- or below will be accepted for courses in the introductory core set of courses listed below. Up to 17 s.h. of courses from the M.S. in Cell and Molecular Biology can be applied to the B.S.

Course requirements for M.S. in Cell and Molecular Biology

Core Course		4 s.h.
CMB00.702	Molecular Biology of the Cell	4 s.h.

Required Skills Courses		8 s.h.
CMB00.801	Bioethics in Science and Medicine	2 s.h.
CMB00.802	Experimental Design	2 s.h.
CMB00.803	Scientific Writing	2 s.h.
CMB00.804	Critical Readings in Cell & Molecular Biology	2 s.h.

Required Research		20 s.h.
CMB00.682	Lab rotation C- M.S. CMB	1 s.h.
CMB00.683	Lab rotation D- M.S. CMB	1 s.h.
CMB00.690	Thesis Research/M.S.	5 s.h.
CMB00.699	M.S. Thesis Continuation (for two semesters- no tuition, only fee)	5 s.h.
CMB00.809	Department Seminar Series (for 3 semesters)	1 s.h.
Alternate Focus Courses*: two of the following are required		4 s.h.
CMB00.805	Cell Culture and Stem Cells	2 s.h.
CMB00.806	Graduate Genetics	2 s.h.
CMB00.808	Molecular Oncology	2 s.h.
CMB00.810	Biomolecular Interactions	2 s.h.

*The available Alternate Focus Courses are subject to change in response to student and faculty interests. If a student has a specific interest in a topic covered by a course offered by another GSBS program (MBS or MPI), this course may be substituted for one Alternate Focus Courses with permission of the student's Advisory Committee and the GSBS Executive Council.

Courses from other GSBS programs		2-4 s.h.
MBS00.602	Antimicrobial Drugs: Mechanisms of Action and Resistance	2 s.h.
MBS00.603	Basic Immunology	2 s.h.
MBS00.604	Cancer Chemotherapy	2 s.h.
MBS00.605	Developmental Biology	2 s.h.
MBS00.606	Essential Neuroscience	3 s.h.
MBS00.609	Mechanisms of Disease	2 s.h.
MBS00.610	Microbiology	3 s.h.
MBS00.611	Pathophysiology of the Cardiovascular System	3 s.h.
MBS00.612	Principles of Pharmacology	3 s.h.
MPI00.504	Topics in Molecular Pathology and Immunology	4 s.h.
MPI00.601	Techniques in Molecular Diagnostics	2 s.h.
Total Required Credits for the Graduate Portion of the Program		36 s.h.

This number includes up to 17 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 139 s.h.

Requirements for Admission:

Applicants to the accelerated program will submit all application materials by January 15 of the spring semester of their third year at Rowan (nominally "junior" year). Applications will be reviewed by the GSBS admissions committee and students will be notified by February 1. Students who apply to the program must meet the criteria listed below:

- A minimum overall GPA of 3.0 in undergraduate coursework
- A complete online GSBS application including personal statement
- Letters of nomination/recommendation from 2 faculty members affiliated with the TBS Program
- Official GRE General Exam score

Requirements for Graduation

To graduate from the accelerated Bachelor of Science/Master of Science dual degree program in Translational & Biomedical Sciences and Cell and Molecular Biology, students must meet the following requirements:

- Completion of all requirements for the Accelerated Bachelor of Science in Bioinformatics
- Completion of all requirements for the Accelerated Master of Science in Cell and Molecular Biology
- Maintain satisfactory progress through the program.

Upon completion of the requirements above, the student will be granted both a Bachelor of Science and a Master of Science in Cell and Molecular Biology.

Student Status:

Students enrolled in the accelerated Bachelor of Science/Master of Science Program will pay undergraduate fees for all courses until they have reached the required number of credits as part of the "3.5" years (i.e., 103 credits). Beyond this, students will pay graduate credit for graduate courses. Students will not be allowed to take GSBS graduate courses at the undergraduate rate. Students must maintain full time student status during the entire 5-year program. Students will be expected to maintain satisfactory progress through the program. Satisfactory progress will be defined by the following parameters:

- Completion of the required Cell and Molecular Biology courses at the end of fourth year of study.
- Earning at least a grade of B in all graduate courses taken during that period.

Any student who fails to maintain satisfactory progress as described above will be dropped from the graduate program. If the student has not already earned the Bachelor of Science in TBS, he/she will be readmitted into the Bachelor of Science subject to the requirements of that program. Students with extenuating circumstances may request an exception to this requirement by obtaining written approval of the GSBS Executive Council and the Undergraduate Advisor, and other approvals if needed under University policy.

Contingency for Students who do not complete the Master of Science program: Students who enter the accelerated Master of Science program but do not maintain satisfactory progress or opt-out of the Master of Science degree will be allowed to apply up to 17 credits of Cell and Molecular Biology coursework credits as free-electives toward the TBS Bachelor of Science degree. If the student opts out before 17 credits have been completed in the Cell and Molecular Biology program, any remaining credits to make up the required 120 credits for the undergraduate Bachelor of Science Translational & Biomedical Sciences degree will be taken using traditional coursework at the Glassboro campus.

Dual Degree (4 + 1 program): B.S. in Bioinformatics + M.S. in Bioinformatics.

Overview

This 4 +1 accelerated dual degree program allows high-achieving Rowan Bioinformatics majors to obtain the B.S. and M.S. in a five-year period (rather than the traditional period of six years if both degrees were completed independently). By beginning graduate-level studies in their fourth year, highly talented and motivated students will be able to take 12 credits of graduate courses at the undergraduate rate during their senior year and thus complete both degrees on an accelerated timeline. The B.S./M.S. dual degree program will enable students to obtain advanced graduate level training in bioinformatics which will prepare them for careers in industry or further graduate study

4 + 1 Undergraduate Program Requirements

Completion of all course requirements for the BS in Bioinformatics:

Bioinformatics Core courses (includes 9 graduate s.h.)	23 s.h.
Non-program required foundational courses	54 s.h.
Restricted upper-level electives (include at least 3 g.s.h)	12 s.h.
General Education and Rowan Experience	35 s.h.
Total undergraduate semester hours	120 s.h.

Bioinformatics Core Courses		23 s.h.
BINF07.310	Introduction to Bioinformatics	3 s.h.
BINF05.355	Bioinformatics - Biological Applications	3 s.h.
BIOL22.335	Advanced Genetics	4 s.h.
CHEM07.348	Biochemistry	4 s.h.
BINF07.595	Advanced Bioinformatics - Biochemical Applications	3 g.s.h.
CS01.541	Advanced Bioinformatics - Computational Aspects	3 g.s.h.
	Thesis track: Masters Research I	3 g.s.h.
Introductory Science, Math and Computer Science Core		54 s.h.
MCB01.101	Foundations in Biology for Biomedical Sciences I	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Sciences II	4 s.h.
CHEM06.100	Chemistry I	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.201	Organic Chemistry II	4 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
STAT02.284	Statistics for the Biomedical Sciences	4 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory E&M	4 s.h.
or PHYS00.221	Introductory Thermodynamics	4 s.h.
CS04.103	Computer Science & Programming	4 s.h.
CS01.205	Computer Laboratory Techniques	3 s.h.
CS04.225	Principles of Data Structures	3 s.h.
Focus Restricted Electives:		12 s.h.*
BIOL01.310	Advanced Evolution	4 s.h.
BIOL01.405	Conservation Biology	4 s.h.
BIOL01.428	Developmental Biology	4 s.h.
BIOL01.430	Advanced Cell Biology	4 s.h.
BIOL01.445	Special Topics in Biological Sciences (WI)	4 s.h.
BIOL11.330	Microbiology	4 s.h.
BIOL11.405	Environmental Microbiology	4 s.h.

BIOL20.310	Advanced Ecology	4 s.h.
MCB22.410	Concepts in Human Genetics	4 s.h.
MCB22.450	Molecular Genetics	4 s.h.
MCB01.306	Translational Cell Biology (Lecture)	4 s.h.
MCB01.307	Translational Cell Biology Lab	4 s.h.
MCB01.308	Special Topics in Molecular & Cellular Biosciences	3 s.h.
MCB11.338	Immunology	4 s.h.
MCB01.320	Introduction to Virology	4 s.h.
MCB01.421	Fundamentals in Cell Culture Techniques	4 s.h.
MCB10.345	Human Physiology	4 s.h.
MCB01.414	General Aspects of Infectious Agents	4 s.h.
MCB01.334	Medical Biochemistry	4 s.h.
MCB01.201	Molecular Biology Methods	4 s.h.
TBS01.230	Translational Biomedical Research II	3 s.h.
CHEM08.305	Biophysical Chemistry	4 s.h.
CHEM07.407	Advanced Biochemistry Lecture	3 s.h.
CHEM07.409	Advanced Biochemistry Laboratory	2 s.h.
CHEM07.431	Advanced Topics in Biochemistry	3 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
CHEM08.410	Survey of Molecular Modeling Methods	3 s.h.
CHEM07.357	Chemical Biology	3 s.h.
CS04.113	Introduction to Object Oriented Programming	4 s.h.
CS04.114	Object Oriented Programming and Data Abstraction	4 s.h.
CS04.222	Data Structures and Algorithms	4 s.h.
CS06.205	Computer Organization	3 s.h.
CS06.390	Introduction to Systems Simulation and Modeling	3 s.h.
CS07.370	Introduction to Information Visualization	3 s.h.

*graduate courses (see below) taken as part of the accelerated B.S.-M.S. program will count toward and fulfill the remaining 12 s.h.

Rowan Experience, General Education, and Free Elective Courses 32 s.h.

Four approved graduate-level courses may substitute for any of the free elective courses. No more than 12 graduate credits total may be used to replace undergraduate coursework.

Total Required Credits for the Undergraduate Portion of the Program 120 or 110** s.h. total **The first number is the official number of credits required for the undergraduate degree; however, the second number reflects the actual number of credits students will take through undergraduate coursework since 12 of the graduate credits are completed in the senior year and count towards both the undergraduate and graduate degrees.

4 + 1 Graduate Program Requirements

BINF05.355	Bioinformatics: Biological Applications (year 3)	3 s.h.
CS01.541	Bioinformatics: Advanced Computational Aspects (year 4)	3 g.s.h.
BINF07.595	Bioinformatics: Biochemical Applications (year 4)	3 g.s.h.
BINF07.500	Bioinformatics Seminar	3 g.s.h.
3 courses in Graduate Restricted Electives (1 in Year 4)		12-16 g.s.h.
Thesis track: Masters Research 1-3 (1 in Year 4)		6-9 g.s.h.
OR Non-thesis track:		
2 additional courses in Focus Area Restricted Electives		6-8 g.s.h.
Total Graduate Semester Hours (g.s.h.)		30 g.s.h.
Required M.S. Courses taken as an Undergraduate 4 + 1 student		3 s.h.
BINF05.355	Bioinformatics: Biological Applications	3 s.h.
Required M.S. Courses taken as a Graduate 4 + 1 Student in year 4		12 g.s.h.
CS01.541	Bioinformatics: Advanced Computational Aspects	3 g.s.h.
BINF07.595	Bioinformatics: Biochemical Applications	3 g.s.h.
	1 course in Graduate Restricted Electives	3 g.s.h
	Thesis track: Masters Research I	3 g.s.h.
Required M.S. Courses taken as a Graduate 4 + 1 Student in year 5		15 g.s.h.
BINF07.500	Bioinformatics Seminar	3 g.s.h.
	2 courses in Focus Area Restricted Electives	6-12 g.s.h.
	Thesis track: Masters Research II-III	6 g.s.h.

GRADUATE ELECTIVES:
Courses offered by the Department of Chemistry & Biochemistry:

CHEM07.531	Special Topics in Biochemistry	3 s.h.

CHEM07.570	Organic Spectroscopy	3 s.h.
CHEM07.568	Medicinal Chemistry	3 s.h.
CHEM07.557	Chemical Biology	3 s.h.
CHEM07.560	Advanced Biochemistry Lecture	3 s.h.
CHEM09.510	Instrumental Analysis	4 s.h.
CHEM07.592	Advanced Pharmaceutical Chemistry	3 s.h.
CHEM08.505	Advanced Biophysical Chemistry	3 s.h.
CHEM05.530	Special Topics	3 s.h.
CHEM07.590	General Aspects of Pharmacology	3 s.h.
CHEM08.510	Advanced Survey of Molecular Modeling Methods	3 s.h.
CHEM09.522	Advanced Bioanalytical Chemistry	3 s.h.

Courses offered by the Department of Computer Science or Data Analytics:

CS04.530	Advanced Data Systems: Theory and Programming	3 s.h.
CS07.523	Advanced Software Engineering	3 s.h.
CS07.540	Advanced Design and Analysis of Algorithms	3 s.h.
CS07.570	Information Visualization	3 s.h.
MIS02.599	Special Topics in Management Information Systems	3 s.h.
CS07.556	Machine Learning	3 s.h.
DA02.505	Data Mining I	3 s.h.
DA02.510	Visual Analytics	3 s.h.
DA02.605	Data Mining II	3 s.h.
DA03.505	Data Quality and Web/Text Mining	3 s.h.

Courses offered by the Department of Molecular & Cellular Biosciences

MCB22.598	Human Genetics	4 s.h.
MCB01.538	Graduate Immunology	4 s.h.
MCB01.506	Graduate Translational Cell Biology (Lecture)	3 s.h.
MCB01.521	Graduate Cell Culture Techniques	4 s.h.
MCB01.550	Graduate Molecular Genetics	4 s.h.

Courses offered by the Department of Mathematics*:

MATH01.502	Linear Algebra and Matrix Theory	3 s.h.
MATH01.505	Probability and Mathematical Statistics	3 s.h.
MATH03.501	Mathematical Modeling for Biological Systems	3. s.h.
MATH03.525	Partial Differential Equations in Biomathematics	3 s.h.
MATH03.610	Applied Epidemiology	3 s.h.
MATH03.611	Special Topics in Biomathematics	3 s.h.
STAT02.510	Introduction to Statistical Data Analysis	3 s.h.
STAT02.513	Applied Stochastic Processes	3 s.h.
STAT02.515	Applied Multivariate Data Analysis	3 s.h.

* Students must fulfill prerequisites or obtain permission of the instructor.

Total Required Credits for the Graduate Portion of the Program 30 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 138 s.h.

Requirements for Admission:

By July 1, after your junior year, send an email to bioinformatics@rowan.edu. Include the following: intent to apply for the program, one-page essay describing your background and future goals in relation to this program. Also, have two Rowan faculty members send an email describing your suitability for this program. Applications will be reviewed by the Bioinformatics Program Admission Committee, chaired by the Graduate Program Coordinator. Students will be notified in about 2 weeks. The requirements for admission will be:

- Current undergraduate bioinformatics major
- Successful completion of at least 90 credits of course work
- Successful completion of the Introduction to Bioinformatics (BINF07.310)
- 3.25 GPA in the major and a 3.0 GPA overall
- On-track completion of Bioinformatics degree program requirements

Requirements for Graduation

To graduate from the accelerated BS/MS dual degree program in Bioinformatics, students must meet the following requirements:

- Completion of all requirements for the Accelerated B.S. in Bioinformatics
- Completion of all requirements for the Accelerated M.S. in Bioinformatics

- Maintain satisfactory progress through the program. Satisfactory progress will be defined as:
  - completion of at least 3 graduate Bioinformatics courses at the end of fourth year of study;
  - Earn at least a grade of B in all graduate courses taken during that period;
  - Any student who fails to maintain satisfactory progress as described above will be dropped from the graduate program. If the student has not already earned the BS in Bioinformatics, he/she will be re-admitted into the BS subject to the requirements of that program;
  - Students with extenuating circumstances may request an exception to this requirement by obtaining written approval of the Graduate Advisor and the Undergraduate Advisor, and other approvals if needed under University policy.

Upon completion of the requirements above, the student will be granted both a Bachelor of Science and a Master of Science in Bioinformatics.

Student Status: Students enrolled in the accelerated BS/MS Program will pay undergraduate fees for all courses until they have reached the required number of credits for the undergraduate degree (i.e.120 credits), whether the courses are taken at the undergraduate or graduate level. Beyond this, students will pay graduate credit for graduate courses. Under no circumstances will students be allowed to take more than 12 graduate credits at the undergraduate rate.

Contingency for Students who do not Complete the M.S. program: Students who enter the accelerated M.S. program but do not maintain satisfactory progress or opt-out of the M.S. degree will be allowed to apply graduate coursework credits toward the Bioinformatics B.S. degree and any remaining credits to make up the required 120 credits for the undergraduate B.S. Bioinformatics degree will be taken using traditional coursework at the Glassboro campus.

Dual Degree (4 + 1 program): Bachelor of Science in Molecular & Cellular Biology / Master of Science in Cell & Molecular Biology

Overview

This 4 +1 accelerated dual degree program offers students an opportunity to earn both a B.S. in Molecular & Cellular Biology (MCB) and an M.S. in Cell & Molecular Biology (CMB) in five years. Students may apply to the graduate program after earning at least 74 undergraduate credits with a minimum overall GPA of 3.0. At least 30 undergraduate credits must be earned at/through Rowan. Students are also required to take the GRE. Twelve graduate credits will be applied towards the undergraduate program as well as the graduate program, i.e. students only need to earn 108 undergraduate credits. The students in the second semester of the fourth year and the fifth year of study will be M.S. students paying graduate tuition and fees to Graduate School of Biological Sciences (GSBS).

4 + 1 Undergraduate Program Requirements

Major Courses		56 s.h.
Students must receive a grade of C or better in all courses satisfying Major requirements		
Foundational Courses		8 s.h.
MCB01.101	Foundations in Biology for Biomedical Sciences I	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Sciences II	4 s.h.
CHEM06.100	Chemistry I (satisfies Scientific Literacy)	4 s.h.
CHEM06.101	Chemistry II (satisfies non-program requirement)	4 s.h.
MATH01.130	Calculus I (satisfies Quantitative Literacy)	4 s.h.
MATH01.131	Calculus II (satisfies non-program requirement)	4 s.h.
Mid-level courses		18 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.203	Organic Chemistry II for BMS	4 s.h.
BINF07.310	Intro to Bioinformatics	3 s.h.
MCB01.201	Molecular Biology Methods	4 s.h.
STAT02.284	Statics for Biomed Sciences	3 s.h.
PHYS00.220	Introductory Mechanics (satisfies non-program requirement)	4 s.h
or PHYS00.210	Physics I	4 s.h
PHYS00.222	Introductory Electricity and Magnetism (satisfies non-program requirement)	4 s.h
or PHYS00.211	Physics II	4 s.h.
Upper-level courses		16 s.h.
MCB01.333	Cellular Biochemistry	4 s.h.
or CHEM07.348	Biochemistry	4 s.h.
MCB01.306	Translational Cell Biology (Lecture)	3 s.h.
MCB01.307	Translational Cell Biology Lab	2 s.h.
TBS01.220	Translational Biomedical Research I	3 s.h.
or BIOL01.475	Biology Lab/Field Research	3. s.h.
or CHEM05.440	Chemistry Research I	3 s.h.

MCB22.450	Molecular Genetics	4 s.h.

Restricted Electives 14 s.h.

Students must take at minimum of four courses for a total of 14 s.h. At least 2 courses must be from Bank 1. At least 2 courses must be lab courses 4 s.h.

Course Options – Bank 1

BINF07.399	Bioinformatics: Biochemical Applications	3 s.h.
BINF05.355	Bioinformatics: Biological Applications	3 s.h.
BIOL11.330	Microbiology	4 s.h.
BIOL01.428	Developmental Biology	4 s.h.
BIOL22.335	Advanced Genetics	4 s.h.
BIOL01.445	Special Topics in Biological Sciences -WI	3s.h.
CHEM07.407	Advanced Biochemistry (Lecture)	3 s.h.
CHEM07.431	Advanced Topics in Biochemistry (Special permission via advising based on topic)	3 s.h.
CHEM08.410	Survey of Molecular Modeling Methods	3 s.h.
CHEM07.357	Chemical Biology	3 s.h.
CHEM07.464	Advanced Organic Chemistry I (Lecture) - WI	3 s.h.
CHEM09.420	Supramolecular Chemistry	3 s.h.
MCB11.338	Immunology	3 s.h.
MCB22.410	Concepts in Human Genetics	3 s.h.
MCB01.421	Fundamentals in Cell Culture Techniques	4 s.h.
MCB01.320	Introduction to Virology	4 s.h.
MCB01.360	Biophysics I	4 s.h.
MCB01.414	General Aspects of Infectious Agents	3 s.h.
MCB01.308	Special Topics in Mol Cell Biosciences - WI	3 s.h
TBS01.315	Instrumentation for Biomedical Sciences	3 s.h.
TBS01.230	Translational Biomedical Research II	3 s.h.
TBS01.450	Biomedical Frontiers Seminar I	1 s.h.
TBS01.451	Biomedical Frontiers Seminar II	1 s.h.

Course Options – Bank 2

BIOL07.301	Comparative Vertebrate Anatomy	4 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
CHEM07.490	General Aspects of Pharmacology	3 s.h.
CHEM07.492	Pharmaceutical Chemistry	3 s.h.
MCB10.345	Human Physiology	4 s.h.
MCB10.481	Cellular & Molecular Neuroscience	3 s.h.
MCB01.334	Medical Biochemistry	3 s.h.
PSY10.315	Physiological Psychology	3 s.h.

Free Elective Courses 19 s.h.

Up to 12 approved graduate-level CMB courses may substitute for any of the free elective courses.

Rowan Core/General Education 26 s.h.

Students must satisfy the requirements for all six Rowan Core Literacies.

1. Communicative (COML)

COMP01.111	College Composition I (or equivalent)	3 s.h.
COMP01.112	College Composition II (or equivalent)	3 s.h.
CMS04.205	Public Speaking (or equivalent)	3 s.h.

2. Artistic (ARTL) 3 s.h.

3. Global (GLBL) 3 s.h.

4. Humanistic (HUML)

PHIL09.369	Philosophy of Science-WI	3 s.h.
or PHIL09.376	Philosophy of Medicine-WI	3 s.h.

5. Quantitative (QNTL)

MATH01.130	Calculus I1	4 s.h.

6. Scientific (SCIL)

CHEM06.100	Chemistry I2	4 s.h.

1 Transfer students can use any Quantitative course to satisfy this Rowan Core requirement, but must then take MATH 01130 as a Non-Program requirement.

2 Transfer students can use any Scientific course to satisfy this Rowan Core requirement, but must then take CHEM 06100 as a Non-Program requirement.

Non-program courses		19 s.h.
PHYS00.220	Introduction Mechanics	4 s.h.
or PHYS00.210	Physics I	4 s.h.
PHYS00.222	Introduction Electricity / Magnetism	4 s.h.
or PHYS00.211	Physics II	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
MATH01.131	Calculus II	4 s.h.
	Any Rowan Core (or former gen ed) course	3 s.h.

Total Required Credits for the Undergraduate Portion of the Program 120 or 108** s.h. total **The first number is the official number of credits required for the undergraduate degree; however, the second number reflects the actual number of credits students will take through undergraduate coursework since 12 of the graduate credits are completed in the senior year and count towards both the undergraduate and graduate degrees.

4 + 1 Graduate Program Requirements

Core course		4 s.h.
CMB00.702	Molecular Biology of the Cell	4 s.h.
Required Skills Courses		8 s.h.
CMB00.801	Bioethics in Science and Medicine	2 s.h.
CMB00.802	Experimental Design	2 s.h.
CMB00.803	Scientific Writing	2 s.h.
CMB00.804	Critical Readings in Cell & Molecular Biology	2 s.h.
Required Research		20 s.h.
CMB00.682	Lab rotation C – M.S. CMB	1 s.h.
CMB00.683	Lab rotation D– M.S. CMB	1 s.h.
CMB00.690	Thesis Research/M.S.	5 s.h.
CMB00.699	M.S. Thesis Continuation (for two semesters –no tuition, only fee)	5 s.h.
CMB00.809	Department Seminar Series (for 3 semesters)	1 s.h.
Alternate Focus Courses* two of the following are required:		4.s.h.
CMB00.805	Cell Culture and Stem Cells	2 s.h.
CMB00.806	Graduate Genetics	2 s.h.
CMB00.808	Molecular Oncology	2 s.h.
CMB00.810	Biomolecular Interactions	2 s.h.

*The available Alternate Focus Courses are subject to change in response to student and faculty interests. If a student has a specific interest in a topic covered by a course offered by another GSBS program (MBS or MPI), this course may be substituted for one Alternate Focus Courses with permission of the student's Advisory Committee and the GSBS Executive Council:

Courses from other GSBS programs		2-4 s.h.
MBS00.602	Antimicrobial Drugs: Mechanisms of Action and Resistance	2 s.h.
MBS00.603	Basic Immunology	2 s.h.
MBS00.604	Cancer Chemotherapy	2 s.h.
MBS00.605	Developmental Biology	2 s.h.
MBS00.606	Essential Neuroscience	3 s.h.
MBS00.609	Mechanisms of Disease	2 s.h.
MBS00.610	Microbiology	3 s.h.
MBS00.611	Pathophysiology of the Cardiovascular System	3 s.h.
MBS00.612	Principles of Pharmacology	3 s.h.
MPI00.504	Topics in Molecular Pathology and Immunology	4 s.h.
MPI00.601	Techniques in Molecular Diagnostics	2 s.h.

Total Required Credits for the Graduate Portion of the Program 36 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 144 s.h.

Requirements for Admission:

Applicants to the dual degree program in Molecular & Cellular Biology and Cell & Molecular Biology will apply for admission to the graduate program in the spring semester (January 15) of their junior year of the undergraduate program (74 hours completed). Applications will be reviewed by the GSBS admissions committee and students will be notified by February 1. Application requirements are as follows:

- A minimum overall GPA of 3.0 in undergraduate coursework
- Completion of all courses satisfying the Major requirements with a grade of at least C

- A complete online GSBS application, including a personal statement
- One letter of nomination/recommendation from Molecular and Cellular Biology
- Official GRE General Exam score

Requirements for Graduation

To graduate from the accelerated B.S./M.S. dual degree program in Molecular & Cellular Biology and Cell & Molecular Biology, students must meet the following requirements:

- Completion of all requirements for the B.S. in Molecular and Cellular Biology in the Accelerated Dual Degree Program
- Completion of all requirements for the Accelerated M.S. in Cell and Molecular Biology
- Maintain satisfactory progress through the program.

Upon completion of the requirements above, the student will be granted both a Bachelor of Science in Molecular and Cellular Biology and a Master of Science in Cell and Molecular Biology.

Student Status:

Students enrolled in the accelerated B.S./M.S. Program will pay undergraduate fees for all courses until they have reached the required number of credits as part of the "3.5" years (i.e., 108 credits). Beyond this, students will pay graduate credit for graduate courses. Students will not be allowed to take GSBS graduate courses at the undergraduate rate. Students must maintain full-time student status during the entire 5-year program. Students will be expected to maintain satisfactory progress through the program. Satisfactory progress will be defined by the following parameters:

- Completion of the required Cell and Molecular Biology courses at the end of fourth year of study.
- Earning at least a grade of B in all graduate courses taken during that period.
- Any student who fails to maintain satisfactory progress as described above will be evaluated in accordance with the GSBS-Satisfactory Academic Progress (SAP) policy (https://www.rowan.edu/som/gsbs/current/catalog/handbook/Policies/sap.php). If the performance does not improve, he/she will be dropped from the graduate program. If the student has not already earned the B.S. in Molecular and Cellular Biology, he/she will be re-admitted into the B.S. program and subject to the requirements of that program.
- Students with extenuating circumstances may request an exception to this requirement by obtaining written approval of the GSBS Executive Council and the Undergraduate Advisor, and other approvals if needed under University policy.

Contingency for Students who do not Complete the MCB/CMB program: Students who enter the accelerated M.S. program, but do not maintain satisfactory progress or opt-out of the M.S. degree, will be allowed to apply up to 12 credits of Cell and Molecular Biology coursework credits toward the Molecular and Cellular Biology B.S. degree. If the student opts out before 12 credits have been completed in the Cell and Molecular Biology program, any remaining credits to make up the required 120 credits for the undergraduate B.S. Molecular and Cellular Biology degree will be taken using traditional coursework at the Glassboro campus.

Accelerated Dual Degree (3 + 4 program): B.S. in Biological Sciences and M.D. degree

Overview

The Department of Biological & Biomedical Sciences and the Cooper Medical School of Rowan University (CMSRU) offer a Bachelor of Science in Biological Sciences and a Doctor of Medicine degree, respectively. This accelerated program allows high-achieving Biological Sciences majors to obtain the Bachelor of Science and Doctor of Medicine in a seven-year period, rather than the traditional period of eight years if both degrees were completed separately. The program is a 3 + 4 arrangement where students begin Doctor of Medicine courses in their 4th year at Rowan University.

3 + 4 UNDERGRADUATE PROGRAM REQUIREMENTS 120 s.h.

General Education (all courses are three credits unless noted otherwise) 42 credits

COMP01.101	College Composition I	
COMP01.102	College Composition II	
CMS04.205	Public Speaking	
PHIL09.369	Philosophy of Science	
or PHIL09.376	Philosophy of Medicine-WI	
PSY01.107	Essentials of Psychology	
SOC08.120	Introduction to Sociology	

One course which fulfills the Artistic Literacy requirement of the Rowan Core
One course which fulfills the Global Literacy requirement of the Rowan Core

MATH01.130	Calculus I	4 s.h.
CHEM06.100	Chemistry I	4 s.h.

Ten hours of non-program electives

B.S. Program Requirements (all courses are four credits unless noted otherwise) 78 credits

BIOL01.104	Introduction to Evolution and Scientific Inquiry

BIOL01.106	Introduction to Genetics	
BIOL01.203	Introduction to Cell Biology	
BIOL01.204	Introduction to Ecology	
BIOL11.330	Microbiology	
BIOL01.430	Advanced Cell Biology	
BIOL14.440	Introduction to Biochemistry	3 s.h.
MCB22.450	Molecular Genetics	
BIOL01.475	Biology Lab/Field Research	
or BIOL01.445	Special Topics in Biological Sciences	3 s.h.
CHEM06.101	Chemistry II	
CHEM07.200	Organic Chemistry I	
CHEM07.201	Organic Chemistry II	
PHYS00.210	Physics I	
PHYS00.211	Physics II	
STAT02.280	Biometry	
	Free elective	3 s.h.

*CMSRU courses in the first year of Doctor of Medicine program (17 s.h.): Fundamentals, Scholar's Workshop, Infectious Diseases

3+4 DOCTOR OF MEDICINE PROGRAM REQUIREMENTS

Requirements for the Doctor of Medicine degree are set forth in the CSMRU Student Handbook.

Additional Program Requirements:

Students are required to maintain a minimum cumulative grade point average of 3.6 in all course work and a minimum grade point average of 3.6 in the science courses required for admission to CMSRU. Students must take part in one of the summer Premedical Urban Leaders Summer Enrichment PULSE programs at CMSRU or participate in forty hours of approved community service prior to entering their third undergraduate year. This service will be directed to underserved populations and is non-medical. The Health Professions Advisor (HPA), or designee on the Glassboro campus will serve as the supervisor for the service activity and provide verification that the service obligations have been completed.

Students accepted into the 3+4 Program will be admitted to CMSRU contingent upon the following:

- Completion of all general curriculum requirements at Rowan University.
- A minimum of 75% of the credits needed for a Baccalaureate degree completed before beginning the medical school phase of the Program.
- All prerequisite courses required for admission to CMSRU as specified in the CMSRU Handbook.
- Completion of requirements of the designated Rowan University major unless the major department agrees to provide credit for certain medical courses taken during the first year of medical school at CMSRU.
- A cumulative science grade point average of 3.60 or better.
- No final grade of "D", "F" or "I" in any prerequisite course required for admission to CMSRU as indicated in the CMSRU Handbook.
- All students will be required to take the Medical College Admissions Test (MCAT) and obtain a score at or greater than the 70th percentile.
- Students in the Program will be required to participate in one summer Premedical Urban Leader Summer Enrichment Program "PULSE" program at CMSRU or an equivalent service experience as outlined above.
- Students must remain free of any citations for behavioral issues or academic integrity violations especially surrounding professionalism through their undergraduate education.
- CMSRU may refuse admission to any student applicant who does not meet the above requirements. Students may be required to decelerate or withdraw from the combined Program for academic or other reasons.

Eligibility and Admissions:

High school seniors who qualify for admission to Rowan University are eligible for admission to the 3+4 program. There are no restrictions on State of residency, but admission is limited to citizens or permanent residents of the United States. The high school grade point average and rank-in-class, along with letters of recommendation from high school teachers, will be of primary importance in evaluating an applicant's credentials. Applicants are required to submit scores of the College Board Scholastic Aptitude Tests (SAT) Verbal and Mathematical components or the American College Testing (ACT) exam. Applicants are expected to demonstrate knowledge of, and activity resonant with, the mission of CMSRU

Students who self-identify that they wish to be part of this Program will formally apply to the Health Professions Advisor (HPA) at Rowan University upon acceptance to Rowan University. They will be given all the requirements of the program by the HPA. There will be an application form made available to the HPA through CMSRU that needs to be completed and sent by the HPA to the Director of Admissions at CMSRU. Qualified applicants will be scheduled for interview by members of a subcommittee of the CMSRU Admissions Committee. These interviews will be held on the CMSRU campus and at a date and time that will allow student notification prior to any final decision date for matriculation to Rowan University.

Student Status:

Tuition for the first three (3) years of study at Rowan University, including summer courses, if any, will be the same tuition as charged to undergraduate Rowan University students. Tuition during the four (4) years of study at CMSRU will be the same as the tuition charged to students enrolled in the regular curriculum at CMSRU.

Students who satisfactorily complete the appropriate courses in the first year at CMSRU, in addition to all other Rowan University requirements, will receive a B.S. in Biological Sciences degree.

If, after the first semester of the medical first year, the student fails to meet the required CMSRU standards of performance and competency, CMSRU shall notify Rowan University. Representatives from Rowan University and CMSRU will meet with the student. If, after meeting with the student, CMSRU concludes that the student should not continue in the medical school, the student shall be dismissed from the Bachelor of Science/Doctor of Medicine Program. In consultation with the Biological Sciences coordinator, the Bachelor of Science in Biological Sciences degree may be completed.

Accelerated Dual Degree (3 + 4 program): Bachelor of Science in Biological Sciences and Doctor of Osteopathic Medicine degree

Overview

The Department of Biological & Biomedical Sciences and the Rowan University School of Osteopathic Medicine (Rowan SOM) offer a Bachelor of Science in Biological Sciences and a Doctor of Osteopathic Medicine degree, respectively. This accelerated program allows high-achieving Biological Sciences majors to obtain the Bachelor of Science and Doctor of Osteopathic Science in a seven-year period, rather than the traditional period of eight years if both degrees were completed separately. The program is a 3 + 4 arrangement where students begin Doctor of Osteopathic Medicine courses in their 4th year at Rowan University.

3 + 4 UNDERGRADUATE PROGRAM REQUIREMENTS 120 s.h.

General Education (all courses are three credits unless noted otherwise) 42 credits

COMP01.101	College Composition I	
COMP01.102	College Composition II	
CMS04.205	Public Speaking	
PHIL09.369	Philosophy of Science	
or PHIL09.376	Philosophy of Medicine-WI	
PSY01.107	Essentials of Psychology	
SOC08.120	Introduction to Sociology	
One course which fulfills the Artistic Literacy requirement of the Rowan Core		
One course which fulfills the Global Literacy requirement of the Rowan Core		
MATH01.130	Calculus I	4 s.h.
CHEM06.100	Chemistry I	4 s.h.
Ten hours of non-program electives		

Bachelor of Science Program Requirements (all courses are four credits unless noted otherwise) 78 credits

BIOL01.104	Introduction to Evolution and Scientific Inquiry	
BIOL01.106	Introduction to Genetics	
BIOL01.203	Introduction to Cell Biology	
BIOL01.204	Introduction to Ecology	
BIOL11.330	Microbiology	
BIOL01.430	Advanced Cell Biology	
BIOL14.440	Introduction to Biochemistry	3 s.h.
MCB22.450	Molecular Genetics	
BIOL01.475	Biology Lab/Field Research	
or BIOL01.445	Special Topics in Biological Sciences	3 s.h.
CHEM06.101	Chemistry II	
CHEM07.200	Organic Chemistry I	
CHEM07.201	Organic Chemistry II	
PHYS00.210	Physics I	
PHYS00.211	Physics II	
STAT02.280	Biometry	
	Free elective	3 s.h.

*Rowan SOM courses in the first year of Doctor of Osteopathic Medicine program (17 s.h.): Biochemistry/Human Genetics, Medical Physiology, Histology, Microbiology/Immunology

3+4 DOCTOR OF OSTEOPATHIC MEDICINE PROGRAM REQUIREMENTS

Requirements for the Doctor of Osteopathic Medicine degree are set forth in the Rowan SOM Education Handbook.

Additional Program Requirements:

Students are required to maintain a minimum cumulative grade point average of 3.6 in all course work and a minimum grade point average of 3.6 in the science courses required for admission to Rowan SOM. Students must also take the Medical College Admissions Test (MCAT) and score a minimum of 27. Students in the accelerated Bachelor of Science/Doctor of Osteopathic Medicine Program will be strongly encouraged to construct an undergraduate degree plan that incorporates experiences involving community outreach and service, as well as the premedical sciences.

Students accepted into the 3+4 Program, to be qualified for transition to Rowan SOM, shall have met all of the following criteria:

- Completion of all general curriculum requirements at Rowan University
- A minimum of 75% of the credits needed for a Baccalaureate degree
- Completion of all prerequisite courses required for admission to Rowan SOM as specified in the Rowan SOM Education Handbook
- A cumulative grade point average of 3.60 or better.
- No final grade of "D", "F" or "I" in any prerequisite course required for admission to Rowan SOM as indicated in the Rowan SOM Education Handbook
- A minimum score of 8 on each section of the Medical College Admissions Test or a minimum total score of 27
- Recommendation by the Rowan University Premed Advisor based on a majority approval of the Rowan University Program Admissions Committee
- Satisfactory interviews with the Program Admissions Committees at Rowan University and Rowan SOM

Students in the 3+4 program will be required to visit the Rowan SOM campus to participate in all of the activities listed below during their three undergraduate years:

- OMM demonstrations (including a shadow experience at the OMM clinic)
- Lecture presentation on research opportunities at Rowan SOM
- Tour of the Clinical Education and Assessment Center
- Mini skills workshop focusing on elementary doctoring skills, specifically interpersonal skills and basic history taking
- Anatomy lecture and lab
- Brown Bag Sessions with Associate Dean for Academic Affairs and or designee

Eligibility and Admissions:

High school seniors who qualify for admission to Rowan University are eligible for admission to the 3+4 program. There are no restrictions on State of residency, but admission is limited to citizens or permanent residents of the United States. The high school grade point average and rank-in-class, along with letters of recommendation from high school teachers, will be of primary importance in evaluating an applicant's credentials. Applicants are required to submit scores of the College Board Scholastic Aptitude Tests (SAT) Verbal and Mathematical components or the American College Testing (ACT) exam. Applicants are expected to demonstrate knowledge of, and activity resonant with, the mission of Rowan SOM.

After preliminary evaluation of applications by the Rowan University Admissions Office, the Joint Admissions Committee, composed of representatives from the premedical faculty of Rowan University and the Admissions Committee of Rowan SOM, will decide which applicants to invite for interview at Rowan University and Rowan SOM. Interviews at Rowan SOM will be conducted by a member of the Rowan SOM Admissions Committee.

Applicants not invited for an interview, or not selected for admission to the 3+4 program, shall be notified of decisions as early as possible and shall be considered for regular admission to Rowan University. First year students at Rowan University who are not accepted into the program may continue their undergraduate course of study and would be eligible to apply for the 4+4 program in their Sophomore year at Rowan University

Student Status:

Students will be eligible for admission to the Doctor of Osteopathic Medicine portion of the program after the Rowan University Coordinator of Premedical Programs has certified that the candidate has met all basic prerequisite requirements, after completion of the MCAT, and after a successful interview with the Rowan SOM Admissions Committee. Students apply for an admissions decision to Rowan SOM no later than October 1 of the 3rd year, but preferably by August 15 before their 3rd year. Acceptance of such candidates is based on meeting or surpassing the requirements listed above.

Tuition for the first three (3) years of study at Rowan University, including summer courses, if any, will be the same tuition as charged to undergraduate Rowan University students. Tuition during the four (4) years of study at Rowan SOM will be the same as the tuition charged to students enrolled in the regular curriculum at Rowan SOM

Students who satisfactorily complete the appropriate courses in the first year at Rowan SOM, in addition to all other undergraduate degree requirements, will receive a Bachelor of Science in Biological Sciences degree.

If, after the first semester of the medical first year, the student fails to meet the required Rowan SOM standards of performance and competency, representatives from Rowan University and Rowan SOM will meet with the student. If, after meeting with the student, Rowan SOM concludes that the student should not continue in the medical school, the student shall be dismissed from the Bachelor of Science/Doctor of Osteopathic Medicine Program. In consultation with the Biological Sciences coordinator, the Bachelor of Science in Biological Sciences degree may be completed.

Department of Chemistry and Biochemistry

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The Department of Chemistry and Biochemistry offers innovative educational programs and diverse research opportunities in multiple interdisciplinary areas of chemistry. Our curriculum provides unique learning opportunities for students through active learning techniques and hands-on training on our state-of-the-art instrumentation so that the graduates are able to meet the challenges of industry and successfully venture into their professional careers. Upon graduation, our students routinely join prestigious graduate programs, medical schools, pharmacy schools, or other allied health programs. Our graduates are also regularly employed by major chemical, pharmaceutical, and biotechnology industries.

We offer BS in Chemistry (accredited by American Chemical Society), BS in Biochemistry (accredited by American Society for Biochemistry and Molecular Biology) along with BA in Chemistry degrees. Our department is also home to the MS in Pharmaceutical Sciences and PhD Pharmaceutical Chemistry programs. High achieving undergraduate students have the opportunity to participate in our Combined Advanced Degree Programs. These five-year programs combine either a BS in Chemistry or BS in Biochemistry with the MS in Pharmaceutical Sciences. We also started Certificate of Graduate Studies program in Industrial Chemistry and Cannabinoid Chemistry, in which several of the courses are taught by the scientific experts from local industry.

Our goal is to prepare students to be contributing members of the scientific community and society at large. We believe this is essential to each student's success in his/her professional career. We believe in rigorous, employment-based learning. It is also important to the students' potential employers and graduate faculty and to society in general as well as to Rowan University and the Department of Chemistry and Biochemistry. We strive to accomplish this goal using a wide variety of techniques that include modern, strong coursework, state-of-the-art instrumentation, hands-on activities, teamwork, and the requirement of research and seminar capstone experiences. In addition, our students participate fully in the general education plan at Rowan.

Students are invited to learn more detailed information about the Department and Programs by visiting the following website: www.rowan.edu/chemistry.

Chemistry and Biochemistry graduates will be able to:

- Demonstrate contemporary skills and knowledge for entry-level positions in the field, or for admission to graduate or professional school
- Ask questions, design experiments, analyze data, and interpret results
- Obtain and use data from the chemical literature
- Effectively communicate orally and in writing
- Work effectively as a member of a team
- Make accurate and precise measurements and observations using scientific instrumentation
- Work safely and with a safety-conscious attitude
- Exhibit ethical scientific conduct
- Behave and think in patterns leading to innovation
- Demonstrate scientific curiosity
- Demonstrate leadership
- Become a lifelong learner

BACHELOR OF SCIENCE IN CHEMISTRY

The B.S. degree in Chemistry, accredited by the American Chemical Society, prepares students for a scientific career in chemistry or graduate studies. Successful completion of the degree requirements can also increase the chances of success in chemical industry (eg. pharmaceutical, materials, polymer, paint, fragrance, fine chemical, etc.) or government jobs (eg. EPA, FDA, NSF, NIST, etc.). The program combines the value of a liberal education with appropriate classroom and laboratory training in chemistry, math, physics, and biology. The curriculum is an assimilation of the core elements of all five sub-areas of chemistry including analytical, biochemistry, inorganic, organic, and physical chemistry. The emphasis in all courses is on the acquisition of a solid knowledge base combined with hands-on laboratory training. Laboratories are equipped with modern instrumentation and computers for hands-on use by students at all levels. The capstone experience is a seminar course and each student is expected to carry out a laboratory-based research project as well.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

PHIL09.369	Philosophy of Science-WI
MATH01.130	Calculus I
MATH01.131	Calculus II
MATH01.230	Calculus III
MCB01.102	Foundations in Biology for Biomedical Sciences II
CS01.104	Intro to Scientific Programming
PHYS00.220	Introductory Mechanics
PHYS00.222	Introductory Electricity & Magnetism
CHEM06.100	Chemistry I
CHEM06.101	Chemistry II
CHEM07.200	Organic Chemistry I
CHEM07.201	Organic Chemistry II
CHEM06.301	Inorganic Chemistry
CHEM06.400	Advanced Inorganic Chemistry Lecture
CHEM06.401	Advanced Inorganic Chemistry Laboratory
CHEM07.348	Biochemistry
CHEM09.250	Quantitative Analysis
CHEM08.400	Physical Chemistry I
CHEM08.401	Physical Chemistry II
CHEM08.402	Physical Chemistry Lab I
CHEM08.403	Physical Chemistry Lab II
CHEM09.410	Instrumental Methods
CHEM05.435	Co-op
or CHEM05.440	Research I
CHEM05.450	Seminar I

Restricted Electives 12 s.h

Chosen with the approval of your advisor. 8 s.h. must be in upper-level Chemistry and must have a Physical Chemistry prerequisite. The remainder of the 12 s.h. may be chosen in chemistry or in subjects closely related to chemistry such as physics, biology, or mathematics. Students planning graduate study would find a course in differential equations, linear algebra, or advanced physics helpful. See the list of Approved Restricted Electives below.

Free Electives 18 s.h

Chosen with the help of advisor and with consideration of future educational and career plans.

Total Credits in Program 120 s.h.

List of Approved Restricted Electives

CHEM05.430	Advanced Topics in Chemistry
CHEM07.405	Introduction to Polymer Chemistry
CHEM07.410	Medicinal Chemistry
CHEM07.470	Organic Spectroscopic Analysis (Lecture and Lab)
CHEM07.407	Advanced Biochemistry Lecture
CHEM07.409	Advanced Biochemistry Laboratory
CHEM07.431	Advanced Topics in Biochemistry
CHEM07.464	Advanced Organic Chemistry I (Lecture) – WI
CHEM07.475	Polymer Synthesis
CHEM07.478	Polymer Characterization
CHEM07.357	Chemical Biology
CHEM07.388	Natural Products Chemistry
CHEM07.412	Introduction to Antibiotics
CHEM07.442	Biochemical Research Methods
CHEM07.465	Physical Organic Chemistry
CHEM07.466	Advanced Organic Chemistry II (Lecture)
CHEM07.467	Organic Preparations (Lecture & Lab)
CHEM07.472	Organometallic Chemistry
CHEM07.490	General Aspects of Pharmacology
CHEM07.493	Introduction to Regulatory Affairs
CHEM07.494	Good Laboratory Practice (GLP) Techniques
CHEM08.410	Survey of Molecular Modeling Methods
CHEM08.405	Applications in Experimental and Computational Chemistry

CHEM07.492	Pharmaceutical Chemistry
CHEM09.300	Environmental Chemistry
CHEM09.322	Bioanalytical Chemistry
CHEM09.330	Chemical Analysis of Cannabinoids
CHEM09.411	Electrochemistry
CHEM09.420	Supramolecular Chemistry
CHEM09.351	Chemical Characterization of Surfaces and Materials
CHEM05.441	Research II (Approval of research advisor needed)
MATH01.210	Linear Algebra
MATH01.231	Ordinary Differential Equations
PHYS00.300	Modern Physics (Lecture and Lab)
PHYS00.340	Optics and Light (Lecture and Lab)
PHYS00.310	Analytical Mechanics (Lecture Only)
PHYS00.330	Mathematical Physics (Lecture Only)
PHYS00.325	Electric Circuits (Lecture and Lab)
PHYS00.320	Electricity and Magnetism I
INTR01.486	Interdisciplinary Materials Science

BACHELOR OF SCIENCE IN BIOCHEMISTRY

The B.S. degree in Biochemistry, accredited by the American Society for Biochemistry and Molecular Biology, is designed to prepare students for a career in biochemistry or graduate studies. Completion of the degree requirements can also increase a student's chances of success in medical, dental or other related health programs by helping students develop a strong academic foundation needed for success in such professional schools. The focus is on a molecular approach to studying living systems.

The biochemistry major can choose to specialize in related areas of chemistry, biochemistry, molecular biology, genetics or structural biology, pre-med, allied health sciences or biomedical sciences by a careful selection of elective courses. Each student is expected to carry out a laboratory-based research project.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Required Courses

PHIL09.369	Philosophy of Science-WI
MATH01.130	Calculus I
MATH01.131	Calculus II
MATH01.230	Calculus III
*or*STAT02.284	Statistics for the Biomedical Sciences
CS01.104	Intro to Scientific Programming
or CS01.110	Computing Environments
PHYS00.220	Introductory Mechanics
PHYS00.222	Introductory Electricity & Magnetism
CHEM06.100	Chemistry I
CHEM06.101	Chemistry II
CHEM07.200	Organic Chemistry I
CHEM07.201	Organic Chemistry II
CHEM07.348	Biochemistry
CHEM09.250	Quantitative Analysis
CHEM08.305	Introduction to Biophysical Chemistry
BIOL01.106	Intro to Genetics
or MCB01.101	Foundations in Biology for Biomedical Sciences
BIOL01.203	Introduction to Cell Biology
or MCB01.102	Foundations in Biology for Biomedical Sciences 2
CHEM07.407	Advanced Biochemistry Lecture
CHEM07.409	Advanced Biochemistry Laboratory
CHEM05.440	Research I
or CHEM05.435	Co-op
CHEM05.450	Seminar I

List of Approved Restricted Electives - 5 Courses

CHEM07.357	Chemical Biology
CHEM05.430	Advanced Topics in Chemistry

CHEM07.470	Organic Spectroscopic Analysis
CHEM09.300	Environmental Chemistry
CHEM09.322	Bioanalytical Chemistry
CHEM09.420	Supramolecular Chemistry
CHEM09.411	Electrochemistry
CHEM07.490	General Aspects of Pharmacology
CHEM07.465	Physical Organic Chemistry
CHEM07.410	Medicinal Chemistry
CHEM07.464	Advanced Organic Chemistry I
CHEM07.472	Organometallic Chemistry
CHEM07.405	Introduction to Polymer Chemistry
CHEM07.475	Polymer Synthesis
CHEM07.478	Polymer Characterization
CHEM06.400	Advanced Inorganic Chemistry Lecture
CHEM06.401	Advanced Inorganic Chemistry Lab
CHEM07.492	Pharmaceutical Chemistry
CHEM09.410	Instrumental Methods
CHEM08.410	Survey of Molecular Modeling Methods
CHEM07.388	Natural Products Chemistry
CHEM07.412	Introduction to Antibiotics
CHEM07.442	Biochemical Research Methods
CHEM07.466	Advanced Organic Chemistry II (Lecture)
CHEM07.467	Organic Preparations (Lecture & Lab)
CHEM07.493	Introduction to Regulatory Affairs
CHEM07.494	Good Laboratory Practice (GLP) Techniques
CHEM09.351	Chemical Characterization of Surfaces and Materials
CHEM08.405	Applications in Experimental and Computational Chemistry
CHEM09.330	Chemical Analysis of Cannabinoids
CHEM05.441	Research II (Approval of research advisor needed)
BINF07.399	Bioinformatics-Biochemical Applications
BIOL01.428	Developmental Biology
BIOL22.335	Advanced Genetics
MCB22.410	Concepts in Human Genetics
MCB22.450	Molecular Genetics
BIOL01.430	Advanced Cell Biology
MCB11.338	Immunology
BIOL11.330	Microbiology
MCB10.481	Cellular and Molecular Neuroscience
MCB01.306	Translational Cell Biology
MCB01.334	Medical Biochemistry
MCB10.345	Human Physiology
PHYS00.371	Biophysics II: Fundamentals of Biomaterials
TBS01.315	Instrumental for Biomedical Sciences

Free Electives 23-24 s.h.

Chosen with the help of advisor and with consideration for future educational and career plans.

Total Credits in Program **120 s.h.**

BACHELOR OF ARTS IN CHEMISTRY

The Bachelor of Arts degree in Chemistry prepares students for science, business, or law careers. The B.A. can also be combined with the Master of Arts in STEM Education in an Accelerated Dual Degree Program for students interested in teaching high school Chemistry. This 5-year program allows students to earn both degrees and teaching certification with 1 (or even 2) fewer years than the standard path. The Master of Arts in STEM Education is described in the Graduate Catalog under the College of Education.

Laboratories are equipped with modern instrumentation and computers for hands-on use by students at all levels. Each student is expected to carry out a laboratory-based research project.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

PHIL09.369	Philosophy of Science-WI
MATH01.130	Calculus I
MATH01.131	Calculus II
PHYS00.220	Introductory Mechanics
PHYS00.222	Introductory Electricity & Magnetism
CHEM06.100	Chemistry I
and CHEM06.101	Chemistry II
CHEM07.200	Organic Chemistry I
CHEM07.201	Organic Chemistry II
CHEM07.348	Biochemistry
CHEM09.250	Quantitative Analysis
CHEM08.400	Physical Chemistry I
CHEM05.435	Co-op
or CHEM05.440	Research I
CHEM05.450	Seminar I
CHEM09.410	Instrumental methods
or CHEM06.301	Inorganic Chem
and CHEM06.401	Adv. Inorganic Chemistry Lab

Free Electives 55-56 s.h

Chosen with the help of the advisor and with consideration of future educational and career plans.

Total Credits in Program 120 s.h.

MINOR IN CHEMISTRY

A chemistry minor is available for any student wishing a coherent sequence of chemistry courses. The minor is not available for Physical Sciences B.S. students specializing in chemistry or Biochemistry majors. Transfer students must complete at least 8 s.h. of the minor at Rowan University.

Requirements 23-24 s.h.

CHEM06.100	Chemistry I
or CHEM06.105	Advanced Chemistry I
CHEM06.101	Chemistry I
or CHEM06.106	Advanced Chemistry II
CHEM07.200	Organic Chemistry I
CHEM07.201	Organic Chemistry II
CHEM09.249	Analytical Chemistry

And one other **300/400 level** course that has Organic Chemistry II as a prerequisite.

CERTIFICATE OF UNDERGRADUATE STUDY IN CANNABINOID CHEMISTRY

DeLithea Davis
Advisor
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The Certificate of Undergraduate Study (CUGS) in Cannabinoid Chemistry is focused on cannabinoids, which are a major class of pharmacologically active molecules found in cannabis. With increased nationwide trends toward legalization and prescription of medical marijuana, development of cannabis-related therapies, and legalization of recreational marijuana (including in the State of NJ), there is a pressing need for scientists trained in the analysis of cannabinoid-containing materials. This program will train students in the fundamental and underlying science necessary for the analysis of marijuana, cannabinoids, and related materials. This training would be useful to careers in health professions, food science, pharmaceuticals, and biotechnology.

Certificate of Undergraduate Study in Cannabinoid Chemistry 12-13 s.h.

Required

CHEM09.322	Bioanalytical Chemistry

Pre-requisites

CHEM09.249	Analytical Chemistry	3 s.h.
OR CHEM09.250	Quantitative Analysis	3 s.h.
	AND	
CHEM07.201	Organic Chemistry II	3 s.h.
OR CHEM07.202	Industrial Organic Chemistry	3 s.h.
OR CHEM07.203	Organic Chemistry II for Biomedical Sciences	3 s.h.

Required

CHEM07.388	Natural Products Chemistry	3 s.h.

Pre-requisites

CHEM07.201	Organic Chemistry II	3 s.h.
OR CHEM07.202	Industrial Organic Chemistry	3 s.h.
OR CHEM07.203	Organic Chemistry II for Biomedical Sciences	3 s.h.

Elective courses (2) Two courses selected from the elective bank listed below 6-7 s.h.
Total 12-13 s.h.

Elective course options:

CHEM05.350	Forensic Chemistry	3 s.h.
CHEM07.357	Chemical Biology	3 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
CHEM07.464	Advanced Organic Chemistry	3 s.h.
CHEM07.470	Organic Spectroscopic Analysis	3 s.h.
CHEM07.490	General Aspects of Pharmacology	3 s.h.
CHEM07.492	Pharmaceutical Chemistry	3 s.h.
CHEM09.330	Chemical Analysis of Cannabinoids	3 s.h.
CHEM09.410	Instrumental Methods	4 s.h.

To be awarded the CUGS in Cannabinoid Chemistry, students must complete all courses required for the CUGS in Cannabinoid Chemistry with at least a 2.0 average. The primary pre-requisites for the courses described above include CHEM 09249/09250 and CHEM 07201/07202/07203.

CERTIFICATE OF UNDERGRADUATE STUDY IN PHARMACEUTICAL SCIENCES

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The Certificate of Undergraduate Study (CUGS) in Pharmaceutical Sciences provides a sequence of courses that combine chemistry and biochemistry topics of relevance to the study of pharmaceutical design, synthesis, testing, and analysis. These courses will provide a strong foundation for students interested in pursuing employment within the local pharmaceutical and biotechnology industries and for those wishing to pursue chemistry and biomedically oriented graduate education (e.g., Ph.D., M.D., D.O., and Pharm.D.).

Certificate of Undergraduate Study in Pharmaceutical Sciences 12 s.h.

The requirements include the following three courses:

CHEM07.407	Advanced Biochemistry Lecture
CHEM07.490	General Aspects of Pharmacology
CHEM07.492	Pharmaceutical Chemistry

And one of the following courses:

CHEM07.357	Chemical Biology
CHEM07.410	Medicinal Chemistry
CHEM07.464	Advanced Organic Chemistry I (Lecture) – WI
CHEM07.465	Physical Organic Chemistry
CHEM08.410	Survey of Molecular Modelling Methods
CHEM09.322	Bioanalytical Chemistry Advanced Organic Chemistry
CHEM05.430*	Advanced Topics in Chemistry*
CHEM07.431*	Advanced Topics in Biochemistry*

*Advanced Topics in Chemistry (CHEM 05.430) and Advanced Topics in Biochemistry (CHEM 07.431) cover special topics in individual areas of chemistry and biochemistry, respectively. In order to apply this course to this CUGS, the topics covered in a taken Advanced Topics course must be related to Pharmaceutical Science and be pre-approved by the CUGS coordinator.

To be awarded the CUGS in Pharmaceutical Sciences, students must complete all courses required for the CUGS in Pharmaceutical Science with at least a 2.0 average. All required and optional courses in this CUGS require Organic Chemistry II (CHEM 07.201) as a prerequisite. Required course Advanced Biochemistry Lecture requires Biochemistry (CHEM 07.348 or BIOL 14.348) as a prerequisite. As such, these prerequisites will largely limit this CUGS to those majoring in Biochemistry, Chemistry, Biological Sciences, Bioinformatics, Biophysics, Translational Biomedical Sciences, Molecular and Cellular Biology, Biomedical Engineering, and Chemical Engineering.

Accelerated Dual Degree Program Bachelor of Science in Biochemistry - Master of Science in Pharmaceutical Sciences

Overview

The Department of Chemistry and Biochemistry currently offers a Bachelor of Science (BS) in Biochemistry as well as a Master of Science (M.S.) in Pharmaceutical Sciences. There are two track available in the Master of Science program (a) Thesis track and (b) Non-Thesis track. The thesis track of the Master of Science program is designed as a research-intensive program and may not be amenable for the accelerated track. The non-thesis track of our Master of Science program is designed for students who intend to further their knowledge in the area of pharmaceutical sciences and hence it would be ideally suited for the creation of an accelerated track. We propose an accelerated program in which high-achieving Rowan Biochemistry majors can obtain the Bachelor of Science and Master of Science (non-thesis track) in a five-year period (rather than the traditional period of six years if both degrees were completed independently). This would create a "3+2" program in which students would be enrolled as undergraduates in the first semester of their fourth year but would enroll as graduate students in the second semester of the 4th year. By beginning graduate-level studies in their fourth year, highly talented and motivated students will be able to complete both degrees on an accelerated timeline. The Bachelor of Science/Master of Science dual degree program will enable students to obtain advanced graduate level training in the pharmaceutical sciences, which will prepare them for careers in industry or further graduate study.

Identification of Courses The courses required for graduation is a combination of the required courses for the complete core of the Bachelor of Science Biochemistry degree including Rowan general education courses (108 credits) as well as the full 31 credits for the Master of Science Pharmaceutical Sciences (non-thesis track) degree. This intends to use up to 12 credits of the Master of Science courses toward fulfilling the required 120 credits for undergraduate degree completion. The complete program will consist of 139 credits for the dual Bachelor of Science and Master of Science degrees as opposed to 151 credits if both were done independently.

Rowan Core requirements		29 s.h.
Communicative Literacy (COML)		9 s.h.
COMP01.111	College Composition I	3 s.h.
COMP01.112	College Composition II	3 s.h.
CMS04.205	Public Speaking	3 s.h.
Artistic Literacy (ARTL)		3 s.h.
Global Literacy (GLBL)		3 s.h.
Humanistic Literacy (HUML)		3 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
Quantitative Literacy (QNTL)		4 s.h.
MATH01.130	Calculus I	4 s.h.
Scientific Literacy (SCIL)		4 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
or CHEM06.100	Chemistry I*	4 s.h.
Rowan Experience requirements		10 s.h.
Broad-Based Literature Attribute (LIT)		3 s.h.
Writing Intensive Attribute (WI)		3 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
Rowan Seminar Attribute (RS)		4 s.h.
CHEM06.100	Chemistry I*	4 s.h.
Accelerated B.S. Biochemistry Major		87-91 s.h.
Non-Program Courses		33 or 34 s.h.
CS01.104	Intro to Scientific Programming	3 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
or STAT02.284	Statistics for the Biomedical Sciences	3 s.h.
MCB01.101	Foundations in Biology for Biomedical Sciences I	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Sciences II	4 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory Electricity & Magnetism	4 s.h.
Major Requirements		54-57 s.h.

Foundational Courses		
CHEM06.100	Chemistry I*	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.201	Organic Chemistry II	4 s.h.
CHEM09.250	Quantitative Analysis	4 s.h.
Mid-Level Courses		
CHEM05.440	Research I (or CHEM05.435 Co-op)	3 s.h.
CHEM07.348	Biochemistry (with lab)	4 s.h.
CHEM08.305	Biophysical Chemistry	4 s.h.
Upper-Level Courses		
CHEM07.407	Advanced Biochemistry Lecture	3 s.h.
CHEM07.409	Advanced Biochemistry Lab	2 s.h.
CHEM05.450	Senior Seminar	1 s.h.
Restricted Electives (Choose five courses (totaling at least 17 s.h., 2 or 3 courses must be from CHEM)		17-20 s. h.
Approved Restricted Electives		
CHEM05.430	Advanced Topics in Chemistry	3 s.h.
CHEM05.441	Research II (Approval of research advisor needed)	3 s.h.
CHEM06.301	Inorganic Chemistry	3 s.h.
CHEM06.400	Advanced Inorganic Chemistry Lecture	3 s.h.
CHEM06.401	Advanced Inorganic Chemistry Lab	2 s.h.
CHEM07.357	Chemical Biology	3 s.h.
CHEM07.388	Natural Products Chemistry	3 s.h.
CHEM07.405	Introduction to Polymer Chemistry	3 s.h.
CHEM07.407	Advanced Biochemistry Lecture	3 s.h.
CHEM07.409	Advanced Biochemistry Laboratory	2 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
CHEM07.412	Introduction to Antibiotics	3 s.h.
CHEM07.431	Advanced Topics in Biochemistry	3 s.h.
CHEM07.442	Biochemical Research Methods	3 s.h.
CHEM07.464	Advanced Organic Chemistry I (Lecture) - WI	3 s.h.
CHEM07.465	Physical Organic Chemistry	3 s.h.
CHEM07.466	Advanced Organic Chemistry II (Lecture)	3 s.h.
CHEM07.467	Organic Preparations (Lecture & Lab)	3 s.h.
CHEM07.470	Organic Spectroscopic Analysis (Lecture and Lab)	3 s.h.
CHEM07.472	Organometallic Chemistry	3 s.h.
CHEM07.475	Polymer Synthesis	3 s.h.
CHEM07.478	Polymer Characterization	3 s.h.
CHEM07.490	General Aspects of Pharmacology	3 s.h.
CHEM07.492	Pharmaceutical Chemistry	3 s.h.
CHEM07.493	Introduction to Regulatory Affairs	3 s.h.
CHEM07.494	Good Laboratory Practice (GLP) Techniques	3 s.h.
CHEM08.410	Survey of Molecular Modelling Methods	3 s.h.
CHEM08.405	Applications in Experimental and Computational Chemistry	3 s.h.
CHEM09.330	Chemical Analysis of Cannabinoids	3 s.h.
CHEM09.300	Environmental Chemistry	3 s.h.
CHEM09.322	Bioanalytical Chemistry	3 s.h.
CHEM09.351	Chemical Characterization of Surfaces and Materials	3 s.h.
CHEM09.411	Electrochemistry	3 s.h.
CHEM09.420	Supramolecular Chemistry	3 s.h.
BINF07.399	Bioinformatics-Biochemical Applications	3 s.h.
BIOL01.428	Developmental Biology	4 s.h.
BIOL22.335	Advanced Genetics	4 s.h.
MCB22.410	Concepts in Human Genetics	4 s.h.
MCB22.450	Molecular Genetics	4 s.h.
BIOL01.430	Advanced Cell Biology	4 s.h.
MCB11.338	Immunology	4 s.h.
BIOL11.330	Microbiology	4 s.h.
MCB10.481	Cellular and Molecular Neuroscience	3 s.h.
MCB01.306	Translational Cell Biology	3 s.h.
MCB01.334	Medical Biochemistry	3 s.h.
MCB10.345	Human Physiology	4 s.h.
PHYS00.371	Biophysics II: Fundamentals of Biomaterials	3 s.h.
TBS01.315	Instrumental for Biomedical Sciences	3 s.h.

Free Electives	15-18 s.h.

(Graduate Courses) Any graduate Pharmaceutical Sciences courses taken as part of the accelerated M. S. program count toward undergraduate Core or Restricted Electives or Free Electives.

Total Undergrad Hours	108 s.h.
Total Graduate Hours Applied to the B.S.	12 s.h.
Total Credit Hours for the Accelerated B.S. Biochemistry Degree	120 s.h.

Course Requirements for the Accelerated Master of Science in Pharmaceutical Sciences

Core Courses		16 s.h.
CHEM07.592	Advanced Pharmaceutical Chemistry	3 s.h.
CHEM07.590	General Aspects of Pharmacology	3 s.h.
CHEM07.564	Advanced Organic Synthesis	3 s.h.
CHEM07.560	Advanced Biochemistry Lecture	3 s.h.
or CHEM07.531	Special Topics in Biochemistry	3 s.h.
CHEM05.550	Advanced Seminar	1 s.h.
Restricted Electives 15 sh Choose five courses from the list below.		
CHEM06.500	Modern Inorganic Chemistry	3 s.h.
CHEM06.501	Modern Inorganic Chemistry Lab	2 s.h.
CHEM07.512	Antibiotics	3 s.h.
CHEM07.568	Medicinal Chemistry	3 s.h.
CHEM07.570	Organic Spectroscopy	3 s.h.
CHEM07.565	Organic Reaction Mechanisms	3 s.h.
CHEM07.572	Advanced Organometallic Chemistry	3 s.h.
CHEM07.409	Advanced Biochemistry Lab	2 s.h.
CHEM07.567	Advanced Organic Preparations	3 s.h.
CHEM07.588	Advanced Natural Products Chemistry	3 s.h.
CHEM07.593	Regulatory Affairs	3 s.h.
CHEM07.594	GLP/GMP Techniques	3 s.h.
CHEM09.522	Advanced Bioanalytical Chemistry	3 s.h.
CHEM08.510	Advanced Survey of Molecular Modeling Methods	3 s.h.
CHEM08.505	Advanced Biophysical Chemistry	3 s.h.
CHEM09.510	Instrumental Analysis	3 s.h.
CHEM09.520	Advanced Supramolecular Chemistry	3 s.h.
CHEM07.557	Chemical Biology	3 s.h.

Total credit hours for the Master of Science Pharmaceutical Sciences Degree	31 s.h.
Total graduate credit hours Applied to the Bachelor of Science in Biochemistry	12 s.h.
Total Credit Hours for the Accelerated Bachelor of Science Biochemistry Degree	108 s.h.
Total credit hours for the Accelerated BS in Biochemistry and MS in Pharmaceutical Sciences	139 s.h.

Requirements for Admission and Graduation

Admission

Applicants to the accelerated program will submit all application materials by January 15 of the spring semester of their third year at Rowan (nominally "junior" year). The graduate admissions committee in the Department of Chemistry and Biochemistry will review the applications and students will be notified by February 1. We plan to revisit and potentially fine-tune the details of the admission process two or three years after implementation to take into account the practical aspects that might arise during the first few rounds of applications.

Application for admission requires:

- A minimum overall GPA of 2.8 in undergraduate coursework
- A complete online CGCE application including personal statement
- A letter of nomination/recommendation from Department of Chemistry & Biochemistry

Graduation

To graduate from the accelerated Bachelor of Science/Master of Science (non-thesis) dual degree program in Biochemistry and Pharmaceutical Sciences, students must meet the following requirements:

- Completion of all program requirements for the Bachelor of Science in Biochemistry (maintain cumulative GPA of 2.0).
- Completion of all program requirements for the Master of Science in Pharmaceutical Sciences (non-thesis) (maintain cumulative GPA of 3.0 as well as obtain no grade less than B- in any of the graduate courses).
- Maintain satisfactory progress through the program. Upon completion of the requirements above, the student will be granted both a Bachelor of Science in Biochemistry and a Master of Science in Pharmaceutical Sciences.

Student Status

Students enrolled in the accelerated Bachelor of Science/Master of Science Program will pay undergraduate fees the first four years of the program and they will start paying the graduate tuition starting in their fifth year. Students will be allowed to register for 6 s.h. of graduate courses for two semesters in their undergraduate senior year (nominally the fourth year). Students must maintain full time student status during the entire 5-year program. Students will be expected to maintain satisfactory progress through the program. Satisfactory progress will be defined by the following parameters:

- Earning at least a grade of B- in all the graduate courses.
- Any student who fails to maintain satisfactory progress as described above will be placed on probation within the program for one semester— if the performance still does not improve, he/she will be dropped from the graduate program. If the student has not already earned the Bachelor of Science in Biochemistry, he/she will be re-admitted into the Bachelor of Science subject to the requirements of that program.
- Students with extenuating circumstances may request an exception to this requirement by obtaining written approval of the Program Coordinator of Master of Science Pharmaceutical Sciences as well as their Undergraduate Advisor, and other approvals if needed under University policy.

Students who enter the accelerated Master of Science program but do not maintain satisfactory progress or opt-out of the Master of Science degree will be allowed to apply up to 12 credits of Pharmaceutical Sciences coursework credits as restricted or free electives toward the Bachelor of Science Biochemistry degree. If the student opts out before 12 credits have been completed in the Pharmaceutical Sciences program, any remaining credits to make up the required 120 credits for the undergraduate Bachelor of Science Biochemistry degree will be taken using traditional coursework at the Glassboro campus.

Accelerated Dual Degree (3 + 4 program): Bachelor of Science in Biochemistry and M.D. degree

Overview

The Department of Chemistry and Biochemistry and the Cooper Medical School of Rowan University (CMSRU) offer a Bachelor of Science in Biochemistry and a Doctor of Medicine degree, respectively. This accelerated program allows high-achieving Biochemistry majors to obtain the Bachelor of Science and Doctor of Medicine in a seven-year period, rather than the traditional period of eight years if both degrees were completed separately. The program is a 3 + 4 arrangement where students begin Doctor of Medicine courses in their 4th year at Rowan University.

3 + 4 UNDERGRADUATE PROGRAM REQUIREMENTS		120 s.h.
Rowan Core Requirements		29 credits
Communicative Literacy (COML)		9 sh
COMP01.111	College Composition I	3 s.h.
COMP01.112	College Composition II	3 s.h.
CMS04.205	Public Speaking	3 s.h
Artistic Literacy (ARTL)		3 s.h.
Global Literacy (GLBL)		3 s.h.
Humanistic Literacy (HUML)		3 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
Quantitative Literacy (QNTL)		4 sh
MATH01.130	Calculus I	4 s.h.
Scientific Literacy (SCIL)		4 sh
PHYS00.220	Introductory Mechanics	4 s.h.
or CHEM06.100	Chemistry I*	4 s.h.
Rowan Experience requirements		10 s.h.
Broad-Based Literature Attribute (LIT)		3 s.h.
Writing Intensive Attribute (WI)		3 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
Rowan Seminar Attribute (RS)		4 s.h.
CHEM06.100	Chemistry I*	4 s.h.
B.S. Biochemistry Major		82-83 s.h.
Non-Program Courses		33 or 34 s.h.
CS01.104	Intro to Scientific Programming	3 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
or STAT02.284	Statistics for the Biomedical Sciences	3 s.h.
MCB01.101	Foundations in Biology for Biomedical Sciences I	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Sciences II	4 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.

PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory Electricity & Magnetism	4 s.h.
Major Requirements		49 s.h.
CHEM06.100	Chemistry I*	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.201	Organic Chemistry II	4 s.h.
CHEM09.250	Quantitative Analysis	4 s.h.
CHEM05.440	Research I (or CHEM05.435 Co-op)	3 s.h.
CHEM07.348	Biochemistry (with lab)	4 s.h.
CHEM08.305	Biophysical Chemistry	4 s.h.
CHEM07.407	Advanced Biochemistry Lecture	3 s.h.
CHEM07.409	Advanced Biochemistry Lab	2 s.h.
CHEM05.450	Senior Seminar	1 s.h.

Restricted Electives Undergrad 12 sh (Chosen with the approval of an Advisor; courses in the first year of CMSRU will count toward these electives).

*CMSRU courses in the first year of M.D. program (17 s.h.): Fundamentals, Scholar's Workshop, Infectious Diseases

3+4 DOCTOR OF MEDICINE PROGRAM REQUIREMENTS

Requirements for the Doctor of Medicine degree are set forth in the CSMRU Student Handbook.

Additional Program Requirements:

Students are required to maintain a minimum cumulative grade point average of 3.6 in all course work and a minimum grade point average of 3.6 in the science courses required for admission to CMSRU. Students must take part in one of the summer Premedical Urban Leaders Summer Enrichment PULSE programs at CMSRU or participate in forty hours of approved community service prior to entering their third undergraduate year. This service will be directed to underserved populations and is non-medical. The Health Professions Advisor (HPA), or designee on the Glassboro campus will serve as the supervisor for the service activity and provide verification that the service obligations have been completed.

Students accepted into the 3+4 Program will be admitted to CMSRU contingent upon the following:

- Completion of all general curriculum requirements at Rowan University.
- A minimum of 75% of the credits needed for a Baccalaureate degree completed before beginning the medical school phase of the Program.
- All prerequisite courses required for admission to CMSRU as specified in the CMSRU Handbook.
- Completion of requirements of the designated Rowan University major unless the major department agrees to provide credit for certain medical courses taken during the first year of medical school at CMSRU.
- A cumulative science grade point average of 3.60 or better.
- No final grade of "D", "F" or "I" in any prerequisite course required for admission to CMSRU as indicated in the CMSRU Handbook.
- All students will be required to take the Medical College Admissions Test (MCAT) and obtain a score at or greater than the 70th percentile.
- Students in the Program will be required to participate in one summer Premedical Urban Leader Summer Enrichment Program "PULSE" program at CMSRU or an equivalent service experience as outlined above.
- Students must remain free of any citations for behavioral issues or academic integrity violations especially surrounding professionalism through their undergraduate education.
- CMSRU may refuse admission to any student applicant who does not meet the above requirements. Students may be required to decelerate or withdraw from the combined Program for academic or other reasons.

Eligibility and Admissions:

High school seniors who qualify for admission to Rowan University are eligible for admission to the 3+4 program. There are no restrictions on State of residency, but admission is limited to citizens or permanent residents of the United States. The high school grade point average and rank-in-class, along with letters of recommendation from high school teachers, will be of primary importance in evaluating an applicant's credentials. Applicants are required to submit scores of the College Board Scholastic Aptitude Tests (SAT) Verbal and Mathematical components or the American College Testing (ACT). Applicants are expected to demonstrate knowledge of, and activity resonant with, the mission of CMSRU

Students who self-identify that they wish to be part of this Program will formally apply to the Health Professions Advisor (HPA) at Rowan University upon acceptance to Rowan University. They will be given all the requirements of the program by the HPA. There will be an application form made available to the HPA through CMSRU that needs to be completed and sent by the HPA to the Director of Admissions at CMSRU. Qualified applicants will be scheduled for interview by members of a subcommittee of the CMSRU Admissions Committee. These interviews will be held on the CMSRU campus and at a date and time that will allow student notification prior to any final decision date for matriculation to Rowan University.

Student Status:

Tuition for the first three (3) years of study at Rowan University, including summer courses, if any, will be the same tuition as charged to undergraduate Rowan University students. Tuition during the four (4) years of study at CMSRU will be the same as the tuition charged to students enrolled in the regular curriculum at CMSRU.

Students who satisfactorily complete the appropriate courses in the first year at CMSRU, in addition to all other Rowan University requirements, will receive a Bachelor of Science in Biochemistry degree.

If, after the first semester of the medical first year, the student fails to meet the required CMSRU standards of performance and competency, CMSRU shall notify Rowan University. Representatives from Rowan University and CMSRU will meet with the student. If, after meeting with the student, CMSRU concludes that the student should not continue in the medical school, the student shall be dismissed from the Bachelor of Science/Doctor of Medicine Program. In consultation with the Biochemistry coordinator, the Bachelor of Science in Biochemistry degree may be completed.

Accelerated Dual Degree (3 + 4 program): Bachelor of Science in Biochemistry and Doctor of Osteopathic Medicine degree

Overview

The Department of Chemistry & Biochemistry and the Rowan University School of Osteopathic Medicine (Rowan SOM) offer a Bachelor of Science in Biochemistry and a Doctor of Osteopathic Medicine degree, respectively. This accelerated program allows high-achieving Biochemistry majors to obtain the Bachelor of Science and Doctor of Osteopathic Medicine in a seven-year period, rather than the traditional period of eight years if both degrees were completed separately. The program is a 3 + 4 arrangement where students begin Doctor of Osteopathic Medicine courses in their 4th year at Rowan University.

3 + 4 UNDERGRADUATE PROGRAM REQUIREMENTS		120 s.h.
Rowan Core requirements		29 s.h.
Communicative Literacy (COML)		9 s.h.
COMP01.111	College Composition I	3 s.h.
COMP01.112	College Composition II	3 s.h.
CMS04.205	Public Speaking	3 s.h.
Artistic Literacy (ARTL)		3 s.h.
Global Literacy (GLBL)		3 s.h.
Humanistic Literacy (HUML)		3 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
Quantitative Literacy (QNTL)		4 s.h.
MATH01.130	Calculus I	4 s.h.
Scientific Literacy (SCIL)		4 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
or CHEM06.100	Chemistry I*	4 s.h.
Rowan Experience requirements		10 s.h.
Broad-Based Literature Attribute (LIT)		3 s.h.
Writing Intensive Attribute (WI)		3 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
Rowan Seminar Attribute (RS)		4 s.h.
CHEM06.100	Chemistry I*	4 s.h.
B.S. Biochemistry Major		82-83 s.h.
Non-Program Courses		33 or 34 s.h.
CS01.104	Intro to Scientific Programming	3 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
or STAT02.284	Statistics for the Biomedical Sciences	3 s.h.
MCB01.101	Foundations in Biology for Biomedical Sciences I	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Sciences II	4 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory Electricity & Magnetism	4 s.h.
Major Requirements		49 s.h.
CHEM06.100	Chemistry I*	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.201	Organic Chemistry II	4 s.h.
CHEM09.250	Quantitative Analysis	4 s.h.
CHEM05.440	Research I (or CHEM05.435 Co-op)	3 s.h.

CHEM07.348	Biochemistry (with lab)	4 s.h.
CHEM08.305	Biophysical Chemistry	4 s.h.
CHEM07.407	Advanced Biochemistry Lecture	3 s.h.
CHEM07.409	Advanced Biochemistry Lab	2 s.h.
CHEM05.450	Senior Seminar	1 s.h.

Restricted Electives Undergrad 12 sh (Chosen with the approval of an Advisor; courses in the first year of SOM will count toward these electives).

*Rowan SOM courses in the first year of Doctor of Osteopathic Medicine program (17 s.h.): Biochemistry/Human Genetics, Medical Physiology, Histology, Microbiology/Immunology

3+4 DOCTOR OF OSTEOPATHIC MEDICINE PROGRAM REQUIREMENTS

Requirements for the Doctor of Osteopathic Medicine degree are set forth in the Rowan SOM Education Handbook.

Additional Program Requirements:

Students are required to maintain a minimum cumulative grade point average of 3.6 in all course work and a minimum grade point average of 3.6 in the science courses required for admission to Rowan SOM. Students must also take the Medical College Admissions Test (MCAT) and score a minimum of 27. Students in the accelerated Bachelor of Science/Doctor of Osteopathic Medicine Program will be strongly encouraged to construct an undergraduate degree plan that incorporates experiences involving community outreach and service, as well as the premedical sciences.

Students accepted into the 3+4 Program, to be qualified for transition to Rowan SOM, shall have met all of the following criteria:

- Completion of all general curriculum requirements at Rowan University
- A minimum of 75% of the credits needed for a Baccalaureate degree
- Completion of all prerequisite courses required for admission to Rowan SOM as specified in the Rowan SOM Education Handbook
- A cumulative grade point average of 3.60 or better.
- No final grade of "D", "F" or "I" in any prerequisite course required for admission to Rowan SOM as indicated in the Rowan SOM Education Handbook
- A minimum score of 8 on each section of the Medical College Admissions Test or a total minimum total score of 27
- Recommendation by the Rowan University Premed Advisor based on a majority approval of the Rowan University Program Admissions Committee
- Satisfactory interviews with the Program Admissions Committees at Rowan University and Rowan SOM

Students in the 3+4 program will be required to visit the Rowan SOM campus to participate in all of the activities listed below during their three undergraduate years:

- OMM demonstrations (including a shadow experience at the OMM clinic
- Lecture presentation on research opportunities at Rowan SOM
- Tour of the Clinical Education and Assessment Center
- Mini skills workshop focusing on elementary doctoring skills, specifically interpersonal skills and basic history taking
- Anatomy lecture and lab
- Brown Bag Sessions with Associate Dean for Academic Affairs and or designee

Eligibility and Admissions:

High school seniors who qualify for admission to Rowan University are eligible for admission to the 3+4 program. There are no restrictions on State of residency, but admission is limited to citizens or permanent residents of the United States. The high school grade point average and rank-in-class, along with letters of recommendation from high school teachers, will be of primary importance in evaluating an applicant's credentials. Applicants are required to submit scores of the College Board Scholastic Aptitude Tests (SAT) Verbal and Mathematical components or the American College Testing (ACT). Applicants are expected to demonstrate knowledge of, and activity resonant with, the mission of Rowan SOM.

After preliminary evaluation of applications by the Rowan University Admissions Office, the Joint Admissions Committee, composed of representatives from the premedical faculty of Rowan University and the Admissions Committee of Rowan SOM, will decide which applicants to invite for interview at Rowan University and Rowan SOM. Interviews at Rowan SOM will be conducted by a member of the Rowan SOM Admissions Committee.

Applicants not invited for an interview, or not selected for admission to the 3+4 program, shall be notified of decisions as early as possible and shall be considered for regular admission to Rowan University. First year students at Rowan University who are not accepted into the program may continue their undergraduate course of study and would be eligible to apply for the 4+4 program in their Sophomore year at Rowan University

Student Status:

Students will be eligible admission to the Doctor of Osteopathic Medicine portion of the program after the Rowan University Coordinator of Premedical Programs has certified that the candidate has met all basic prerequisite requirements,

after completion of the MCAT, and after a successful interview with the Rowan SOM Admissions Committee. Students apply for an admissions decision to Rowan SOM no later than October I of the 3'" year, but preferably by August 15 before their 3rd year. Acceptance of such candidates is based on meeting or surpassing the requirements listed above.

Tuition for the first three (3) years of study at Rowan University, including summer courses, if any, will be the same tuition as charged to undergraduate Rowan University students. Tuition during the four (4) years of study at Rowan SOM will be the same as the tuition charged to students enrolled in the regular curriculum at Rowan SOM

Students who satisfactorily complete the appropriate courses in the first year at Rowan SOM, in addition to all other undergraduate degree requirements, will receive a Bachelor of Science in Biochemistry degree.

If, after the first semester of the medical first year, the student fails to meet the required Rowan SOM standards of performance and competency, representatives from Rowan University and Rowan SOM will meet with the student. If, after meeting with the student, Rowan SOM concludes that the student should not continue in the medical school, the student shall be dismissed from the Bachelor of Science/Doctor of Osteopathic Medicine Program. In consultation with the Biochemistry coordinator, the Bachelor of Science in Biochemistry degree may be completed.

Dual Degree (4 +1 program): B.S. in Biochemistry + M.S. in Cell and Molecular Biology (SOM-GSBS)

Overview

This 4 +1 accelerated dual degree program allows high-achieving Rowan Biochemistry majors to obtain the Bachelor of Science and Master of Science in a five-year period (rather than the traditional period of six years if both degrees were completed independently). This would create a "3.5+1.5" program in which students would be enrolled as undergraduates in the first semester of their fourth year but would enroll in graduate level courses in the second semester of this year. By beginning graduate-level studies in their fourth year, highly talented and motivated students will be able to complete both degrees on an accelerated timeline. The B.S./M.S. dual degree program will enable students to obtain advanced graduate level training in the biomedical sciences which will prepare them for careers in industry or further graduate study.

4 + 1 Undergraduate Program Requirements

Introductory Science, Math and Computer Science Core		total 63-64 s.h.
CHEM06.100	Chemistry I	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.201	Organic Chemistry II	4 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
or STAT02.284	Statistics for the Biomedical Sciences	3 s.h.
BIOL01.106	Concepts of Genetics	4 s.h.
or MCB01.101	Foundations in Biology for Biomedical Sciences I	4 s.h.
BIOL01.203	Introduction to Cell Biology	4 s.h.
or MCB01.102	Foundations in Biology for Biomedical Sciences II	4 s.h.
CS01.104	Introduction to Scientific Programming	3 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Intro Electricity & Magnetism	4 s.h
CHEM07.348	Biochemistry	4 s.h.
CHEM07.407	Advanced Biochemistry Lecture	3 s.h.
CHEM07.409	Advanced Biochemistry Laboratory	2 s.h.
CHEM08.305	Introduction to Biophysical Chemistry	4 s.h.
CHEM05.450	Seminar I	1 s.h.
CHEM05.440	Research I	3 s.h.
or CHEM05.435	Co-op	3 s.h.

Restricted Electives:		total 15-20 s.h.*

Chosen with approval of advisor. *Choose five courses (totaling at least 17 s.h., 2 or 3 courses must be from CHEM)*

CHEM05.430	Advanced Topics in Chemistry	3 s.h.
CHEM05.441	Research II (Approval of research advisor needed)	3 s.h.
CHEM06.301	Inorganic Chemistry	3 s.h.
CHEM06.400	Advanced Inorganic Chemistry Lecture	3 s.h.
CHEM06.401	Advanced Inorganic Chemistry Lab	2 s.h.
CHEM07.357	Chemical Biology	3 s.h.
CHEM07.388	Natural Products Chemistry	3 s.h.
CHEM07.405	Introduction to Polymer Chemistry	3 s.h.
CHEM07.407	Advanced Biochemistry Lecture	3 s.h.
CHEM07.409	Advanced Biochemistry Laboratory	2 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.

CHEM07.412	Introduction to Antibiotics	3 s.h.
CHEM07.431	Advanced Topics in Biochemistry	3 s.h.
CHEM07.442	Biochemical Research Methods	3 s.h.
CHEM07.464	Advanced Organic Chemistry I (Lecture) - WI	3 s.h.
CHEM07.465	Physical Organic Chemistry	3 s.h.
CHEM07.466	Advanced Organic Chemistry II (Lecture)	3 s.h.
CHEM07.467	Organic Preparations (Lecture & Lab)	3 s.h.
CHEM07.470	Organic Spectroscopic Analysis (Lecture and Lab)	3 s.h.
CHEM07.472	Organometallic Chemistry	3 s.h.
CHEM07.475	Polymer Synthesis	3 s.h.
CHEM07.478	Polymer Characterization	3 s.h.
CHEM07.490	General Aspects of Pharmacology	3 s.h.
CHEM07.492	Pharmaceutical Chemistry	3 s.h.
CHEM07.493	Introduction to Regulatory Affairs	3 s.h.
CHEM07.494	Good Laboratory Practice (GLP) Techniques	3 s.h.
CHEM08.405	Applications in Experimental and Computational Chemistry	3 s. h.
CHEM08.410	Survey of Molecular Modelling Methods	3 s.h.
CHEM09.300	Environmental Chemistry	3 s.h.
CHEM09.322	Bioanalytical Chemistry	3 s.h.
CHEM09.330	Chemical Analysis of Cannabinoids	
CHEM09.351	Chemical Characterization of Surfaces and Materials	3 s.h.
CHEM09.411	Electrochemistry	3 s.h.
CHEM09.420	Supramolecular Chemistry	3 s.h.
BINF07.399	Bioinformatics-Biochemical Applications	3 s.h.
BIOL01.428	Developmental Biology	4 s.h.
BIOL22.335	Advanced Genetics	4 s.h.
MCB22.410	Concepts in Human Genetics	4 s.h.
MCB22.450	Molecular Genetics	4 s.h.
BIOL01.430	Advanced Cell Biology	4 s.h.
MCB11.338	Immunology	4 s.h.
BIOL11.330	Microbiology	4 s.h.
MCB10.481	Cellular and Molecular Neuroscience	3 s.h.
MCB01.306	Translational Cell Biology	3 s.h.
MCB01.334	Medical Biochemistry	3 s.h.
MCB10.345	Human Physiology	4 s.h.
PHYS00.371	Biophysics II: Fundamentals of Biomaterials	3 s.h.
TBS01.315	Instrumental for Biomedical Sciences	3 s.h.

*CMB graduate courses taken as part of the accelerated B.S.-M.S. program will count toward and fulfill the remaining 13 s.h. Elective Course credit required for the BS Biochemistry degree (see below).

Rowan Experience, General Education, and Free Elective Courses 27 s.h.

Four approved graduate-level M.B.A. courses may substitute for any of the free elective courses. No more than 12 graduate credits total may be used to replace undergraduate coursework.

Total Required Credits for the Undergraduate Portion of the Program 120 or 110** s.h. total **The first number is the official number of credits required for the undergraduate degree; however, the second number reflects the actual number of credits students will take through undergraduate coursework since 12 of the graduate credits are completed in the senior year and count towards both the undergraduate and graduate degrees.

4 + 1 Graduate Program Requirements

Required M.S. Courses taken as an Undergraduate 4 + 1 student 9 s.h.

CMB00.702	Molecular Biology of the Cell	4 s.h.
CMB00.809	Dept Seminar Series	1 s.h.
CMB00.802	Experimental Design	2 s.h.
or CMB00.803	Scientific Writing	2 s.h.
CMB00.682	Lab rotation C M.S. CMB	1 s.h.
CMB00.683	Lab rotation D M.S. CMB	1 s.h.

Required M.S. Courses taken as a Graduate 4 + 1 Student 18 s.h.

CMB00.801	Bioethics in Science and Medicine	2 s.h.
CMB00.802	Experimental Design	2 s.h.
or CMB00.803	Scientific Writing	2 s.h.
CMB00.804	Critical Readings in Cell & Molecular Biology	2 s.h.
CMB00.690	Thesis Research/M.S.	5 s.h.

CMB00.699	M.S. Thesis Continuation (2 semesters)	5 + 5 s.h.‡
CMB00.809	Department Seminar Series	1 s.h.

‡(no tuition, only fee)

Alternate Focus Courses 4-8 s.h.

Alternate courses permit the M.S. student to tailor the program to special needs for career development and research interests. *The available Alternate Focus Courses are subject to change in response to student and faculty interests. If a student has a specific interest in a topic covered by a course offered by another GSBS program, this course may be substituted for one Alternate Focus Courses with permission of the student's Advisory Committee and the GSBS Executive Council:

CMB00.805	Cell Culture and Stem Cells	2 s.h.
CMB00.806	Graduate Genetics	2 s.h.
CMB00.808	Molecular Oncology	2 s.h.
CMB00.810	Biomolecular Interactions	2 s.h.
MBS00.602	Antimicrobial Drugs: Mechanisms of Action and Resistance	2 s.h.
MBS00.603	Basic Immunology	2 s.h.
MBS00.604	Cancer Chemotherapy	2 s.h.
MBS00.605	Developmental Biology	2 s.h.
MBS00.606	Essential Neuroscience	3 s.h.
MBS00.609	Mechanisms of Disease	2 s.h.
MBS00.610	Microbiology	3 s.h.
MBS00.611	Pathophysiology of the Cardiovascular System	3 s.h.
MBS00.612	Principles of Pharmacology	3 s.h.
MPI00.504	Topics in Molecular Pathology and Immunology	4 s.h.
MPI00.601	Techniques in Molecular Diagnostics	2 s.h.

Total Required Credits for the Graduate Portion of the Program 36 s.h.

This number includes the 12 graduate credits that may be applied towards both the graduate and undergraduate portions of the program.

Total Required Credits for the Entire 4 + 1 Program 146 s.h.

Requirements for Admission:

Applicants to the accelerated program will submit all application materials by January 15 of the spring semester of their third year at Rowan (nominally "junior" year). Applications will be reviewed by the GSBS admissions committee and students will be notified by February 1. Junior Admission: Students who apply to the program must meet the criteria listed below:

- A minimum overall GPA of 3.0 in undergraduate coursework
- A complete online GSBS application including personal statement
- A letter of nomination/recommendation from 2 faculty members affiliated with the Biochemistry Program.
- Official GRE General Exam score

Requirements for Graduation

To graduate from the accelerated B.S./MS dual degree program in Biochemistry and Cell and Molecular Biology, students must meet the following requirements:

- Completion of all requirements for the Accelerated B.S. in Biochemistry
- Completion of all requirements for the Accelerated M.S. in Cell and Molecular Biology
- Maintain satisfactory progress through the program.

Upon completion of the requirements above, the student will be granted both a Bachelor of Science and a Master of Science in Cell and Molecular Biology.

Student Status:

Students enrolled in the accelerated B.S./M.S. Program will pay undergraduate fees for all courses until they have reached the required number of credits as part of the "3.5" years (i.e. 105 credits). Beyond this, students will pay graduate credit for graduate courses. Students will not be allowed to take GSBS graduate courses at the undergraduate rate. Students must maintain full time student status during the entire 5-year program. Students will be expected to maintain satisfactory progress through the program. Satisfactory progress will be defined by the following parameters:

- Completion of the required Cell and Molecular Biology courses at the end of fourth year of study.
- Earning at least a grade of B in all graduate courses taken during that period.

Any student who fails to maintain satisfactory progress as described above will be dropped from the graduate program. If the student has not already earned the B.S. in Biochemistry, he/she will be readmitted into the B.S. subject to the requirements of that program. Students with extenuating circumstances may request an exception to this requirement by

obtaining written approval of the GSBS Executive Council and the Undergraduate Advisor, and other approvals if needed under University policy.

Contingency for Students who do not complete the M.S. program: Students who enter the accelerated M.S. program but do not maintain satisfactory progress or opt-out of the M.S. degree will be allowed to apply up to 12 credits of Cell and Molecular Biology coursework credits as free-electives toward the Biochemistry B.S. degree. If the student opts out before 12 credits have been completed in the Cell and Molecular Biology program, any remaining credits to make up the required 120 credits for the undergraduate B.S. Biochemistry degree will be taken using traditional coursework at the Glassboro campus.

Accelerated Dual Degree Program Bachelor of Science in Chemistry - Master of Science in Pharmaceutical Sciences

Overview

The Department of Chemistry and Biochemistry currently offers a Bachelor of Science (BS) in Chemistry as well as a Master of Science (M.S.) in Pharmaceutical Sciences. High-achieving Rowan Chemistry majors can obtain the B.S. and M.S. (non-thesis track) in a five-year period (rather than the traditional period of six years if both degrees were completed independently). This would create a "3+2" program in which students would be enrolled as undergraduates in the first semester of their fourth year but would enroll as graduate students in the second semester of the 4th year. By beginning graduate-level studies in their fourth year, highly talented and motivated students will be able to complete both degrees on an accelerated timeline. The B.S/M.S. dual degree program will enable students to obtain advanced graduate level training in the pharmaceutical sciences, which will prepare them for careers in industry or further graduate study. **Identification of Courses** The courses required for graduation is a combination of the required courses for the complete core of the B.S. Chemistry degree including Rowan general education courses (108 credits) as well as the full 31 credits for the M.S. Pharmaceutical Sciences (non-thesis track) degree. This intends to use up to 12 credits of the M.S. courses toward fulfilling the required 120 credits for undergraduate degree completion. The complete program will consist of 139 credits for the dual B.S. and M.S. degrees as opposed to 151 credits if both were done independently.

Rowan Core requirements		29 s.h.
Communicative Literacy (COML)		9 s.h.
COMP01.111	College Composition I	3 s.h.
COMP01.112	College Composition II	3 s.h.
CMS04.205	Public Speaking	3 s.h.
Artistic Literacy (ARTL)		3 s.h.
Global Literacy (GLBL)		3 s.h.
Humanistic Literacy (HUML)		3 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
Quantitative Literacy (QNTL)		4 s.h.
MATH01.130	Calculus I	4 s.h.
Scientific Literacy (SCIL)		4 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
or CHEM06.100	Chemistry I*	4 s.h.
Rowan Experience requirements		10 s.h.
Broad-Based Literature Attribute (LIT)		3 s.h.
Writing Intensive Attribute (WI)		3 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
Rowan Seminar Attribute (RS)		4 s.h.
CHEM06.100	Chemistry I*	4 s.h.
Accelerated B.S. Chemistry Major		92 s.h.
Non-Program Courses		30 s.h.
CS01.104	Intro to Scientific Programming	3 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Sciences II	4 s.h.
PHIL09.369	Philosophy of Science-WI	3 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.222	Introductory Electricity & Magnetism	4 s.h.
Major Requirements		62 s.h.
Foundational Courses		
CHEM06.100	Chemistry I*	4 s.h.
CHEM06.101	Chemistry II	4 s.h.

CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.201	Organic Chemistry II	4 s.h.
CHEM09.250	Quantitative Analysis	4 s.h.
Mid-Level Courses		
CHEM06.301	Inorganic Chemistry	3 s.h.
CHEM05.440	Research I (or CHEM05.435 Co-op)	3 s.h.
CHEM07.348	Biochemistry (with lab)	4 s.h.
CHEM08.400	Physical Chemistry I	3 s.h.
CHEM08.401	Physical Chemistry II	3 s.h.
Upper-Level Courses		
CHEM08.402	Physical Chemistry I Lab	2 s.h.
CHEM08.403	Physical Chemistry II Lab	2 s.h.
CHEM09.410	Instrumental Methods	4 s.h.
CHEM06.400	Advanced Inorganic Chemistry Lecture	3 s.h.
CHEM06.401	Advanced Inorganic Chemistry Lab	2 s.h.
CHEM05.450	Senior Seminar	1 s.h.
Restricted Electives (Chosen with the approval of an advisor, 8 s.h. must be CHEM courses)		12 s. h.
Approved Restricted Electives		
CHEM05.430	Advanced Topics in Chemistry	3 s.h.
CHEM05.441	Research II (Approval of research advisor needed)	3 s.h.
CHEM07.357	Chemical Biology	3 s.h.
CHEM07.388	Natural Products Chemistry	3 s.h.
CHEM07.405	Introduction to Polymer Chemistry	3 s.h.
CHEM07.407	Advanced Biochemistry Lecture	3 s.h.
CHEM07.409	Advanced Biochemistry Laboratory	2 s.h.
CHEM07.410	Medicinal Chemistry	3 s.h.
CHEM07.412	Introduction to Antibiotics	3 s.h.
CHEM07.431	Advanced Topics in Biochemistry	3 s.h.
CHEM07.442	Biochemical Research Methods	3 s.h.
CHEM07.464	Advanced Organic Chemistry I (Lecture) - WI	3 s.h.
CHEM07.465	Physical Organic Chemistry	3 s.h.
CHEM07.466	Advanced Organic Chemistry II (Lecture)	3 s.h.
CHEM07.467	Organic Preparations (Lecture & Lab)	3 s.h.
CHEM07.470	Organic Spectroscopic Analysis (Lecture and Lab)	3 s.h.
CHEM07.472	Organometallic Chemistry	3 s.h.
CHEM07.475	Polymer Synthesis	3 s.h.
CHEM07.478	Polymer Characterization	3 s.h.
CHEM07.490	General Aspects of Pharmacology	3 s.h.
CHEM07.492	Pharmaceutical Chemistry	3 s.h.
CHEM07.493	Introduction to Regulatory Affairs	3 s.h.
CHEM07.494	Good Laboratory Practice (GLP) Techniques	3 s.h.
CHEM08.405	Applications in Experimental and Computational Chemistry	3 s.h.
CHEM09.330	Chemical Analysis of Cannabinoids	3 s.h.
CHEM08.410	Survey of Molecular Modelling Methods	3 s.h.
CHEM09.300	Environmental Chemistry	3 s.h.
CHEM09.322	Bioanalytical Chemistry	3 s.h.
CHEM09.351	Chemical Characterization of Surfaces and Materials	3 s.h.
CHEM09.411	Electrochemistry	3 s.h.
CHEM09.420	Supramolecular Chemistry	3 s.h.
MATH01.210	Linear Algebra	3 s.h.
MATH01.231	Ordinary Differential Equations	3 s.h.
MATH01.235	Mathematics for Engineering Analysis	3 s.h.
PHYS00.300	Modern Physics (Lecture and Lab)	4 s.h.
PHYS00.340	Optics and Light (Lecture and Lab)	4 s.h.
PHYS00.310	Analytical Mechanics	4 s.h.
PHYS00.330	Mathematical Physics (Lecture Only)	4 s.h.
PHYS00.325	Electric Circuits (Lecture and Lab)	4 s.h.
PHYS00.320	Electricity and Magnetism I	4 s.h.
INTR01.486	Interdisciplinary Materials Science	3 s.h.
Free Electives		10 sh

(Graduate Courses)

Any graduate Pharmaceutical Sciences courses taken as part of the accelerated M. S. program count toward undergraduate Core or Restricted Electives or Free Electives.

Total Undergrad Hours	108 s.h.
Total Graduate Hours Applied to the B.S.	12 s. h.
Total Credit Hours for the Accelerated B.S. Chemistry Degree	120 s. h.

Course Requirements for the Accelerated M.S. in Pharmaceutical Sciences

Core Courses 16 s.h.

CHEM07.592	Advanced Pharmaceutical Chemistry	3 s.h.
CHEM07.590	General Aspects of Pharmacology	3 s.h.
CHEM07.564	Advanced Organic Synthesis	3 s.h.
CHEM07.560	Advanced Biochemistry Lecture	3 s.h.
CHEM05.530	Special Topics in Chemistry	3 s.h.
CHEM05.550	Advanced Seminar	1 s.h.

Restricted Electives 15 s.h. Choose five courses from the list below.

CHEM06.500	Modern Inorganic Chemistry	3 s.h.
CHEM06.501	Modern Inorganic Chemistry Lab	2 s.h.
CHEM07.512	Antibiotics	3 s.h.
CHEM07.568	Medicinal Chemistry	3 s.h.
CHEM07.570	Organic Spectroscopy	3 s.h.
CHEM07.565	Organic Reaction Mechanisms	3 s.h.
CHEM07.572	Advanced Organometallic Chemistry	3 s.h.
CHEM07.561	Advanced Biochemistry Lab	2 s.h.
CHEM07.567	Advanced Organic Preparations	3 s.h.
CHEM07.588	Advanced Natural Products Chemistry	3 s.h.
CHEM07.593	Regulatory Affairs	3 s.h.
CHEM07.594	GLP/GMP Techniques	3 s.h.
CHEM09.522	Advanced Bioanalytical Chemistry	3 s.h.
CHEM08.510	Advanced Survey of Molecular Modeling Methods	3 s.h.
CHEM08.505	Advanced Biophysical Chemistry	3 s.h.
CHEM09.510	Instrumental Analysis	3 s.h.
CHEM09.520	Advanced Supramolecular Chemistry	3 s.h.
CHEM07.557	Chemical Biology	3 s.h.

Total credit hours for the M.S. Pharmaceutical Sciences Degree	31 s.h.
Total graduate credit hours Applied to the B.S. in Chemistry	12 s.h.
Total Credit Hours for the Accelerated B.S. Chemistry Degree	108 s.h.
Total credit hours for the Accelerated B.S. in Chemistry and M.S. in Pharmaceutical Sciences	139 s.h.

Requirements for Admission and Graduation

Admission

Applicants to the accelerated program will submit all application materials by January 15 of the spring semester of their third year at Rowan (nominally "junior" year). The graduate admissions committee in the Department of Chemistry and Biochemistry will review the applications and students will be notified by February 1. We plan to revisit and potentially fine-tune the details of the admission process two or three years after implementation to take into account the practical aspects that might arise during the first few rounds of applications.

Application for admission requires:

- A minimum overall GPA of 2.8 in undergraduate coursework
- A complete online CGCE application including personal statement
- A letter of nomination/recommendation from Department of Chemistry & Biochemistry

Graduation

To graduate from the accelerated B.S./M.S. (non-thesis) dual degree program in Chemistry and Pharmaceutical Sciences, students must meet the following requirements:

- Completion of all program requirements for the B.S. in Chemistry (maintain cumulative GPA of 2.0).
- Completion of all program requirements for the M.S. in Pharmaceutical Sciences (non-thesis) (maintain cumulative GPA of 3.0 as well as obtain no grade less than B- in any of the graduate courses).
- Maintain satisfactory progress through the program. Upon completion of the requirements above, the student will be granted both a Bachelor of Science in Chemistry and a Master of Science in Pharmaceutical Sciences.

Student Status

Students enrolled in the accelerated B.S./M.S. Program will pay undergraduate fees for the first four years of the program and they will start paying the graduate tuition starting in their fifth year. Students will be allowed to register for 6 s.h. of graduate courses for two semesters in their undergraduate senior year (nominally the fourth year). Students must maintain full time student status during the entire 5-year program. Students will be expected to maintain satisfactory progress through the program. Satisfactory progress will be defined by the following parameters:

- Earning at least a grade of B- in all the graduate courses.
- Any student who fails to maintain satisfactory progress as described above will be placed on probation within the program for one semester— if the performance still does not improve, he/she will be dropped from the graduate program. If the student has not already earned the B.S. in Chemistry, he/she will be re-admitted into the B.S. subject to the requirements of that program.
- Students with extenuating circumstances may request an exception to this requirement by obtaining written approval of the Program Coordinator of MS Pharmaceutical Sciences as well as their Undergraduate Advisor, and other approvals if needed under University policy.

Students who enter the accelerated M.S. program but do not maintain satisfactory progress or opt-out of the M.S. degree will be allowed to apply up to 12 credits of Pharmaceutical Sciences coursework credits as restricted or free electives toward the B.S. Chemistry degree. If the student opts out before 12 credits have been completed in the Pharmaceutical Sciences program, any remaining credits to make up the required 120 credits for the undergraduate B.S. Chemistry degree will be taken using traditional coursework at the Glassboro campus.

Department of Computer Science

Vasil Y. Hnatyshin
Department Head
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The Field of Computer Science deals with computational systems that represent and process symbolic data. Major themes of the Computer Science course offerings include data structures, algorithms, problem-solving techniques, programming languages, software engineering, data communication and networking, cyber security, big data, blockchain, mobile development, cloud computing, parallel processing, bioinformatics, virtual reality, computer game design, robotics, artificial intelligence, database systems and the architecture of digital computer systems.

The Department offers a Bachelor of Arts in Computing and Informatics, a Bachelor of Science in Computer Science, a minor in Computer Science, a Master of Science in Computer Science, and several combined advanced degree programs including a Bachelor of Science / Master of Science in Computer Science, and both a Bachelor of Science in Computer Science/Master of Science in Bioinformatics and a Bachelor of Arts in Computing and Informatics/Master of Science in Bioinformatics.

We also offer several Certificates of Undergraduate and Graduate Studies programs to enable students from outside our majors to achieve official Rowan credentials in several different computer science domains. The department also offers optional concentrations in both the BA and BS programs which can further develop your professional computing career.

Together with the Mathematics department, we offer a minor in Data Science, a Master of Science in Data Science, and a combined advanced degree consisting of a Bachelor of Science in Computer Science and a Master of Science in Data Science.

BACHELOR OF ARTS IN COMPUTING AND INFORMATICS

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computerscience@rowan.edu

This program is designed for students who are interested in pursuing careers in information technology which requires a solid understanding of the principles of computing – but not the underpinnings of computer science theory and mathematics.

Students will acquire the requisite computer programming skills across programming languages and development platforms to develop a career as a computing professional, work as part of a project team, be able to analyze a problem and effectively document and communicate all aspects of the solution, and understand ethical, legal, security, and social issues and responsibilities in computing.

The Bachelor of Arts in Computing and Informatics contains several optional concentrations and a wide range of advanced electives. This degree prepares graduates for jobs in business and industry and can easily be combined with other degrees for students seeking a double major. Students, in consultation with faculty advisors, can construct flexible and comprehensive programs. The program prepares students to find careers in business, industry, government, and education, where they work as computer programmers, infrastructure administrators, deployment technicians, QA/testing engineers, support technicians, technical application trainers, and technical documentation specialists. Advanced placement credit is accepted

for incoming freshmen students.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Non-Program Courses Courses in this section cannot be in the major department

STAT02.260	Statistics I
or MATH03.125	Calculus Techniques and Applications
or MATH01.130	Calculus I
INTR01.265	Computers and Society
WA01.302	Technical Writing

The credits of History, Humanities, and Languages should include Introduction to Symbolic Logic (PHIL09.130). If this course is not taken, students may complete either Discrete Structures (MATH03.160) or Discrete Math (MATH01.150).

Required Courses

To complete the Bachelor of Arts degree in Computing and Informatics, students must complete all courses in the list of required courses.

Required Courses

CS00.100	Computer Science Learning Community
PHIL09.130	Introduction to Symbolic Logic
or MATH03.160	Discrete Structures
or MATH03.150	Discrete Math
CS04.171	Creating Android Applications
or CS01.104	Introduction to Scientific Programming
or CS04.110	Introduction to Programming Using Robots
CS04.103	Computer Science and Programming
CS04.210	Advanced Programming Workshop* (two sections)
CS04.225	Principles of Data Structures
MIS02.337/CS10.337	Applied Database Technologies
or CS10.338	SQL In-Depth
and CS10.339	Database Modeling and Design
CS01.210	Intro to Computer Networks and Data Communications
CS10.310	Introduction to Web Development
CS10.430	Computing and Informatics Capstone Experience
INTR01.265	Computers and Society

*two sections required with unique topics, e.g. "Advanced Programming Workshop: Ruby" and "Advanced Programming Workshop: node.js"

Restricted Elective Courses

To complete the Bachelor of Arts degree in Computing and Informatics, students must complete 12 s.h. from the list of restricted electives.

BINF07.310	Introduction to Bioinformatics
CS01.205	Computer Laboratory Techniques
CS01.211/MIS02.315	Principles of Information Security (strongly recommended)
CS01.295	Special Topics in Computer Science
CS01.395	Topics in Computer Science
CS02.421	Big Data Tools and Techniques
CS04.350	Blockchain Programming
CS10.271	Introduction to Android Programming
CS04.372	Advanced Android Programming
CS10.275	Introduction to IOS Application Programming
CS04.376	Advanced IOS Application Programming
CS04.471	Topics in Mobile Programming
CS07.252	Foundations of Computer Forensics
CS07.370	Introduction to Information Visualization
CS07.430	Human-Computer Interaction
CS07.485	Web and Text Mining

CS10.200	Fundamentals of Network Security
CS10.215	Penetration Testing Fundamentals
CS10.218	Ethical Hacking Fundamentals
CS10.250	Cryptography and Blockchain Essentials
CS10.340	Systems Administration
CS10.342	Web Server Platforms
CS10.344	Concepts of Computing Technologies
CS99.300	Computer Field Experience
CS99.310	Advanced Learning Assistant Exp. in CS
GEOG16.160	Introduction to Mapping / Geographic Info Science
GEOG16.260	Geographic Info Science I
GEOG16.261	Cartography
MIS02.302	Emerging Technologies I
MIS02.302	Emerging Technologies II
MIS02.325	Project Management
MIS02.336	Advanced Database Management

Any Computer Science course at or above the 200 level not used to fulfill a different Bachelor of Arts Computing and Informatics requirement and for which a student has completed all necessary pre-requisites

Other courses at or above the 200 level by permission of faculty advisor

Concentrations: In order to give Computing and Informatics majors the opportunity to concentrate, optional concentrations have been added to the Computing and Informatics major at Rowan University. A concentration is composed of four or more specified courses (12 s.h. or more) in computer science and other related disciplines that provide a solid foundation in some fundamental areas of computing and informatics.

The areas of concentration are:

- "Dev Ops" (an agile relationship between Development and IT Operations)
- Mobile Devices
- Cyber Security
- Cybersecurity Defense
- Blockchain Technologies and Cryptocurrencies

Note: For comprehensive information on the individual computing and informatics concentrations, students should request from the Department of Computer Science the appropriate curriculum guide which details each concentration and see their Computer Science advisor

Total Credits in Program **120 s.h.**

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

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This program focuses on developing flexible professionals who are equipped to learn new technologies and principles that are essential for success in such a rapidly evolving field.

Students will learn how to apply advanced scientific and industrial methodologies, knowledge of mathematics, algorithmic principles, and computer science theory to develop computing solutions and demonstrate these skills through presentations, written work, and projects.

The Bachelor of Science in Computer Science contains several optional concentrations and a wide range of advanced electives. This degree prepares graduates for jobs in business and industry, as well as further study at the graduate level. The Computer Science major requires courses in mathematics and applied and theoretical computer science. Students, in consultation with faculty advisors, can construct flexible and comprehensive programs. The program prepares students for graduate study in computer science or such related fields as business, operations research, and information sciences. Graduates also find careers in business, industry, government, and education, where they work as applications programmers, scientific programmers, systems programmers, systems analysts, and software engineers.

It is recommended that the students who are entering the program have several years of high school mathematics and programming courses. Advanced placement credit is accepted for incoming freshmen students. A grade of C- or better in the following courses is required for graduation: Calculus I, Discrete Structures, Introduction to Object-Oriented Programming, Object-Oriented Programming and Data Abstraction, Computer Organization, and Data Structures and Algorithms, whether they are taken locally or are transferred.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

To complete the Bachelor of Science degree in Computer Science, students must complete all courses in the list of required courses.

Required Courses

CS00.100	Computer Science Learning Community
MATH03.160	Discrete Structures
MATH01.130	Calculus I
MATH01.131	Calculus II
MATH01.210	Linear Algebra
STAT02.290	Probability and Statistical Inference for Computing Systems
CS01.205	Computer Lab Techniques
CS04.113	Intro to Object Oriented Programming
CS04.114	Object-Oriented Programming and Data Abstraction
CS04.222	Data Structures and Algorithms
CS06.205	Computer Organization
CS07.210	Foundations of Computer Science
CS07.321	Software Engineering I
CS04.315	Programming Languages
CS07.340	Design & Analysis of Algorithms
CS07.351	Cybersecurity: Fundamentals, Principles, and Applications
CS04.390	Operating Systems
CS04.400	Senior Project
INTR01.265	Computers and Society
WA01.302	Technical Writing

Lab Sciences

Choose any three courses from the following list:

Biology

BIOL01.104	Intro to Evolution of Scientific Inquiry
BIOL01.106	Concepts in Genetics
BIOL01.203	Introduction to Cell Biology
BIOL10.210	Human Anatomy and Physiology I
BIOL10.212	Human Anatomy and Physiology II
BIOL01.100, BIOL01.101	Biology I, II *(transfers only)*
BIOL01.202	Biological Skills and Methods *(only when Biology I was transferred)*
BINF07.310	Introduction to Bioinformatics
MCB01.101	Foundations in Biology for Biomedical Services I

Chemistry

CHEM06.100	Chemistry I
CHEM06.101	Chemistry II
CHEM09.250	Quantitative Analysis
CHEM07.200	Organic Chemistry

Physics & Astronomy

ASTR11.240	Observational Astronomy
ASTR11.230	Introductory Astronomy and Astrophysics
PHYS00.220	Introductory Mechanics
PHYS00.222	Introductory Electricity & Magnetism
PHYS00.221	Introductory Thermodynamics, Fluids, Waves & Optics
PHYS00.300	Modern Physics
PHYS00.340	Optics and Light
PHYS00.325	Electric Circuits

Restricted Elective Courses

Choose 12 credits from the courses in Banks 1 and 2 below.

Bank One (at least one Restricted Elective must be selected from this bank of courses)

CS04.394	Distributed Systems
CS04.430	Database Systems: Theory/Programming

CS06.410	Data Communications and Networking
CS06.440	Cloud Computing and the Internet of Things
CS07.480	Introduction to Data Mining

Bank Two

CS01.395	Selected Topics in CS
CS01.400	Independent Study
CS02.421	Big Data Tools and Techniques
CS04.301	Bioinformatics - Computational Aspects
CS04.305	Web Programming
CS04.350	Blockchain Programming
CS04.372	Advanced Android Programming
CS04.376	Advanced iOS Application Programming
CS04.380	Object Oriented Design
CS04.391	Concurrent Programming
CS04.392	System Programming and OS Internals
CS04.401	Compiler Design
CS04.440	Data Warehousing
CS04.471	Topics in Mobile Programming
CS06.310	Principles of Digital Computing
CS06.390	Introduction to Systems Simulation and Modeling
CS06.412	Advanced Computer Architecture
CS06.415	Wireless Networks, Protocols, and Applications
CS06.416	TCP/IP and Internet Protocols and Technologies
CS06.417	Principles of Network Security
CS06.420	Embedded Systems Programming
CS06.470	Cyber Operations
CS07.310	Robotics
CS07.322	Software Engineering II
CS07.350	Computer Cryptography
CS07.353	Security of Mobile Devices
CS07.360	Introduction to Computer Graphics
CS07.370	Introduction to Information Visualization
CS07.380	Introduction to Computer Animation
CS07.390	Introduction to Computer Game Design and Development
CS07.422	Theory of Computing
CS07.430	Human-Computer Interaction
CS07.450	Artificial Intelligence
CS07.460	Computer Vision
CS07.455	Machine Learning
CS07.485	Web and Text Mining
CS99.300	Computer Field Experience
CS99.310	Advanced Learning Asst Experience in CS

Total Credits in Program **120 s.h.**

Concentrations: In order to give Computer Science majors the opportunity to concentrate, optional concentrations have been added to the Computer Science major at Rowan University. A concentration is composed of four or more specified courses (12 s.h. or more) in Computer Science and other related disciplines that provide a solid foundation in some fundamental area of computer science.

The areas of concentration are:

- Artificial Intelligence;
- Blockchain Technologies and Cryptocurrencies;
- Cybersecurity Defense;
- Data Science;
- Graphics, Visualization and Gaming Technology;
- Mobile Application Development;
- Networking Systems;
- Software Engineering.

Note: For comprehensive information on the individual computer science concentrations, students should request from the Department of Computer Science the appropriate curriculum guide which details each concentration and see their Computer Science advisor.

MINOR IN DATA SCIENCE

The Data Science minor consists of 1 required course in each of 6 knowledge areas and 2 electives:

Required Courses

Programming:

CS04.103	Computer Science and Programming
or	
CS04.113	Introduction to Object Oriented Programming

Data Structures:

CS04.222	Data Structures and Algorithms
or	
CS04.225	Principles of Data Structures

Probability/Statistics:

STAT02.284	Statistics for Biomedical Science
or	
STAT02.320	Concepts in Statistical Data Analysis
or	
STAT02.290	Probability & Statistical Inference for Computing Systems
or	
STAT02.280	Biometry
or	
STAT02.360	Probability/Random Variables

Databases:

CS04.430	Database Systems: Theory and Programming

Datamining:

CS07.480	Introduction to Data Mining
or	
STAT02.340	Elements of Statistical Learning

Data Visualization:

CS07.370	Introduction to Information Visualization

Choose Two Elective Courses from this list:

CS02.421	Big Data Tools and Techniques
CS04.440	Data Warehousing
CS07.455	Machine Learning
CS07.485	Web and Text Mining
STAT02.371	Design of Experiments: ANOVA
STAT02.361	Mathematical Statistic III
MATH03.411	Deterministic Models in Operations Research
or	
MATH03.412	Stochastic Models in Operations Research

Note:

- A grade of C- or better is required in all prerequisite courses
- A minimum grade point average of 2.0 is required in the courses completed

Total Credits **25-26 s.h.**

MINOR IN COMPUTER SCIENCE

The Minor in Computer Science requires students to take the following core courses:

MATH03.160	Discrete Structures
CS01.205	Computer Laboratory Techniques
CS04.113	Introduction to Object Oriented Programming
CS04.114	Object Oriented Programming and Data Abstraction
CS04.222	Data Structures and Algorithms
CS06.205	Computer Organization

Students then select two (2) additional elective courses from the following list:

CS07.210	Foundations of Computer Science
CS07.340	Design & Analysis of Algorithms
CS07.321	Software Engineering I
CS04.315	Programming Languages
CS04.390	Operating Systems
MATH01.332	Numerical Analysis
	Any restricted electives from the Bachelor of Science in Computer Science

NOTE:

- A grade of C- or better is required in all prerequisite courses
- A minimum grade point average of 2.0 is required in the courses completed

Total Credits **23-24 s.h.**

ACCELERATED BACHELOR OF SCIENCE/MASTER OF SCIENCE IN COMPUTER SCIENCE DUAL DEGREE PROGRAM

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The Accelerated Bachelor of Science/Master of Science (BS/MS) in Computer Science Dual Degree Program allows competent and highly motivated undergraduate students to complete the Bachelor of Science in Computer Science and a Master of Science in Computer Science in five years as opposed to the traditional period of six years if both degrees were completed separately.

Only upper-level undergraduate Computer Science majors who have been admitted into the Bachelor of Science Computer Science Degree Program will be allowed to apply for the Accelerated Bachelor of Science/Master of Science in Computer Science Dual Degree Program. Once admitted, a student will enroll as a full-time undergraduate in both undergraduate and graduate Computer Science courses in their first year of the Program to complete requirements for the Bachelor of Science in Computer Science Degree and then enroll as a full-time student in graduate Computer Science courses in their second year of the Program to complete requirements for the Master of Science in Computer Science Degree.

The Master of Science in Computer Science Degree is a 30 credits program. The Bachelor of Science/Master of Science in Computer Science Dual Degree is structured so that students first complete requirements for the Bachelor of Science in Computer Science Degree Program, but can replace 12 credits of undergraduate Computer Science electives with 12 credits of graduate coursework that are required for the Master of Science in Computer Science Degree Program in their senior year (fourth year). In their fifth year students will take the additional 18 graduate credits required for the Master of Science in Computer Science Degree.

ACCELERATED BACHELOR OF SCIENCE/MASTER OF SCIENCE IN DATA SCIENCE DUAL DEGREE PROGRAM

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The Accelerated Bachelor of Science/Master of Science (BS/MS) in Data Science Dual Degree Program allows competent and highly motivated undergraduate students to complete the Bachelor of Science in Computer Science and a Master of Science in Computer Science in five years as opposed to the traditional period of six years if both degrees were completed separately. Only upper-level undergraduate Computer Science majors who have been admitted into the Bachelor of Science Computer Science Degree Program will be allowed to apply for the Accelerated Bachelor of Science/Master of Science in Computer Science Dual Degree Program. Once admitted, a student will enroll as a full-time undergraduate in both undergraduate and graduate Computer Science courses in their first year of the Program to complete requirements for the Bachelor of Science in Computer Science Degree and then enroll as a full-time student in graduate Computer Science courses in their second year of the Program to complete requirements for the Master of Science in Computer Science Degree. The Master of Science in Computer Science Degree is a 30 credits program. The Bachelor of Science/Master of Science in Computer Science Dual Degree is structured so that students first complete requirements for the Bachelor of Science in Computer Science Degree Program, but can replace 12 credits of undergraduate Computer Science electives with 12 credits of graduate coursework that are required for the Master of Science in Computer Science Degree Program in their senior year (fourth year). In their fifth year students will take the additional 18 graduate credits required for the Master of Science in Computer Science Degree.

ACCELERATED BACHELOR OF SCIENCE/MASTER OF SCIENCE IN BIOINFORMATICS DUAL DEGREE PROGRAM

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The Accelerated Bachelor of Science/Master of Science (BS/MS) in Bioinformatics Dual Degree Program allows competent and highly motivated undergraduate students to complete the Bachelor of Science in Computer Science and a Master of Science in Bioinformatics in five years as opposed to the traditional period of six years if both degrees were completed separately. Only upper-level undergraduate Computer Science majors who have been admitted into the Bachelor of Science Computer Science Degree Program will be allowed to apply for the Accelerated Bachelor of Science/Master of Science in Bioinformatics Dual Degree Program. Once admitted, a student will enroll as a full-time undergraduate in both undergraduate Computer Science and graduate Bioinformatics courses in their first year of the Program to complete requirements for the Bachelor of Science in Computer Science Degree and then enroll as a full-time student in graduate Bioinformatics courses in their second year of the Program to complete requirements for the Master of Science in Bioinformatics Degree. The Master of Science in Bioinformatics Degree is a 30 credits program. The Bachelor of Science in Computer Science/Masters of Bioinformatics Dual Degree is structured so that students first complete requirements for the

Bachelor of Science in Computer Science Degree Program, but can replace 12 credits of undergraduate Computer Science electives with 12 credits of graduate coursework that are required for the Master of Science in Bioinformatics Degree Program in their senior year (fourth year). In their fifth year students will take the additional 18 graduate credits required for the Master of Science in Bioinformatics Degree.

ACCELERATED BACHELOR OF ARTS/MASTER OF SCIENCE IN BIOINFORMATICS DUAL DEGREE PROGRAM

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The Accelerated Bachelor of Arts/Master of Science (BA/MS) in Bioinformatics Dual Degree Program allows competent and highly motivated undergraduate students to complete the Bachelor of Arts in Computing and Informatics and a Master of Science in Bioinformatics in five years as opposed to the traditional period of six years if both degrees were completed separately. Only upper-level undergraduate Computing and Informatics majors who have been admitted into the Bachelor of Arts Computing and Informatics Degree Program will be allowed to apply for the Accelerated Bachelor of Arts/Master of Science in Bioinformatics Dual Degree Program. Once admitted, a student will enroll as a full-time undergraduate in both undergraduate Computing and Informatics and graduate Bioinformatics courses in their first year of the Program to complete requirements for the Bachelor of Arts in Computing and Informatics Degree and then enroll as a full-time student in graduate Bioinformatics courses in their second year of the Program to complete requirements for the Master of Science in Bioinformatics Degree. The Master of Science in Bioinformatics Degree is a 30 credits program. The Bachelor of Arts in Computing and Informatics /Masters of Bioinformatics Dual Degree is structured so that students first complete requirements for the Bachelor of Arts in Computing and Informatics Degree Program, but can replace 12 credits of undergraduate Computing and Informatics electives with 12 credits of graduate coursework that are required for the Master of Science in Bioinformatics Degree Program in their senior year (fourth year). In their fifth year students will take the additional 18 graduate credits required for the Master of Science in Bioinformatics Degree.

ACCELERATED BACHELOR OF ARTS/MASTER OF SCIENCE IN CYBER SECURITY DUAL DEGREE PROGRAM

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The Accelerated Bachelor of Arts/Master of Science (BA/MS) in Cyber Security Dual Degree Program allows competent and highly motivated undergraduate students to complete the Bachelor of Arts in Computing and Informatics and a Master of Science in Cyber Security in five years as opposed to the traditional period of six years if both degrees were completed separately. Only upper-level undergraduate Computing and Informatics majors who have been admitted into the Bachelor of Arts Computing and Informatics Degree Program will be allowed to apply for the Accelerated Bachelor of Arts/Master of Science in Cyber Security Dual Degree Program. Once admitted, a student will enroll as a full-time undergraduate in both undergraduate Computing and Informatics and graduate Cyber Security courses in their first year of the Program to complete requirements for the Bachelor of Arts in Computing and Informatics Degree and then enroll as a full-time student in graduate Cyber Security courses in their second year of the Program to complete requirements for the Master of Science in Cyber Security Degree. The Master of Science in Cyber Security Degree is a 30 credit program. The Bachelor of Arts in Computing and Informatics /Masters of Cyber Security Dual Degree is structured so that students first complete requirements for the Bachelor of Arts in Computing and Informatics Degree Program, but can replace 12 credits of undergraduate Computing and Informatics electives with 12 credits of graduate coursework that are required for the Master of Science in Cyber Security Degree Program in their senior year (fourth year). In their fifth year students will take the additional 18 graduate credits required for the Master of Science in Cyber Security Degree.

CERTIFICATE OF UNDERGRADUATE STUDY IN BLOCKCHAIN TECHNOLOGIES AND CRYPTOCURRENCIES

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The Certificate of Undergraduate Study (CUGS) in Blockchain Technologies and Cryptocurrencies is designed to offer students the opportunity of a specialized study to provide students with experience in key courses of this discipline at the undergraduate level. The educational goals of this CUGS is to provide students with experience with basic programming (e.g., Python), cryptographic techniques used in blockchain technologies, blockchain programming, and the applications of blockchain.

Certificate of Undergraduate Study in Blockchain Technologies and Cryptocurrencies 12 s.h.

Students seeking this CUGS will be required to complete the four courses listed below. This CUGS is available to all majors except Computer Science and Computing and Informatics. No previous experience or knowledge of blockchain technologies is required.

The following four 3-credit courses will be required to complete this CUGS:

CS01.104	Introduction to Scientific Programming (no prereqs; Python language strongly recommended)
INTR01.301	Blockchain Applications (requires Junior standing)
CS10.250	Cryptography and Blockchain Essentials (no prereqs)
CS04.350	Blockchain Programming* (requires CS10.250 Cryptography and Blockchain Essentials)
and	
CS01.104	Introduction to Scientific Programming

*the fourth class serves as a capstone class. It requires completion of two Computer Science courses – one in Cryptography and one in Programming. The interdisciplinary course INTR01.301 Blockchain Applications, while not required as a prerequisite, is strongly recommended to be completed before the Blockchain Programming class.

CERTIFICATE OF UNDERGRADUATE STUDY IN FUNDAMENTAL COMPUTING

Chia Chien
Coordinator
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The Certificate of Undergraduate Study (CUGS) in Fundamental Computing is designed to increase student marketability while helping to contend with and meet the challenges of students' current and future careers by providing a broad overview of key computing skills which are applicable and may be extended to almost every industry in the world today.

The educational goals of this CUGS are to provide students with a general understanding of the domains of computing and expose students to the diverse areas of computing that can supplement their individual discipline and field.

Certificate of Undergraduate Study in Fundamental Computing 12 s.h.

Students seeking this CUGS will be required to complete a total of 4 courses with 1 course from each of the 4 domains of computing. This CUGS is not available to Computer Science majors or Computing and Informatics majors.

Domain #1: Programming

CS01.102	Introduction to Programming
or CS01.104	Introduction to Scientific Programming
or CS04.110	Introduction to Programming Using Robots
or CS04.103	Computer Science and Programming

Domain #2: Mobile Applications

CS04.171	Creating Android Applications
CS10.271	Introduction to Android Programming
CS10.275	Introduction to iOS Application Programming

Domain #3: Applied Computing Technologies

CS01.105	Web Literacy
CS01.101	Computer Science Principles
CS01.110	Computing Environments
CS01.190	Introduction to Computer Game Modeling
MIS02.305	Business Applications of Blockchain

Domain #4: Networks and Security

CS01.210	Introduction to Networks and Data Communications
CS01.211	Principles of Information Security
MIS02.315	Principles of Information Security
MIS02.327	Network Management

CERTIFICATE OF UNDERGRADUATE STUDY IN COMPUTER PROGRAMMING

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The Certificate of Undergraduate Study (CUGS) in Computer Programming is designed to increase student marketability by enhancing their technical skill set – specifically focused programming proficiencies. These proficiencies may be easily applied to each student's major disciplines and be beneficial when working in their specified fields.

An educational goal of this CUGS is to enable students to undertake a comprehensive study of the concepts and techniques necessary to analyze problems, understand requirements, develop algorithms and implement solutions using computer programming. Another goal is to gain experience with the entire programming life-cycle utilizing various programming languages.

Certificate of Undergraduate Study in Computer Programming 12 s.h.

Students seeking this CUGS will be required to complete a total of 4 courses. One course from each domain must be completed. This CUGS is not available to Computer Science majors or Computing and Informatics majors.

Domain #1

CS04.113	Introduction to Object-Oriented Programming	3 s.h.
CS04.103	Computer Science and Programming	3 s.h.

Domain #2

CS01.205	Computer Lab Techniques	3 s.h.

Domain #3

CS04.210	Advanced Programming Workshop	3 s.h.

Domain #2

CS04.225	Principles of Data Structures	3 s.h.
CS10.344	Concepts in Computing Technologies	3 s.h.
CS10.271	Introduction to Android Programming	3 s.h.
CS10.275	Introduction to iOS Application Programming	3 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY IN MOBILE APPLICATION DEVELOPMENT

Coordinator - TBD
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The Certificate of Undergraduate Study (CUGS) in Mobile Application Development is designed to offer students the opportunity of a specialized study with the skills required to develop software applications on current platforms used on millions of mobile devices (i.e. smart phones and tablets) around the world.

The educational goals of this CUGS are to provide students with experience with the stages of mobile application development (i.e. user interface design, permissions and security, graphics and video resources) with varying languages and frameworks on a selected mobile platform.

Certificate of Undergraduate Study in Mobile Application Development 12-13 s.h.

Students seeking this CUGS will be required to complete a total of 4 courses in 1 of the 2 different mobile technologies. This CUGS is available to all majors. No previous experience or knowledge of computing technologies is required.

Domain #1: Android

CS04.113	Introduction to Object Oriented Programming
or CS04.171	Creating Android Applications
CS10.271	Introduction to Android Programming
CS04.372	Advanced Android Programming
CS04.471	Topics in Mobile Programming

Domain #2: iOS

CS04.103	Computer Science and Programming
or CS01.104	Introduction to Scientific Programming
or CS04.113	Introduction to Object Oriented Programming
CS10.275	Introduction to iOS Application Programming
CS04.376	Advanced iOS Application Programming
CS04.471	Topics in Mobile Programming

CERTIFICATE OF UNDERGRADUATE STUDY IN CYBER SECURITY

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The Certificate of Undergraduate Study (CUGS) in Cyber Security is designed to increase student knowledge in all areas of cyber security including targeted phishing scams, data theft, and other online vulnerabilities. More and more companies actively seek graduates with expertise in cyber security and bemoan the scarcity of graduates with these key skills. This CUGS would be very attractive to many employers looking to keep their companies safe in the new cyber-world.

The educational goal of this CUGS is to develop graduates with a technical foundation in cyber security focused on the protection and defense of computer systems. Students will be able to articulate the core concepts of information assurance, asset protection and cyber defense. Also, this CUGS can develop graduates who are able to identify, analyze and remediate security breaches.

Certificate of Undergraduate Study in Cyber Security 12 s.h.

Students seeking this CUGS will be required to complete a total of 4 courses. One "General Security" course must be completed, and three courses from three different of the remaining four knowledge areas must be completed. This CUGS is not available to Computer Science majors or Computing and Informatics majors.

General Security:

CS01.211	Principles of Information Security
CS07.351	Cyber Security: Fundamentals, Principles, and Applications
MIS02.315	Principles of Information Security
ECE09.485	Introduction to Engineering Cyber Security

Communication and Network Security:

CS10.200	Fundamentals of Network Security

Security Assessment and Testing:

CS10.218	Ethical Hacking Fundamentals

Security Engineering:

CS10.215	Penetration Testing Fundamentals
CS07.353	Security of Mobile Devices
CS07.350	Computer Cryptography

Security and Risk Management:

CS07.252	Foundations of Computer Forensics
CS10.344	Concepts of Computing Technologies

CERTIFICATE OF UNDERGRADUATE STUDY IN THE INTERNET OF THINGS

Coordinator TBD
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The Certificate of Undergraduate Study (CUGS) in The Internet of Things is designed to offer students the opportunity of a specialized study to provide students with experience in key courses of this discipline at the undergraduate level.

Certificate of Undergraduate Study in The Internet of Things 15 s.h.

Students seeing this CUGS will be required to complete 5 courses. One "general knowledge" course plus one "lower stack" course, one "upper stack" course and 2 elective courses must be completed. While this CUGS is available to all majors it is targeted towards technical majors/minors and may require additional coursework prerequisites before being able to be completed.

General Knowledge (take one of the following)

CS06.440	Cloud Computing and the Internet of Things (prerequisites CS01.210 - Introduction to NW/Data Comm; CS04.222 - Data Structures and Algorithms)	3 s.h.
ECE09.475	Introduction to IoT	3 s.h.

Lower Stack (take one of the following)

CS06.420	Embedded Systems Programming (prerequisites - CS04.390 - Operating Systems; CS06.310 - Principles of Digital Computers; ECE09.241 - Introduction to Digital Systems)	3 s.h.
ECE09.342	Introduction to Embedded Systems (prerequisites - ECE09.243 - Computer Architecture; ECE09.311 - Electronics I)	3 s.h.

Upper Stack (take the following)

CS06.447 / ECE09.476	Introduction to IoT Upper Stack (prerequisites - CS06.440 - Cloud Computing and the Internet of Things *or* ECE09.475 - Introduction to IoT)	3 s.h.

Elective Coursework (take any two of the following)

CS02.421	Big Data Tools and Techniques	3 s.h.
CS04.430	Database Systems: Theory and Programming	3 s.h.
CS04.440	Data Warehousing	3 s.h.
CS06.415	Wireless Networks, Protocols and Apps	3 s.h.
or		
ECE09.432	Wireless Communications	3 s.h.
CS06.417	Principles of Network Security	3 s.h.
CS07.480	Introduction to Data Mining	3 s.h.
ECE09.455	Machine Learning	3 s.h.
ECE09.495	Emerging Topics in Computations Intelligence, Machine Learning, and Data Mining	3 s.h.

Department of Mathematics

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The Department offers a Bachelor of Arts with three concentrations: Comprehensive, Education and Statistics. The Department also offers a Bachelor of Science in Mathematics, and as well as an accelerated 4+1 Bachelor of Science and Master of Arts dual degree in Mathematics. The Bachelor of Arts provides a broader liberal arts education whereas the Bachelor of Science provides a more specialized and extensive training in mathematics. Students pursuing the Bachelor of Science must have taken the calculus sequence and linear algebra with a 3.0 GPA or better.

The Department also offers minors in Mathematics, Applied Mathematics, and Statistics and Operations Research. The Department offers a new Master of Arts degree in Mathematics with three concentrations and also supports the Master of Arts in STEM Education through a combined advanced degree program (CADP) degree program with the Bachelor of Arts in Mathematics (Education concentration).

While the first concern of the 20 tenure-track, 11 Lecturer and several three-quarter time faculty is excellence in teaching, Department members also do research in in pure mathematics, many applied mathematical sciences, statistics, and mathematics education. The Department also sponsors the Mathematics Team (our club), student competitions, an active faculty-student research agenda, and a regular colloquium series. The Department is located in Robinson Hall.

BACHELOR OF ARTS IN MATHEMATICS

The Mathematics major consists of 120 semester hours. The major requires students to take courses in logic, physics, computer science, statistics and applied and theoretical mathematics. Students in consultation with faculty advisors can construct flexible and comprehensive programs using the three concentrations.

The program prepares students to find careers in business, industry, government or education in positions such as researchers, actuaries, statisticians, analysts or teachers.

Three years of high school mathematics are required for admission; a fourth year of mathematics and at least one programming course is highly recommended. Advanced placement credit is accepted; waivers are available.

Majors must pass all required and restricted elective courses needed for graduation with no grade lower than a C-.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Non-Program Courses:

(may also fulfill General Education or Rowan Core Requirements)

MATH01.130	Calculus I
PHYS00.220	Introductory Mechanics
PHYS00.222	Introductory Electricity and Magnetism
or PHYS00.221	*or* Introduction to Thermodynamics, Fluids, Waves and Optics
CS04.103	Computer Science and Programming
PHIL09.130	Introduction to Symbolic Logic

Math majors under the General Education "umbrella" are also required to complete 7 s.h. of Non-Program courses beyond the 6 s.h. requirement needed to fulfill the Rowan University General Education requirement. Math majors under the Rowan Core "umbrella" are also required to complete an additional 4 s.h. of Non-Program courses beyond the 14 s.h. required by the major.

Required (Foundational) Courses in the major

For all Three Concentrations 20 s.h.

MATH03.150	Discrete Mathematics
MATH01.131	Calculus II
MATH01.230	Calculus III
MATH01.210	Linear Algebra
STAT02.320	Concepts in Statistical Data Analysis
MATH01.340	Modern Algebra I

COMPREHENSIVE (C750)

Required (Mid-Level) Courses for the Comprehensive Concentration 9 s.h

MATH01.231	Ordinary Differential Equations
MATH01.330	Introduction to Real Analysis I
MATH01.498	Mathematics Seminar (WI) (satisfies Writing Intensive requirement)

Restricted Electives for the Comprehensive Concentration
Nine (9) s.h. of restricted electives from the following:

MATH01.310	College Geometry
MATH01.331	Introduction to Real Analysis II
MATH01.332	Numerical Analysis
MATH01.341	Modern Algebra II
MATH01.352	Theory of Numbers
MATH01.354	Introduction to Topology
MATH01.386	Introduction to Partial Differential Equations
MATH01.410	History of Mathematics
MATH01.421	Mathematics Field Experience
MATH01.430	Introduction to Complex Analysis
MATH03.400	Applications of Mathematics
MATH03.411	Deterministic Models in Operations Research
MATH03.412	Stochastic Models in Operations Research
STAT02.360	Probability and Random Variables
STAT02.361	Introduction to Mathematical Statistics
STAT02.371	Design of Experiments: Analysis of Variance

EDUCATION (C752)

Required (Mid-Level) Courses for the Education Concentration 16 s.h

MATH01.232	Mathematical Modeling
MATH01.310	College Geometry
MATH01.361	Real and Complex Variables
MATH01.410	History of Mathematics
MATH01.497	Mathematics Seminar for Educators (WI) (satisfies Writing Intensive requirement)

Restricted Electives for the Education Concentration
One course (2 or 3 s.h.) of restricted electives from the following:

MATH01.205	Technological Tools for Discovering Math
MATH01.332	Numerical Analysis
MATH01.341	Modern Algebra II
MATH01.352	Theory of Numbers
MATH03.411	Deterministic Models in Operations Research
STAT02.360	Probability and Random Variables

STATISTICS (C702)

Required (Mid-Level) Courses for the Statistics Concentration 9 s.h.

STAT02.360	Probability and Random Variables
STAT02.361	Introduction to Mathematical Statistics
MATH01.498	Mathematics Seminar (WI) (satisfies Writing Intensive requirement)

And six (6) s.h. from the following (Restricted Electives "Group One"):

MATH03.411	Deterministic Models in Operations Research
MATH03.412	Stochastic Models in Operations Research
STAT02.340	Elements of Statistical Learning
STAT02.371	Design of Experiments: Analysis of Variance

Restricted Electives ("Group Two") for the Statistics Concentration
Three (3) s.h. of restricted electives from the following:

MATH01.231	Ordinary Differential Equations

MATH01.310	College Geometry
MATH01.330	Introduction to Real Analysis I
MATH01.331	Introduction to Real Analysis II
MATH01.332	Numerical Analysis
MATH01.341	Modern Algebra II
MATH01.352	Theory of Numbers
MATH01.354	Introduction to Topology
MATH01.386	Introduction to Partial Differential Equations
MATH01.410	History of Mathematics
MATH01.421	Mathematics Field Experience
MATH03.400	Applications of Mathematics

Total Credits in Program: **120 s.h.**

For BA-Math (Education Concentration) to MA STEM Teaching see College of Education

BACHELOR OF SCIENCE IN MATHEMATICS (1702)

The Bachelor of Science in Mathematics consists of 120 semester hours. The major requires students to take courses in logic, physics, computer science, and applied and theoretical mathematics.

The Bachelor of Science degree in mathematics is designed to give our mathematics majors the opportunity to prepare more thoroughly for graduate work in mathematics and other disciplines, such as engineering, the physical sciences, statistics, computer science, and other areas requiring extensive mathematical training. The requirements for this degree are also flexible enough so that students intending to seek employment in business, industry, or government can pursue courses of study that will allow them to enter their professions familiar with more of the relevant mathematics. The program is designed to allow students to study the mathematics that they will need with flexibility, breadth, and depth.

At least a 3.0 GPA in Calculus I, Calculus II, and Linear Algebra is required for admission. Majors must pass all required and restricted elective courses needed for graduation with no grade lower than a C-.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required (General Education or Core) Courses

(may also fulfill General Education or Rowan Core Requirements)

MATH01.130	Calculus I
PHYS00.220	Introductory Mechanics
PHYS00.222	Introductory Electricity and Magnetism
or PHYS00.221	Introduction to Thermodynamics, Fluids, Waves and Optics
CS04.103	Computer Science and Programming
PHIL09.130	Introduction to Symbolic Logic

Math majors under the General Education "umbrella" are also required to complete 7 s.h. of Non-Program courses beyond the 6 s.h. requirement needed to fulfill the Rowan University General Education requirement. Math majors under the Rowan Core "umbrella" are also required to complete an additional 4 s.h. of Non-Program courses beyond the 14 s.h. required by the major.

Required (Foundational) Courses in the major

MATH03.150	Discrete Mathematics
MATH01.131	Calculus II
MATH01.230	Calculus III
MATH01.210	Linear Algebra
MATH01.231	Ordinary Differential Equations
STAT02.320	Concepts in Statistical Data Analysis

Required (Mid-Level) Courses in the major

MATH01.330	Introduction to Real Analysis I
MATH01.340	Modern Algebra I
MATH01.430	Introduction to Complex Analysis
MATH01.498	Mathematics Seminar (WI) (satisfies Writing Intensive requirement)
STAT02.360	Probability and Random Variables

Restricted Electives

Twenty-four (24) s.h. selected from the following:

MATH01.205	Technological Tools for Discovering Math
MATH01.310	College Geometry
MATH01.331	Introduction to Real Analysis II
MATH01.332	Numerical Analysis
MATH01.341	Modern Algebra II
MATH01.352	Theory of Numbers
MATH01.354	Introduction to Topology
MATH01.386	Introduction to Partial Differential Equations
MATH01.410	History of Mathematics
MATH01.421	Mathematics Field Experience
MATH03.400	Applications of Mathematics
MATH03.411	Deterministic Models in Operations Research
MATH03.412	Stochastic Models in Operations Research
STAT02.340	Elements of Statistical Learning
STAT02.361	Introduction to Mathematical Statistics
STAT02.371	Design of Experiments: Analysis of Variance

A maximum of two courses from the following list can be counted as restricted electives toward the Bachelor of Science in Mathematics:

CHEM08.401	Physical Chemistry I
CHEM08.402	Physical Chemistry II
CS07.340	Design and Analysis of Algorithms
CS07.422	Theory of Computing
PHYS00.300	Modern Physics
PHYS00.310	Analytical Mechanics
PHYS00.320	Electricity & Magnetism I
PHYS00.330	Mathematical Physics
PHYS00.430	Statistical Physics
PHYS00.410	Quantum Mechanics I

Total Credits in Program **120 s.h.**

FIVE YEAR ACCELERATED BACHELOR OF SCIENCE AND MASTER OF ARTS DEGREE PROGRAM

Only a student seeking a Bachelor of Science degree can apply for this program to the Graduate Program Coordinator. If accepted, in the fourth year the student will be advised by both their undergraduate advisor and the Graduate Program Coordinator, and in year five by only the Graduate Program Coordinator.

MINOR IN MATHEMATICS (M701)

The study of Mathematics enables a person to understand the nature and functioning of different mathematical systems and the process of solving problems related to these areas. Moreover, the increasing need for mathematical analysis of modern-day problems will provide good employment opportunities for mathematically trained individuals in government and international agencies, education, business, and industry. People trained in mathematics are needed to solve many of the technical problems of the future.

The Minor in Mathematics encourages and facilitates the acquisition of mathematical skills and concepts, thus providing an added dimension to a student's program whatever that might be. Students wishing to Minor in Mathematics must take 21-22 semester hours, including 15-16 semester hours in required core courses and 6 semester hours in the approved math electives below.

NOTES: 1) A 2.0 G.P.A. is required in the Minor courses. At least 6 credits must be taken at Rowan University; 2) A number of the elective courses require Discrete Math as a prerequisite. All courses denoted with an asterisk either have Discrete Math as a prerequisite or have another prerequisite for which Discrete Math is a prerequisite. Prerequisite override forms will not be signed without documentation of equivalent subject matter in another course.

In order to Minor in Mathematics, you MUST select Track 1 or Track 2.

Track I (not Engineering)

Required courses: 15 s.h.

Take these four courses

MATH01.130	Calculus I
MATH01.131	Calculus II
MATH01.230	Calculus III
MATH01.210	Linear Algebra

Electives (at least 6 s.h.) chosen from:

MATH01.231	Ordinary Differential Equations
MATH01.310	College Geometry*
MATH01.330	Intro to Real Analysis I*
MATH01.331	Intro to Real Analysis II*
MATH01.332	Numerical Analysis
MATH01.340	Modern Algebra I*
MATH01.341	Modern Algebra II*
MATH01.352	Theory of Numbers*
MATH01.354	Topology*
MATH01.430	Intro to Complex Analysis*
MATH01.386	Intro to Partial Differential Equations
MATH03.400	Applications of Mathematics
MATH03.411	Deterministic Models in Operations Research
MATH03.412	Stochastic Models in Operations Research*
STAT02.340	Elements of Statistical Learning
STAT02.360	Probability and Random Variables*
STAT02.361	Mathematical Statistics*

Track 2 (Engineering)

Required courses 16 s.h.

Take these four courses

MATH01.130	Calculus I
MATH01.131	Calculus II
MATH01.230	Calculus III
MATH01.235	Mathematics for Engineering Analysis

Electives (at least 6 s.h.) chosen from

MATH01.310	College Geometry*
MATH01.330	Intro to Real Analysis I*
MATH01.331	Intro to Real Analysis II*
MATH01.332	Numerical Analysis
MATH01.340	Modern Algebra I*
MATH01.341	Modern Algebra II*
MATH01.352	Theory of Numbers*
MATH01.354	Topology*
MATH01.386	Intro to Partial Differential Equations
MATH01.430	Intro to Complex Analysis*
MATH03.400	Applications of Mathematics
MATH03.411	Deterministic Models in Operations Research
MATH03.412	Stochastic Models in Operations Research*
STAT02.340	Elements of Statistical Learning
STAT02.360	Probability and Random Variables*
STAT02.361	Mathematical Statistics*

MINOR IN APPLIED MATHEMATICS (M703)

The applied mathematics minor consists of 21 semester hours and increases the mathematics major's ability to apply various fields of mathematics in the formulation, analysis, and evaluation of problems in the physical, biological and social sciences. The minor provides the opportunity for students to participate in the dynamic character of modern mathematics and its uses.

Required courses: 18 s.h.

MATH01.210	Linear Algebra
MATH01.231	Ordinary Differential Equations
MATH01.332	Numerical Analysis
MATH03.400	Applications of Mathematics
STAT02.360	Probability and Random Variables*
CS01.xxx	One course in Computer Science (Not CS07.100)

Elective courses (one): 3 s.h.

MATH01.430	Introduction to Complex Analysis
MATH03.411	Deterministic Models in Operations Research
MATH03.412	Stochastic Models in Operations Research
STAT02.361	Mathematical Statistics
PHYS00.310	Analytical Mechanics
PHYS00.330	Mathematical Physics

MINOR IN STATISTICS AND OPERATIONS RESEARCH (M702)

The minor in Statistics and Operations Research is designed to increase the mathematics major's abilities in data analysis, mathematical modeling, algorithmic reasoning, and problem-solving, as well as one's knowledge in the fields of probability and mathematical statistics. The minor provides a viable background for graduate study in these fields, employment in virtually any industry, preparation for the actuarial exam P/1, and the training necessary to teach AP statistics. It consists of 18 credit hours. Nine hours of required courses and nine hours of electives as listed below:

Required courses: 9 s.h.

STAT02.260	Statistics I
STAT02.261	Statistics II
STAT02.360	Probability and Random Variables

Electives: 9 s.h.

MATH03.411	Deterministic Models in Operations Research
MATH03.412	Stochastic Models in Operations Research
STAT02.340	Elements of Statistical Learning
STAT02.350	Regression Anaylsis
STAT02.361	Mathematical Statistics
STAT02.371	Design of Experiments: Analysis of Variance

Up to one *other* three-credit Elective course may be approved on a case-by-case basis.

CERTIFICATE OF UNDERGRADUATE STUDY IN STATISTICS

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The availability of big data drives a high demand for people to analyze and interpret these data. Statistician is a title sparking interest across all kinds of industries. Jobs in statistics are also growing fast as companies seek to fill more data-driven roles. The Certificate of Undergraduate Study (CUGS) in Statistics provides a sequence of courses that introduces students to analyzing data with modern tools and is designed to equip students with the analytical tools and capacities to needed interact with real-world data in a research environment while also accommodating the foundation in the field.

Statistics utilizes mathematics, yet it is a distinct discipline in many important dimensions. While both disciplines feature critical thinking and problem solving, statistics requires its own set of analytic tools, and is by nature an interdisciplinary field. This interdisciplinary quality stems from the fact that a significant portion of all applied scientific and business research relies heavily on statistical methods for purposes of inference and modeling through data analysis. Hence, there are a large number of pre-requisite credit hours (6-12) of mathematics and computer science courses. However, students in the targeted majors (STEM or business) are required to take some of the pre-requisite courses for their major, so must only take an additional 0-6 credit hours of pre-requisites outside their respective major.

The CUGS in Statistics is only available to students outside the Mathematics Major. The Mathematics majors can either pick the statistics concentration or minor in statistics and operational research.

Certificate of Undergraduate Study in Statistics (U151) 12-13 s.h.

The requirements include taking four courses in the following groups:

Students must take one of (3-4 s.h):

STAT02.261	Statistics II
STAT02.280	Biometry
STAT02.284	Statistics for the Biomedical Sciences
STAT02.290	Probability and Statistical Inference for Computing Systems
STAT02.320	Concepts in Statistical Data Analysis

Students must take both of (6 s.h.):

STAT02.340	Elements of Statistical Learning
STAT02.350	Regression Analysis

Students must take one of (3 s.h):

STAT02.371	Design of Experiments: Analysis of Variance
MATH03.411	Deterministic Models in Operations Research

To be awarded the CUGS in Statistics, students must complete all courses required for the CUGS in Statistics with at least a 2.0 average.

Department of Physics & Astronomy

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The Department offers three majors: a Bachelor of Science in Physics, a Bachelor of Arts in Physics, and a Bachelor of Science in Biophysics. The Physics Bachelor of Science program allows the possibility of a Concentration in Photonics. Minors in Physics and Astronomy are also offered for those interested in adding some science content to their program. For those looking to enter the growing field of Health Physics, the department offers a Certificate of Undergraduate Study in that area. The department is also part of the interdisciplinary Materials Science minor.

Physics majors learn significant subject content, develop many marketable skills, and develop well-defined analytical skills. Graduates from the Physics program have moved on to graduate programs in physics, engineering, education, and mathematics. Some have entered professional schools in law, medical physics, public relations and even Master of Business Administration, Doctor of Medicine and Doctor of Osteopathic Medicine programs. The remainder have entered the work force as engineers, teachers, computer scientists, and technicians as well as others that have been hired by banks and insurance companies. The diversity of the professions selected by our graduates reflects the versatility of the Physics degree and the importance of analytical skills in almost any area.

BACHELOR OF SCIENCE IN PHYSICS

The Bachelor of Science Program in Physics prepares students for graduate school in physics or engineering, professional schools, and for careers in industry, government, business, or teaching - students interested in teaching should pursue a master's degree from the College of Education. The B.S. can also be combined with the Master of Arts in STEM Education in an Accelerated Dual Degree Program. This 5-year program allows students to earn both degrees and teaching certification with 1 (or even 2) fewer years than the standard path. Master of Arts in STEM Education is described in the Graduate Catalog under the College of Education. All laboratories, both research, and teaching are well equipped with modern instrumentation, computers, and data collection interfaces.

Undergraduate research opportunities exist in diverse areas of experimental physics including optics/laser spectroscopy, condensed matter/materials science, biophysics, theoretical physics including optical physics and high-energy physics, and planetary science/astronomy. Many opportunities exist for student/faculty collaborative research. These activities are beneficial to the development of students' analytical skills and are strongly encouraged.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

PHIL09.261	Philosophical Perspectives on Science - WI
MATH01.130	Calculus I
MATH01.131	Calculus II
MATH01.230	Calculus III
CS04.103	Computer Science & Programming
or CS01.104	Introduction to Scientific Programming
PHYS00.130	Building Momentum as a Physics Student at Rowan & Beyond
PHYS00.220	Introductory Mechanics
PHYS00.221	Introductory Thermodynamics, Fluids, Waves, & Optics
PHYS00.222	Introductory Electricity & Magnetism
PHYS00.300	Modern Physics
PHYS00.330	Mathematical Methods for Physics *and* one additional (3 s.h.) Restricted Elective (see below)
or MATH01.210	Linear Algebra *and*
MATH01.231	Differential Equations
PHYS00.351	Physics Research Methods I
PHYS00.352	Physics Research Methods II
PHYS00.310	Analytical Mechanics

PHYS00.320	Electricity & Magnetism I
PHYS00.410	Quantum Mechanics I
PHYS00.430	Statistical Physics
	An approved 2-course science sequence (e.g. MCB01.101 & MCB01.102, CHEM06.100 & CHEM06.101, CS courses to fulfill a CS minor or CUGS, etc)

Restricted Electives

Choose at least 11 s.h. from any 300+ Physics course (maximum of 3 s.h. of Physics Research *or* 4 s.h. of Physics Learning Assistant), any 200+ Astronomy, (maximum of 3 s.h. of Astronomy Research), Geology, Materials Science, any 300+ Engineering, any 200+ Math, any 200+ Chemistry, any 200+ Computer Science, or Biology. Note: the 3 s.h. Research Course restriction is a total across both categories.

Free Electives	31 s.h.
Total credits in program	**120 s.h.**

BACHELOR OF SCIENCE IN PHYSICS WITH A CONCENTRATION IN PHOTONICS

A Concentration in Photonics is available to any student desiring a more advanced study of optics and photonics. This concentration is especially useful for Physics majors who are thinking about graduate work and a career in the field of optics and photonics.

To earn the concentration, choose the following options and restricted electives within the program above.

PHYS00.330	Mathematical Methods for Physics
PHYS00.340	Optics and Light
PHYS00.321	Electricity and Magnetism II
PHYS00.345	Introduction to Optical Design
PHYS00.347	Laser Physics

BACHELOR OF SCIENCE IN BIOPHYSICS

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The Bachelor of Science Program in Biophysics prepares students for med school, graduate school in biophysics, and careers in the medical industry. While a bit more specialized than the Bachelor of Science in Physics, there is still enough broad scientific learning such that the degree can also lead to similar post-graduate paths. All laboratories, research, and teaching, are well equipped with modern instrumentation, computers, and data collection interfaces. Many opportunities exist for student/faculty collaborative research. These activities are beneficial to the development of students' analytical skills and are strongly encouraged.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

MATH01.130	Calculus I
MATH01.131	Calculus II
MATH01.230	Calculus III
MCB01.101	Foundations in Biology for BMS 1
MCB01.102	Foundations in Biology for BMS 2
CHEM06.100	Chemistry I
CHEM06.101	Chemistry II
CHEM07.200	Organic Chemistry I
CHEM07.203	Organic Chemistry II for Biomedical Sciences
CHEM07.203	Biochemistry
or MCB01.333	Cellular Biochemistry

TBS01.315	Biomedical Technologies I
PHYS00.130	Building Momentum as a Physics Student at Rowan & Beyond
PHYS00.220	Introductory Mechanics
PHYS00.221	Introductory Thermodynamics, Fluids, Waves, & Optics
PHYS00.222	Introductory Electricity & Magnetism
PHYS00.300	Modern Physics
PHYS00.330	Mathematical Methods for Physics
PHYS00.360	Molecular Biophysics
PHYS00.371	Biophysics: Fundamentals of Biomaterials
PHYS00.375	Introduction to Radiation Physics
PHYS00.451	Biophysics Research I
PHYS00.452	Biophysics Research II or other approved research course(s)

Restricted Electives Choose at least 11 s.h. from: any 300+ Physics course, any 200+ Biology, any 300+ Chemistry, CHEM05.249 Introduction to Forensic Science, CHEM09.249 Analytical Chemistry, CHE06.462 Bioprocess Engineering, CHE06.472 Biomedical Processes, CHE06.474 Fundamentals of Particle Technology, or CHE06.478 Tissue Engineering Fundamentals

Free Electives	22 s.h.
Total credits in program	**120 s.h.**

BACHELOR OF ARTS IN PHYSICS

The Bachelor of Arts Program in Physics provides students with a flexible program in physics with enough room in electives to tailor it for their own needs. The degree is designed primarily for those students wishing to complete a double major or earn a minor (or two). Example careers for those with this degree include high school physics teaching, middle-school general science teaching, environmental science, marketing or sales representative for a technical industry, technical writing, medicine, or law. The B.A. can also be combined with the Master of Arts in STEM Education in an Accelerated Dual Degree Program. This 5-year program allows students to earn both degrees and teaching certification with 1 (or even 2) fewer years than the standard path. Master of Arts in STEM Education is described in the Graduate Catalog under the College of Education.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

PHIL09.261	Philosophical Perspectives on Science - WI
MATH01.130	Calculus I
MATH01.131	Calculus II
MATH01.230	Calculus III
CS04.103	Computer Science & Programming
or CS01.104	Introduction to Scientific Programming
PHYS00.130	Building Momentum as a Physics Student at Rowan & Beyond
PHYS00.220	Introductory Mechanics
PHYS00.221	Introductory Thermodynamics, Fluids, Waves, & Optics
PHYS00.222	Introductory Electricity & Magnetism
PHYS00.300	Modern Physics
	An approved 2-course science sequence (e.g. MCB01.101 & MCB01.102, CHEM06.100 & CHEM06.101, CS courses to fulfill a CS minor or CUGS, etc.)

Physics Electives five courses (17 sh):

- Any three - 300+ PHYS courses

(Up to 4 s.h. total in Physics Learning Assistant and 300+ Physics Research can count)

- Two approved - PHYS or ASTR courses

Free Electives	50 s.h.
Total credits in program	**120 s.h.**

MINOR IN PHYSICS

A Physics Minor is available for any student desiring a more extensive introduction to the field and a taste of some more advanced topics in physics. A Physics Minor is particularly valuable for those majoring in Mathematics, Engineering, Computers Science, or Chemistry. Note: This minor is unavailable to students in the BS Physics, BA Physics, and BS Biophysics programs.

Requirements **19-20 s.h.**

PHYS00.220	Introductory Mechanics
PHYS00.221	Introductory Thermodynamics, Fluids, Waves, & Optics
PHYS00.222	Introductory Electricity and Magnetism
PHYS00.300	Modern Physics
	And any additional Physics course at or above the 300 level (excluding Physics Research and Physics Learning Assistant courses)

MINOR IN ASTRONOMY

An Astronomy Minor is available to any student desiring a more advanced study in astronomy and astrophysics with the requisite quantitative skills and background. This minor is especially useful for physics majors who are thinking about graduate work in astronomy or astrophysics, or motivated students who want an in-depth survey of modern astronomy.

Requirements 22 s.h.

MATH01.131	Calculus II
PHYS00.222	Intro Electricity & Magnetism
ASTR11.200	Introductory Astronomy: Solar System & Exoplanets
ASTR11.230	Introductory Astrophysics
ASTR11.240	Observational Astronomy

Choice of one of the following:

ASTR11.301	Planetary Astronomy
ASTR11.302	Stellar Astrophysics
ASTR11.303	Galactic Astronomy & Cosmology

MINOR IN MATERIALS SCIENCE

The Minor in Materials Science is available to several majors at Rowan and is recommended for Physics majors intending to attend graduate school in a materials-related field or expecting to directly enter the workforce. In addition to your usual major courses, a student seeking this minor must elect to take Interdisciplinary Materials Science (INTR01.486...3 s.h.) and two additional materials-related courses outside their major. (Abbreviated lists for BS Physics majors are provided below. These courses were selected since you likely have the prerequisites for these courses in your major. Many other courses contain a materials science component and can be selected with the help of your advisor.)

Select two courses from the following partial list:

CHEM06.300	Advanced Inorganic Chemistry
CHEM07.405	Introduction to Polymer Chemistry
ECE09.413	Principles of Nondestructive Evaluation
CHE06.468	Principles of Electrochemical Engineering
CHE06.474	Fundamentals of Particle Technology

CERTIFICATE OF UNDERGRADUATE STUDY IN HEALTH PHYSICS

The Certificate of Undergraduate Study (CUGS) in Health Physics provides a sequence of courses that combines Physics topics (such as nuclear, particle, and radiation physics) with necessary biological topics (such as biophysics and physiology) enabling students to pursue certification or higher degree training in the areas of Health Physics and Medical Physics.

Requirements 13 s.h.

The requirements include the following four courses:

PHYS00.360	Molecular Biophysics
PHYS00.375	Introduction to Radiation Physics
PHYS00.477	Radiation: Effects and Applications
PHYS00.479	Radiation Instrumentation

To be awarded the CUGS in Health Physics, students must complete all courses required for the CUGS in Health Physics with at least a 2.0 average. The pre-requisites for Biophysics I make this CUGS best suited for students majoring in Biochemistry, Biophysics, Chemistry, Physics, and Engineering. It is highly recommended that students take MATH01.231 Differential Equations if they pursue this CUGS.

CERTIFICATE OF UNDERGRADUATE STUDY IN PHOTONICS

Robert Chimenti
Program Coordinator
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Photonics is a growing industry; demand in areas of optical design, instrumentation design and application use, and laser-based communication systems is high, and the current workforce is declining. While a generalized physics degree has allowed some to gain employment, they require significant amounts of specialized education and training to excel. This Certificate of Undergraduate Study (CUGS) allows one to get that education.

Certificate of Undergraduate Study in Photonics 13 s.h.

The requirements include the following four courses:

PHYS00.340	Optics & Light
PHYS00.345	Introduction to Optical Design
PHYS00.321	Electricity & Magnetism II
PHYS00.347	Laser Physics

Note that the CUGS will require one to have a strong math (12 sh) and physics (16 sh) background, to enter the program. This means the student must have the following course equivalencies in their background:

MATH01.130	Calculus I	4 sh
MATH01.131	Calculus II	4 sh
MATH01.230	Calculus III	4 sh
PHYS00.220	Introductory Mechanics	4 sh
PHYS00.222	Introductory E&M	4 sh
PHYS00.300	Modern Physics	4sh

The following course can be considered a co-req for the program so long as it is completed before the student enters Electricity & Magnetism II (PHYS.00.321).

PHYS00.320	Electricity & Magnetism I	4 sh

Accelerated Dual Degree (3.5 + 1.5 program): B.S. in Biophysics and an M.S. in Cell & Molecular Biology

Overview

The Department of Physics & Astronomy and the Graduate School of Biomedical Sciences offer a Bachelor of Science in Biophysics and a Master of Science in Cell and Molecular Biology, respectively. This accelerated program allows high-achieving Biophysics majors to obtain the Bachelor of Science and Master of Science in a five-year period, rather than the traditional period of six years if both degrees were completed separately. The program is a 3.5 + 1.5 arrangement where students begin graduate courses in the spring semester of their 4th year at Rowan University. The program aims to provide a highly applied curriculum, providing students with hands-on, real-world experience that will translate into careers in the broadly defined biomedical field ranging from R&D at pharmaceutical companies through clinical careers.

3.5 + 1.5 UNDERGRADUATE PROGRAM REQUIREMENTS

General Education

All students starting *before* Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Bachelor of Science Program Requirements 80 credits

MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
MCB01.101	Foundations in Biology for BMS I	4 s.h.
MCB01.102	Foundations in Biology for BMS II	4 s.h.
CHEM06.100	Chemistry I	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
CHEM07.203	Organic Chemistry II for Biomedical Sciences	4 s.h.
PHYS00.130	Building Momentum as a Physics Student at Rowan & Beyond	1 s.h.
PHYS00.220	Intro Mechanics	4 s.h.

PHYS00.221	Intro Thermo, Fluids, Waves, Optics	4 s.h.
PHYS00.222	Intro Electricity and Magnetism	4 s.h.
PHYS00.300	Modern Physics	4 s.h.
PHYS00.330	Mathematical Methods for Physics	3 s.h.
TBS01.315	Biomedical Technologies I	4 s.h.
PHYS00.360	Molecular Biophysics	4 s.h.
PHYS00.371	Biophysics: Fundamentals of Biomaterials	3 s.h.
PHYS00.375	Introduction to Radiation Physics	4 s.h.
PHYS00.451	Biophysics Research I	2 s.h.
CHEM07.348	Biochemistry	4 s.h.
or MCB01.333	Cellular Biochemistry	4 s.h.
3.5 + 1.5 GRADUATE PROGRAM REQUIRMENTS		45 s.h.
CMB00.701	Graduate Biochemistry*	4 s.h.
CMB00.702	Molecular Biology of the Cell	4 s.h.
CMB00.802	Experimental Design*	2 s.h.
CMB00.803	Scientific Writing*	2 s.h.
CMB00.804	Critical Readings in Cell & Molecular Biology	2 s.h.
CMB00.901	Responsible Conduct in Research*	0 s.h.
CMB00.682	Lab rotation Fall*	3 s.h.
CMB00.683	Lab rotation Spring*	3 s.h.
CMB00.812	Quantitative Methods	2 s.h.
CMB00.690	Thesis Research/M.S.	7 s.h.
CMB00.699	M.S. Thesis Continuation (5 s.h. for two semesters + 2 s.h. for summer – no tuition, only fee	
Alternate Focus Courses: (choose two of the following)		
CMB00.805	Cell Culture and Stem Cells	2 s.h.
CMB00.806	Graduate Genetics	2 s.h.
CMB00.810	Biomolecular Interactions	2 s.h.
CMB00.811	Fundamentals of Neuroscience	2 s.h.
CMB00.813	Neuroanatomy	2 s.h.
CMB00.814	Neurophysiology	2 s.h.
CMB00.815	Neuropharmacology & Behavior	2 s.h.
Total Required Credits for the Entire 3.5 + 1.5 Program		151 s.h.

Graduate courses marked with * above are counted in the 120 s.h. undergraduate program.

Requirements for Admission:

Applicants to the accelerated program will submit application materials by January 15 of the spring semester of their third year (nominally "junior" year). Applications will be reviewed by the GSBS admissions committee, and students will be notified during the spring semester. Application for admission requires:

- A minimum overall GPA of 3.0 in undergraduate coursework
- A complete online GSBS application including personal statement
- A letter of nomination/recommendation from a Biophysics faculty sponsor in the Department of Physics & Astronomy
- Official GRE General Exam score

Requirements for Graduation:

To graduate from the accelerated Bachelor of Science/Master of Science dual degree program in Biophysics and Cell & Molecular Biology, students must meet the following requirements:

- Completion of all requirements for the 3.5+1.5 Bachelor of Science in Biophysics
- Completion of all requirements for the Accelerated Master of Science in Cell and Molecular Biology
- Maintain satisfactory progress through the program.

Student Status:

Students enrolled in the accelerated Bachelor of Science/Master of Science Program will pay undergraduate fees for all courses until they have reached the required number of credits as part of the "3.5" years (i.e. 107 credits). Beyond this, students will pay graduate tuition for graduate courses. Students will not be allowed to take GSBS graduate courses at the undergraduate rate. Students must maintain full time student status during the entire 5-year program.

Students will be expected to maintain satisfactory progress through the program. Satisfactory progress will be defined by the following parameters:

- Completion of the required Cell and Molecular Biology courses at the end of fourth year of study.
- Earning at least a grade of B in all graduate courses taken during that period.

- Any student who fails to maintain satisfactory progress as described above will be placed on probation within the program for one semester—then if performance does not improve such that the next semester courses have all grades above B, the student will be dropped from the graduate program. If the student has not already earned the Bachelor of Science in Biophysics, he/she will be re-admitted into the Bachelor of Science subject to the requirements of that program.
- During probation period, students will be required to attend tutoring sessions and meet with a faculty member in the Biophysics degree program bi-monthly to discuss any potential problems or barriers to improved academic performance.
- Students with extenuating circumstances may request an exception to this requirement by obtaining written approval of the GSBS Executive Council and the Undergraduate Advisor, and other approvals if needed under University policy.

Contingency for Students who do not Complete Master of Science program:

Students who enter the accelerated Master of Science program but do not maintain satisfactory progress or opt-out of the Master of Science degree will be allowed to apply up to 14 credits of Cell and Molecular Biology coursework credits toward the Biophysics Bachelor of Science degree. If the student opts out before 14 credits have been completed in the Cell and Molecular Biology program, any remaining credits to make up the required 120 credits for the undergraduate Bachelor of Science Biophysics degree will be taken using traditional coursework at the Glassboro campus.

Accelerated Dual Degree (3 + 4 program): Bachelor of Science in Biophysics and Doctor of Medicine degree

Overview

The Department of Physics & Astronomy and the Cooper Medical School of Rowan University (CMSRU) offer a Bachelor of Science in Biophysics and a Doctor of Medicine degree, respectively. This accelerated program allows high-achieving Biophysics majors to obtain the Bachelor of Science and Doctor of Medicine in a seven-year period, rather than the traditional period of eight years if both degrees were completed separately. The program is a 3 + 4 arrangement where students begin Doctor of Medicine courses in their 4th year at Rowan University.

3 + 4 UNDERGRADUATE PROGRAM REQUIREMENTS

As BS Biophysics above with *12 s.h. of first year CMSRU courses from the Doctor of Medicine program counted towards Restricted Electives.

3+4 DOCTOR OF MEDICINE PROGRAM REQUIREMENTS

Requirements for the Doctor of Medicine degree are set forth in the CSMRU Student Handbook.

Additional Program Requirements: Students are required to maintain a minimum cumulative grade point average of 3.6 in all course work and a minimum grade point average of 3.6 in the science courses required for admission to CMSRU. Students must take part in one of the summer Premedical Urban Leaders Summer Enrichment PULSE programs at CMSRU or participate in forty hours of approved community service prior to entering their third undergraduate year. This service will be directed to underserved populations and is non-medical. The Health Professions Advisor (HPA), or designee on the Glassboro campus will serve as the supervisor for the service activity and provide verification that the service obligations have been completed.

Students accepted into the 3+4 Program will be admitted to CMSRU contingent upon the following:

- Completion of all general curriculum requirements at Rowan University.
- A minimum of 75% of the credits needed for a Baccalaureate degree completed before beginning the medical school phase of the Program.
- All prerequisite courses required for admission to CMSRU as specified in the CMSRU Handbook.
- Completion of requirements of the designated Rowan University major unless the major department agrees to provide credit for certain medical courses taken during the first year of medical school at CMSRU.
- A cumulative science grade point average of 3.60 or better.
- No final grade of "D", "F" or "I" in any prerequisite course required for admission to CMSRU as indicated in the CMSRU Handbook.
- All students will be required to take the Medical College Admissions Test (MCAT) and obtain a score at or greater than the 70th percentile.
- Students in the Program will be required to participate in one summer Premedical Urban Leader Summer Enrichment Program "PULSE" program at CMSRU or an equivalent service experience as outlined above.
- Students must remain free of any citations for behavioral issues or academic integrity violations especially surrounding professionalism through their undergraduate education.
- CMSRU may refuse admission to any student applicant who does not meet the above requirements. Students may be required to decelerate or withdraw from the combined Program for academic or other reasons.

Eligibility and Admissions:

High school seniors who qualify for admission to Rowan University are eligible for admission to the 3+4 program. There are no restrictions on State of residency, but admission is limited to citizens or permanent residents of the United States. The high school grade point average and rank-in-class, along with letters of recommendation from high school teachers, will be

of primary importance in evaluating an applicant's credentials. Applicants are required to submit scores of the College Board Scholastic Aptitude Tests (SAT) Verbal and Mathematical components or the American College Testing (ACT). Applicants are expected to demonstrate knowledge of, and activity resonant with, the mission of CMSRU.

Students who self-identify that they wish to be part of this Program will formally apply to the Health Professions Advisor (HPA) at Rowan University upon acceptance to Rowan University. They will be given all the requirements of the program by the HPA. There will be an application form made available to the HPA through CMSRU that needs to be completed and sent by the HPA to the Director of Admissions at CMSRU. Qualified applicants will be scheduled for interview by members of a subcommittee of the CMSRU Admissions Committee. These interviews will be held on the CMSRU campus and at a date and time that will allow student notification prior to any final decision date for matriculation to Rowan University.

Student Status: Tuition for the first three (3) years of study at Rowan University, including summer courses, if any, will be the same tuition as charged to undergraduate Rowan University students. Tuition during the four (4) years of study at CMSRU will be the same as the tuition charged to students enrolled in the regular curriculum at CMSRU.

Students who satisfactorily complete the appropriate courses in the first year at CMSRU, in addition to all other Rowan University requirements, will receive a Bachelor of Science in Biophysics degree.

If, after the first semester of the medical first year, the student fails to meet the required CMSRU standards of performance and competency, CMSRU shall notify Rowan University. Representatives from Rowan University and CMSRU will meet with the student. If, after meeting with the student, CMSRU concludes that the student should not continue in the medical school, the student shall be dismissed from the Bachelor of Science/Doctor of Medicine Program. In consultation with the Biophysics coordinator, the Bachelor of Science in Biophysics degree may be completed.

Accelerated Dual Degree (3 + 4 program): Bachelor of Science in Biophysics and Doctor of Osteopathic Medicine degree

Overview

The Department of Physics & Astronomy and the Rowan University School of Osteopathic Medicine (RowanSOM) offer a Bachelor of Science in Biophysics and a Doctor of Osteopathic Medicine degree, respectively. This accelerated program allows high-achieving Biophysics majors to obtain the Bachelor of Science and Doctor of Osteopathic Medicine in a seven-year period, rather than the traditional period of eight years if both degrees were completed separately. The program is a 3 + 4 arrangement where students begin Doctor of Osteopathic Medicine courses in their 4th year at Rowan University.

3 + 4 UNDERGRADUATE PROGRAM REQUIREMENTS

As BS Biophysics above with 12 s.h. of first year *RowanSOM courses from the Doctor of Osteopathic Medicine program counted towards Restricted Electives.

3+4 DOCTOR OF OSTEOPATHIC MEDICINE PROGRAM REQUIREMENTS

Requirements for the Doctor of Osteopathic Medicine degree are set forth in the RowanSOM Education Handbook.

Additional Program Requirements:

Students are required to maintain a minimum cumulative grade point average of 3.6 in all course work and a minimum grade point average of 3.6 in the science courses required for admission to RowanSOM. Students must also take the Medical College Admissions Test (MCAT) and score a minimum of 27. Students in the accelerated Bachelor of Science/Doctor of Osteopathic Medicine Program will be strongly encouraged to construct an undergraduate degree plan that incorporates experiences involving community outreach and service, as well as the premedical sciences.

Students accepted into the 3+4 Program, to be qualified for transition to RowanSOM, shall have met all of the following criteria:

- Completion of all general curriculum requirements at Rowan University
- A minimum of 75% of the credits needed for a Baccalaureate degree
- Completion of all prerequisite courses required for admission to RowanSOM as specified in the RowanSOM Education Handbook
- A cumulative grade point average of 3.60 or better.
- No final grade of "D", "F" or "I" in any prerequisite course required for admission to RowanSOM as indicated in the RowanSOM Education Handbook
- A minimum score of 8 on each section of the Medical College Admissions Test or a total minimum total score of 27
- Recommendation by the Rowan University Premed Advisor based on a majority approval of the Rowan University Program Admissions Committee
- Satisfactory interviews with the Program Admissions Committees at Rowan University and RowanSOM

Students in the 3+4 program will be required to visit the RowanSOM campus to participate in all of the activities listed below during their three undergraduate years:

- OMM demonstrations (including a shadow experience at the OMM clinic
- Lecture presentation on research opportunities at RowanSOM

- Tour of the Clinical Education and Assessment Center
- Mini skills workshop focusing on elementary doctoring skills, specifically interpersonal skills and basic history taking
- Anatomy lecture and lab
- Brown Bag Sessions with Associate Dean for Academic Affairs and or designee

Eligibility and Admissions:

High school seniors who qualify for admission to Rowan University are eligible for admission to the 3+4 program. There are no restrictions on State of residency, but admission is limited to citizens or permanent residents of the United States. The high school grade point average and rank-in-class, along with letters of recommendation from high school teachers, will be of primary importance in evaluating an applicant's credentials. Applicants are required to submit scores of the College Board Scholastic Aptitude Tests (SAT) Verbal and Mathematical components or the American College Testing (ACT). Applicants are expected to demonstrate knowledge of, and activity resonant with, the mission of RowanSOM.

After preliminary evaluation of applications by the Rowan University Admissions Office, the Joint Admissions Committee, composed of representatives from the premedical faculty of Rowan University and the Admissions Committee of RowanSOM, will decide which applicants to invite for interview at Rowan University and RowanSOM. Interviews at RowanSOM will be conducted by a member of the RowanSOM Admissions Committee.

Applicants not invited for an interview, or not selected for admission to the 3+4 program, shall be notified of decisions as early as possible and shall be considered for regular admission to Rowan University. First year students at Rowan University who are not accepted into the program may continue their undergraduate course of study and would be eligible to apply for the 4+4 program in their Sophomore year at Rowan University

Student Status:

Students will be eligible admission to the Doctor of Osteopathic Medicine portion of the program after the Rowan University Coordinator of Premedical Programs has certified that the candidate has met all basic prerequisite requirements, after completion of the MCAT, and after a successful interview with the RowanSOM Admissions Committee. Students apply for an admissions decision to RowanSOM no later than October I of the 3'" year, but preferably by August 15 before their 3rd year. Acceptance of such candidates is based on meeting or surpassing the requirements listed above.

Tuition for the first three (3) years of study at Rowan University, including summer courses, if any, will be the same tuition as charged to undergraduate Rowan University students. Tuition during the four (4) years of study at RowanSOM will be the same as the tuition charged to students enrolled in the regular curriculum at RowanSOM

Students who satisfactorily complete the appropriate courses in the first year at RowanSOM, in addition to all other undergraduate degree requirements, will receive a Bachelor of Science in Biophysics degree.

If, after the first semester of the medical first year, the student fails to meet the required RowanSOM standards of performance and competency, representatives from Rowan University and RowanSOM will meet with the student. If, after meeting with the student, RowanSOM concludes that the student should not continue in the medical school, the student shall be dismissed from the Bachelor of Science/Doctor of Osteopathic Medicine Program. In consultation with the Biophysics coordinator, the Bachelor of Science in Biophysics degree may be completed.

Accelerated Dual Degree (4 + 1 program): B.A. in Physics and an M.A. in STEM Education

Overview

The Department of Physics & Astronomy and the Department of STEAM Education have created this accelerated program to provide a seamless transition between undergraduate and graduate coursework for students wishing to pursue teacher certification in physics. The program will allow qualified students to complete both programs and earn their initial certification in five years. Motivated students can complete the program in 4 years.

3.5 + 1.5 UNDERGRADUATE PROGRAM REQUIREMENTS

General Education

All students starting *before* Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Bachelor of Arts Program Requirements		70 s.h.
PHIL09.261	Philosophical Perspectives on Science-WI	3 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.

MATH01.230	Calculus III	4 s.h.
CS04.103 *or* CS01.104	Comp. Sci. & Prog. *or* Intro. Sci. Prog.	4 s.h.
PHYS00.130	Building Momentum as a Physics Student at Rowan & Beyond	1 s.h.
PHYS00.220	Intro Mechanics	4 s.h.
PHYS00.221	Intro Thermo, Fluids, Waves, Optics	4 s.h.
PHYS00.222	Intro Electricity and Magnetism	4 s.h.
PHYS00.300	Modern Physics	4 s.h.
PHYS00.3xx	Any two (2) PHYS courses at 300+ level	6 s.h.
PHYS00.361/2/3	Physics Learning Assistant	2 s.h.
PHYS00.361/2/3	Physics Learning Assistant	2 s.h.
PHYS00.xxx	Any two (2) PHYS or ASTR courses	7 s.h.
	An approved two (2) course science sequence (e.g. MCB01.101 & MCB01.102, CHEM06.100 & CHEM06.101, CS courses to fulfill a CS minor or CUGS etc.)	8 s.h. 8 s.h.
PSY09.210	Adolescent Development	3 s.h.
PSY22.215 *or* FNDS21.230	Educational Psychology *or* Characteristics of Knowledge Acquisition	3 s.h.
HLTH00.103	Health & Wellness or a Biology course	3 s.h.

3.5 + 1.5 GRADUATE PROGRAM REQUIREMENTS 33 s.h.

SMED60.550	Schools & Society: Foundations for Secondary Teaching*	3 s.h.
STEM60.501	STEM Teaching & Research Methods I*	3 s.h.
READ30.520	Content Area Literacy*	3 s.h.
STEM60.510	Teaching STEM in Diverse Settings*	3 s.h.
SELN60.576	Inclusive Instruction in STEM Classrooms	3 s.h.
STEM60.504	Professional Seminar for STEM Educators	3 s.h.
STEM60.512	STEM Education Residency I	1 s.h.
STEM60.513	STEM Education Residency II	3 s.h.
STEM60.522	STEM Teaching & Research Methods: Science II	5 s.h.
STEM60.523	STEM Teaching & Research Methods: Science III	6 s.h.

Total Required Credits for the Entire 3.5 + 1.5 Program 141 s.h.

Graduate courses marked with * above are counted in the 120 s.h. undergraduate program.

Requirements for Admission:

Applicants to the 4+1 Accelerated Degree program will submit applications for admission to the graduate program in the fall semester of their sophomore year of the undergraduate program. Application requirements are as follows:

- A minimum overall GPA of 3.0 in undergraduate coursework
- A complete online Rowan Global application, including a personal statement
- 2 recommendation forms

Upon reaching senior standing, students must have maintained a cumulative GPA of 3.0 to continue in the accelerated degree program. Students also must have earned a grade of at least "C-" in all physics courses. If the minimum GPA and physics overall courses grades are not met, the student will be removed from the accelerated degree program and be placed in the regular B.A. in Physics program; s/he will be eligible to apply for readmission into the accelerated degree program upon earning a minimum cumulative GPA of 3.0. Students must also follow through with the prior noted application requirements. To ensure flexibility for students, they can apply through the spring of their junior year with the same requirements as indicated above. However, for those students who submit applications in their junior year, they will need to ensure that they address courses required to earn initial NJ certification to teach in the public schools: Adolescent Development (PSY 09.210); Characteristics of Knowledge Acquisition (FNDS 21.230) or Educational Psychology (PSY 22.215); Health and Wellness (HLTH 00103) or a Biology course. Undergraduate benchmarks must also be met by the end of their senior year. These are:

- Cumulative GPA of at least 3.0
- No grades lower than C- in overall physics courses.
- Completion of the following courses: SMED 60.550: Schools & Society: Foundations for Secondary Teaching (3 credits) and STEM 60.510 Teaching STEM in Diverse Settings (3 credits)
- Passing scores on Praxis Core Academic Skills for Educators (Reading—156; Writing—162; Math—150) or SAT, ACT, or GRE scores above the cut scores
- Passing score of 141 on Praxis II Physics: Content Knowledge (5265) and 152 on General Science Knowledge (5435) tests

Requirements for Graduation:

To graduate from the accelerated program students must have a 2.00 GPA per university guidelines for the B.A., then earn a 3.0 GPA and earn a "Basic" on all indicators of the Final Performance Evaluation in the Residency I and II courses.

Contingency for Students who do not Complete Master of Arts program:

Students who choose not to complete the Master's portion of the program will still be eligible to earn the B.A. in Physics.

Accelerated Dual Degree: B.S. in Physics and an M.A. in STEM Education

Overview

The Department of Physics & Astronomy and the Department of STEAM Education have created this accelerated program to provide a seamless transition between undergraduate and graduate coursework for students wishing to pursue teacher certification in physics. The program will allow qualified students to complete both programs and earn their initial certification in five years.

3.5 + 1.5 UNDERGRADUATE PROGRAM REQUIREMENTS

General Education

All students starting *before* Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Bachelor of Science Program Requirements 89 s.h.

PHIL09.261	Philosophical Perspectives on Science-WI
MATH01.130	Calculus I
MATH01.131	Calculus II
MATH01.230	Calculus III
CS04.103	Computer Science & Programming
or CS01.104	Introduction to Scientific Programming
PHYS00.130	Building Momentum as a Physics Student at Rowan & Beyond
PHYS00.220	Introductory Mechanics
PHYS00.221	Introductory Thermodynamics, Fluids, Waves, & Optics
PHYS00.222	Introductory Electricity & Magnetism
PHYS00.300	Modern Physics
PHYS00.330	Mathematical Methods for Physics *and* one additional (3 s.h.) Restricted Elective (see below)
or MATH01.210	Linear Algebra
and MATH01.231	Differential Equations
PHYS00.351	Physics Research Methods I
PHYS00.352	Physics Research Methods II
PHYS00.310	Analytical Mechanics
PHYS00.320	Electricity & Magnetism I
PHYS00.410	Quantum Mechanics I
PHYS00.430	Statistical Physics

An approved 2-course science sequence (e.g. MCB01.101 & MCB01.102, CHEM06.100 & CHEM06.101, CS courses to fulfill a CS minor or CUGS, etc.)

PHYS00.361/2/3	Physics Learning Assistant (Recommended)
PHYS00.361/2/3	Physics Learning Assistant (Recommended)
PSY09.210	Adolescent Development
PSY22.215	Educational Psychology
or FNDS21.230	Characteristics of Knowledge Acquisition
HLT01.103	Health & Wellness *or* a Biology course

Restricted Electives

Choose at least 7 s.h. from any 300+ Physics course (maximum of 3 s.h. of Physics Research or 4 s.h. of Physics Learning Assistant), any 200+ Astronomy, (maximum of 3 s.h. of Astronomy Research), Geology, Materials Science, any 300+ Engineering, any 200+ Math, any 200+ Chemistry, any 200+ Computer Science, or Biology. Note: the 3 s.h. Research Course restriction is a total across both categories.

3.5 + 1.5 GRADUATE PROGRAM REQUIRMENTS 33 s.h.

SMED60.550	Schools & Society: Foundations for Secondary Teaching*	3 s.h.
STEM60.501	STEM Teaching & Research Methods I*	3 s.h.
READ30.520	Content Area Literacy*	3 s.h.
STEM60.510	Teaching STEM in Diverse Settings*	3 s.h.
SELN60.576	Inclusive Instruction in STEM Classrooms	3 s.h.
STEM60.504	Professional Seminar for STEM Educators	3 s.h.

STEM60.512	STEM Education Residency I	1 s.h.
STEM60.513	STEM Education Residency II	3 s.h.
STEM60.522	STEM Teaching & Research Methods: Science II	5 s.h.
STEM60.523	STEM Teaching & Research Methods: Science III	6 s.h.

Total Required Credits for the Entire 3.5 + 1.5 Program 141 s.h.
Graduate courses marked with * above are counted in the 120 s.h. undergraduate program.

Requirements for Admission:
Applicants to the Accelerated Degree program will submit applications for admission to the graduate program in the fall semester of their sophomore year of the undergraduate program. Application requirements are as follows:

- A minimum overall GPA of 3.0 in undergraduate coursework
- A complete online Rowan Global application, including a personal statement
- 2 recommendation forms

Upon reaching senior standing, students must have maintained a cumulative GPA of 3.0 to continue in the accelerated degree program. Students also must have earned a grade of at least "C-" in all physics courses. If the minimum GPA and physics overall courses grades are not met, the student will be removed from the accelerated degree program and be placed in the regular B.A. in Physics program; s/he will be eligible to apply for readmission into the accelerated degree program upon earning a minimum cumulative GPA of 3.0. Students must also follow through with the prior noted application requirements. To ensure flexibility for students, they can apply through the spring of their junior year with the same requirements as indicated above. However, for those students who submit applications in their junior year, they will need to ensure that they address courses required to earn initial NJ certification to teach in the public schools: Adolescent Development (PSY 09.210); Characteristics of Knowledge Acquisition (FNDS 21.230) or Educational Psychology (PSY 22.215); Health and Wellness (HLTH 00103) or a Biology course. Undergraduate benchmarks must also be met by the end of their senior year. These are:

- Cumulative GPA of at least 3.0
- No grades lower than C-in overall physics courses.
- Completion of the following courses: SMED 60.550: Schools & Society: Foundations for Secondary Teaching (3 credits) and STEM 60.510 Teaching STEM in Diverse Settings (3 credits)
- Passing scores on Praxis Core Academic Skills for Educators (Reading—156; Writing—162; Math—150) or SAT, ACT, or GRE scores above the cut scores
- Passing score of 141 on Praxis II Physics: Content Knowledge (5265) and 152 on General Science Knowledge (5435) tests

Requirements for Graduation:

To graduate from the accelerated program students must have a 2.00 GPA per university guidelines for the B.A., then earn a 3.0 GPA and earn a "Basic" on all indicators of the Final Performance Evaluation in the Residency I and II courses.

Contingency for Students who do not Complete Master of Arts program: Students who choose not to complete the Master's portion of the program will still be eligible to earn the B.A. in Physics.

Accelerated Dual Degree (4 + 1 program): B.S. in Physics and an M.S. in Data Science

Overview

The Departments of Physics & Astronomy, Computer Science, and Mathematics have created a combined dual program earning the B.S. in Physics and the M.S. in Data Science in a five (5) year time by allowing though applying four (4) graduate course in the undergraduate degree program with the added benefit that the cost for those credits are at the undergraduate tuition rate. The program combines the problem defining and solving skills of the Physics degree with programming and analysis skills of the Data Science degree to create graduated well positioned for the multitude of jobs in "big data" across many disciplines and fields.

3.5 + 1.5 UNDERGRADUATE PROGRAM REQUIREMENTS

General Education

All students starting *before* Fall 2018 and transfer students must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Bachelor of Arts Program Requirements 69 s.h.

PHIL09.261	Philosophical Perspectives on Science-WI	3 s.h.
MATH01.130	Calculus I	4 s.h.
MATH01.131	Calculus II	4 s.h.
MATH01.230	Calculus III	4 s.h.
CS04.103	Computer Science & Programming	4 s.h.
PHYS00.130	Building Momentum as a Physics Student at Rowan & Beyond	1 s.h.
PHYS00.220	Introductory Mechanics	4 s.h.
PHYS00.221	Introductory Thermo, Fluids, Waves, Optics	4 s.h.
PHYS00.222	Introductory Electricity and Magnetism	4 s.h.
PHYS00.300	Modern Physics	4 s.h.
MATH01.210	Linear Algebra	3 s.h.
MATH01.231	Differential Equations	3 s.h.
PHYS00.351	Physics Research Methods I	2 s.h.
PHYS00.352	Physics Research Methods II	2 s.h.
PHYS00.310	Analytical Mechanics	4 s.h.
PHYS00.320	Electricity & Magnetism I	4 s.h.
PHYS00.410	Quantum Mechanics I	4 s.h.
PHYS00.430	Statistical Physics	3 s.h.
	An approved 2-course science sequence (e.g. MCB01.101 & MCB01.102 CHEM06.100 & CHEM06.101, CS courses to fulfill a CS minor or CUGS, etc.)	8 s.h.

3.5 + 1.5 GRADUATE PROGRAM REQUIRMENTS 30 s.h.

Required

DA02.510	Visual Analytics*	3 s.h.
CS04.440	Data Warehousing*	3 s.h.
DA02.505	Data Mining I*	3 s.h.
STAT02.515	Applied Multivariate Data Analysis*	3 s.h.

Concentration Choice 1

DA03.505	Data Quality and Web/Text Mining*	3 s.h.
DA03.510	Patient Data Understanding	3 s.h.
DA03.520	Healthcare Management	3 s.h.
DA01.505	Data Analytics Capstone Practicum	3 s.h.

Concentration Choice 2

STAT02.525	Design and Analysis of Experiments	3 s.h.
MGT07.500	Managerial Decision Making Tools	3 s.h.
MGT07.600	Predictive Analytics	3 s.h.
DA01.505	Data Analytics Capstone Practicum	3 s.h.

Electives—take any two (2) courses from:

CS07.523	Advanced Software Engineering*	3 s.h.
CS07.556	Machine Learning*	3 s.h.
CS07.570	Information Visualization*	3 s.h.
DA02.605	Data Mining II*	3 s.h.
DA03.511	Patient Data Privacy & Ethics	3 s.h.
ECE09.555	Advanced Topics In Pattern Recognition*	3 s.h.
STAT02.515	Decision Analysis	3 s.h.
STAT02.515	Design and Analysis of Experiments	3 s.h.

Total Required Credits for the Entire 3.5 + 1.5 Program 138 s.h.

Graduate courses marked with * above may be counted in the 120 s.h. undergraduate program—a maximum of 12 s.h., and no more than two (2) from the Electives bank.

Requirements for Admission:

The 4+1 program is open to all matriculated undergraduates. Undergraduates in the program will submit applications for admission to the graduate program in the fall semester of their sophomore year of the undergraduate program. (This typically means after having 45 credits in their Physics program and including Intro to Electricity an Magnetism as well as Calculus III and Linear Algebra). Application requirements are as follows:

- A minimum overall GPA of 3.0 in undergraduate coursework and 3.5 in the major.
- A complete online Rowan Global application, including all required documents.

Requirements for Graduation:

In order to graduate from the program with a BS in Physics and MS in Data Science all students must meet the following two requirements:

1. Completion of all the requirements for the BS in Physics with 12 semester hours of graduate Data Analytics courses taken by the student in his/her fourth year to be counted as restricted electives.
2. Completion of all requirements for the MS in Data Science including the 4 core courses and a total of 30.

Contingency for Students who do not Complete Master of Science program:

If the student "opts out" before 12 graduate credits have been completed, any remaining credits needed for 120 credits required for the undergraduate degree will be taken at the undergraduate level and selected through consultation between the advisor, the Physics department and the student.

Department of Psychology

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Department Head
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The Department of Psychology offers two distinct undergraduate degree programs: the B.A. in Psychology, and the B.S. in Psychological Sciences. The difference between these programs is the proportion of courses taken in the major field. For the B.A. degree, students take 34 credits in psychology while in the B.S. degree, students take 65 credits of psychology. The B.A. degree provides students with a sufficiently strong background in psychology to pursue degrees in a variety of professions and graduate school programs, while also affording them the opportunity to specialize in other areas through minors, concentrations, and Certificates of Undergraduate Studies (CUGS). The B.S. degree is designed for students who may be interested in pursuing research-oriented careers that may or may not require additional graduate training such as experimental psychology, and other areas within psychology. Both the Minor in Neuroscience (offered with Biological Sciences) and the Concentration in Child Behavioral Services are available to students obtaining either degree.

All Psychology majors are expected to meet with their psychology department advisor at least once a semester. The purpose of these meetings is to discuss course selection, progress toward graduation requirements, academic planning, graduate school plans, and career plans.

Psychology majors may take up to 10% of their credit hours pass/no credit, including 6 s.h. in Psychology (students may not take Psychology of Scientific Thinking, Research Methods in Psychology, Statistics in Psychology, Advanced Statistics in Psychology, Behavioral Assessment and Measurement, Applied Behavior Analysis, Professional Issues in Applied Behavior Analysis, Advanced Research I or Advanced Research II pass/no credit).

BACHELOR OF ARTS IN PSYCHOLOGY

Dr. Valerie Lamastro
Coordinator
Department of Psychology
Robinson Hall
856.256.4870

Face-to-face majors should email psychadvising@rowan.edu with any questions. On-line majors should email onlinepsychmajor@rowan.edu with any questions.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses that are not Psychology Courses

Students must take 3 credits of Mathematics in the Science and Mathematics General Education bank and this course will count as fulfilling 3 credits in the Science and Mathematics GE requirement.

Students must take:

BIOL01.113 General Biology: Human Focus
which satisfies the Scientific Literacy of the Rowan Core

(also counts as the Laboratory Science course in the Science and Mathematics General Education requirement, 4 s.h.)

Students are required to take 3 additional credits from the Science and Mathematics General Education list (3 s.h.)

Twelve additional credits from the Social and Behavioral Sciences General Education List of which 3 credits must be in Anthropology (ANTH)

Students must also take ONE of the following Philosophy courses: PHIL09.120, PHIL09.121, PHIL09.211, PHIL09.213, PHIL09.368, PHIL09.369, PHIL09.226, or PHIL09.227. This course satisfies the Humanistic Literacy in the Rowan Core Requirements.

Required Psychology Courses 35 s.h.

PSY01.107	Essentials of Psychology (Humanistic Literacy)
PSY01.199	Navigating Psychology
PSY01.301	Psychology of Scientific Thinking
PSY07.301	Statistics in Psychology (prerequisite PSY01.301)
PSY07.303	Research Methods in Psychology (prerequisite PSY07.301)
PSY02.300	Psychology as a Profession and Practice
PSY01.499	Psychology Senior Capstone
PSY09.218	Lifespan Development
or PSY09.209	Child and Adolescent Development

(note that only one of these courses may be counted as fulfilling credits for the BA degree; PSY09.210 Adolescent Development does not fulfill the requirements of the BA in Psychology)

PSY02.310	Learning and Behavior
or PSY01.327	Cognitive Psychology
PSY05.206	Social Psychology
or PSY01.230	Psychology of Personality
PSY10.315	Physiological Psychology
or PSY01.326	Perception
PSY03.200	Abnormal Psychology
or PSY09.305	Developmental Psychopathology

Three additional s.h. of approved psychology electives from the list below.

Psychology Electives List (3 credits)

Specialized Courses

PSY00.371	Social Psychology of Sport
PSY01.105	Psychology of Ethnic Identity and Community in America
PSY01.200	Psychology of Women and Cultural Experience
PSY01.235	African-American Psychology
PSY01.305	Psychology and Law
PSY01.310	Psychology of Racism and Ethnocentrism
PSY01.329	Health Psychology
PSY01.331	Occupational Health Psychology
PSY01.336	Positive Psychology
PSY01.423	Seminar in Psychology (various topics)
PSY01.424	Professional Issues in ABA
PSY01.429	History and Systems in Psychology
PSY02.200	Essential Skills for Behavior Technicians
PSY02.305	Applied Behavior Analysis
PSY02.320	Single Subject Methodology
PSY02.325	Functional Behavioral Assessment
PSY03.205	Intake and Interviewing Skills in Psychology
PSY02.320	Introduction to Clinical/Counseling Psychology
PSY05.205	Environmental Psychology
PSY05.250	Psychopharmacology
PSY05.310	Psychology of Human Sexuality
PSY05.320	Introduction to Sport & Exercise Psychology
PSY05.402	Psychology of Conflict and Conflict Resolution
PSY05.410	Community Psychology
PSY06.200	Computer Applications in Psychology
PSY06.300	Psychological Tests and Measurement
PSY07.300	Psychology Learning Assistant Seminar
PSY07.400	Advanced Statistics in Psychology
PSY08.215	Consumer Psychology
PSY08.220	Personnel Psychology
PSY08.310	Industrial/Organizational Psychology
PSY09.314	Psychology of Adult Processes

PSY09.400	Introduction to Human Factors
PSY10.375	Drugs, The Brain, and Behavior
PSY10.415	Neuroplasticity and Learning
PSY10.425	Hormones, Brain, and Behavior
PSY10.480	Cognitive Neuroscience
PSY22.215	Educational Psychology
PSY22.320	Theories of Learning

Independent Study, Research, and Field Experience

PSY01.419	Independent Study in Psychology
PSY01.422	Field Experience in Psychology
PSY01.425	Fieldwork in Applied Behavior Analysis
PSY01.426	Research Clinic in Psychology

Additional Coursework in Basic Core Areas

PSY01.230	Psychology of Personality
PSY01.326	Perception
PSY01.327	Cognitive Psychology
PSY02.310	Learning and Behavior
PSY03.200	Abnormal Psychology
PSY05.206	Social Psychology
PSY09.305	Developmental Psychology
PSY10.315	Physiological Psychology

Nonprogram electives	18 s.h.
Free electives	56 s.h.
Total Credits in Program:	120 s.h.

BACHELOR OF SCIENCE IN PSYCHOLOGICAL SCIENCE

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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses that are not Psychology Courses

BIOL01.113	General Biology: Human Focus

(this satisfies the Scientific Literacy of the Rowan Core Requirements, 4 s.h.)

Required Psychology Courses

PSY01.107	Essentials of Psychology (Humanistic Literacy)
PSY01.199	Navigating Psychology
PSY01.301	Psychology of Scientific Thinking
PSY07.301	Statistics in Psychology (prerequisite PSY01.301)
PSY07.400	Advanced Statistics in Psychology (prerequisite PSY07.301)
PSY07.303	Research Methods in Psychology (prerequisite PSY07.301)
PSY01.420	Advanced Research I (prerequisite minimum grade of a B in, PSY01.301, PSY07.301, & PSY07.303, and completion of COMP01.112 OR HONR01.112)
PSY01.421	Advanced Research II (prerequisite minimum grade of a B in PSY01.420)
PSY02.300	Psychology as a Profession and Practice
PSY01.499	Psychology Senior Capstone
PSY09.218	Lifespan Development
or PSY09.209	Child and Adolescent Development

(note that only one of these courses may be counted as fulfilling credits for the BS degree; PSY09.210 Adolescent Development does not fulfill the requirements of the BS in Psychological Science)

PSY02.310	Learning and Behavior
PSY01.327	Cognitive Psychology
PSY10.315	Physiological Psychology
PSY01.326	Perception
PSY05.206	Social Psychology
or PSY01.230	Psychology of Personality
PSY03.200	Abnormal Psychology
or PSY09.305	Developmental Psychopathology

12 additional s.h. of approved psychology electives.

Psychology Electives List (12 s.h.)

Specialized Courses

PSY00.371	Social Psychology of Sport
PSY01.105	Psychology of Ethnic Identity and Community in America
PSY01.200	Psychology of Women and Cultural Experience
PSY01.230	Psychology of Personality
PSY01.235	African-American Psychology
PSY01.305	Psychology and Law
PSY01.310	Psychology of Racism and Ethnocentrism
PSY01.329	Health Psychology
PSY01.331	Occupational Health Psychology
PSY01.336	Positive Psychology
PSY01.423	Seminar in Psychology (various topics)
PSY01.424	Professional Issues in ABA
PSY01.429	History and Systems in Psychology
PSY02.200	Essential Skills for Behavior Technicians
PSY02.305	Applied Behavior Analysis
PSY02.320	Single Subject Methodology
PSY02.325	Behavioral Functional Assessment
PSY03.200	Abnormal Psychology
PSY03.205	Intake and Interviewing Skills in Psychology
PSY02.320	Introduction to Clinical/Counseling Psychology
PSY05.205	Environmental Psychology
PSY05.206	Social Psychology
PSY05.250	Psychopharmacology
PSY05.310	Psychology of Human Sexuality
PSY05.320	Introduction to Sport & Exercise Psychology
PSY05.402	Psychology of Conflict and Conflict Resolution
PSY05.410	Community Psychology
PSY06.200	Computer Applications in Psychology
PSY06.300	Psychological Tests and Measurement
PSY07.300	Psychology Learning Assistant Seminar
PSY07.400	Advanced Statistics in Psychology
PSY08.215	Consumer Psychology
PSY08.220	Personnel Psychology
PSY08.310	Industrial/Organizational Psychology
PSY09.209	Child & Adolescent Development
PSY09.218	Lifespan Development
PSY09.305	Developmental Psychopathology
PSY09.314	Psychology of Adult Processes
PSY09.400	Introduction to Human Factors
PSY10.375	Drugs, The Brain, and Behavior
PSY10.415	Neuroplasticity and Learning
PSY10.425	Hormones, Brain, and Behavior
PSY10.480	Cognitive Neuroscience
PSY22.215	Educational Psychology
PSY22.320	Theories of Learning

Independent Study, Research, and Field Experience

PSY01.419	Independent Study in Psychology
PSY01.422	Field Experience in Psychology
PSY01.425	Fieldwork in Applied Behavior Analysis
PSY01.426	Research Clinic in Psychology

Total Credits in Program: 120 s.h.

CONCENTRATION IN BEHAVIORAL SERVICES FOR CHILDREN & THEIR FAMILIES

Dr. Bethany Raiff
Advisor
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The Concentration in Child Behavioral Services is designed to train Psychology majors to provide effective services for children with behavior problems and/or developmental disabilities. The concentration curriculum emphasizes learning theory, the application of behavioral principles, knowledge of types of problems and issues for which children may need services, and supervised experience working with children and their families in the community. Upon completion of the concentration and additional supervised experience, students may be eligible to apply to become a Board Certified assistant Behavior Analyst (BCaBA). This concentration is available only to matriculated Psychology majors and only to those majors who apply and are accepted into the program; however, other students may take courses within the concentration. Students are encouraged to apply for the concentration as early as possible in their undergraduate career. Students transferring into the major may not be able to complete all of the coursework for the Concentration in the time required to complete the BA/BS in Psychology/Psychological Science degrees. The application for the concentration program may be obtained from the Psychology Department secretary (psychadvising@rowan.edu). Applicants must have a minimum grade of a B in PSY02.310 Learning and Behavior and a recommendation from their PSY02.310 professor. Application deadlines are June 15th and January 5th. In addition to the requirements for the Psychology major, concentration students must take the following courses:

PSY02.310	Learning and Behavior (prerequisite PSY01.107/PSY01.108 OR Matriculation in the Post-Baccalaureate Certificate in Applied Behavior Analysis)
PSY02.320	Single Subject Methodology (perquisite PSY02.310)
PSY02.325	Functional Behavior Assessment (prerequisite PSY02.310; prerequisite/co-requisite PSY02.320)
PSY02.305	Applied Behavior Analysis (prerequisite PSY02.310)
PSY01.424	Professional Issues in Applied Behavior Analysis (prerequisites PSY02.310 and PSY01.316; co-requisite PSY02.305)
PSY01.425	Fieldwork in Applied Behavior Analysis (prerequisites PSY02.305 and PSY01.316)

MINOR IN PSYCHOLOGY

Psychology Department
Robinson Hall
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The Department offers an 18 s.h. minor in Psychology. The program is designed for students desiring a substantial background in Psychology while majoring in another field. The minor is designed to allow students the flexibility to choose courses that will further their career goals. Minors may transfer a maximum of 6 s.h. in Psychology courses from other institutions.

Required Courses:		
PSY01.107	Essentials of Psychology	3 s.h.
Electives:		
Two 300/400 level	Psychology courses	6 s.h.
	Three Psychology courses of any level	9 s.h.
Total Credits in Minor:		18 s.h.

MINOR IN NEUROSCIENCE (WITH DEPARTMENT OF BIOLOGICAL & BIOMEDICAL SCIENCES)

Gerald Hough
Advisor
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This minor (M261) is designed for students interested in the study of how the brain and the rest of the nervous system function and the different effects it can have on the body and/or mind. Within this minor, students have the ability to focus primarily on biologically-oriented fields such as molecular, structural, and chemical neuroscience, which focuses on the physical structures and neurotransmitters that the nervous system uses to communicate. Students also have the option to choose a more psychology-oriented direction that covers how the brain and nervous system influence feelings, thoughts, behaviors, and how an organism processes information. Students interested in the Minor in Neuroscience should contact the Program Coordinator in the Fall of their Sophomore year and take PSY10.315 Physiological Psychology during their sophomore year.

Requirements

BIOL01.106	Introduction to Genetics
or MCB01.101	Foundations of Biology for Biomedical Sciences I
BIOL01.203	Introduction to Cell Biology
or MCB01.102	Foundations of Biology for Biomedical Sciences II
PSY10.315	Physiological Psychology (grade of B+ or higher)
PSY10.480	Cognitive Neuroscience (prerequisite PSY10.315 grade of B+ or better)
AND MCB10.481	Cellular and Molecular Neuroscience (prerequisite PSY10.315 grade of B+ or better)

Two upper-level electives chosen from the following list in Biological Sciences and Psychology (at least 1 from outside Psychology) (6-8 credits)

BIOL01.430	Cell Biology
BIOL01.460	Animal Behavior
BIOL01.465	Animal Histology
BIOL01.475	Biology Lab/Field Research
BIOL07.301	Comparative Vertebrate Anatomy
BIOL10.401	Animal Physiology
BIOL22.335	Genetics
BINF05.355	Bioinformatics- Biological Applications
CHEM07.490	General Aspects of Pharmacology
MCB01.334	Medical Biochemistry
MCB10.345	Human Physiology
PSY01.326	Perception
PSY01.419	Independent Study
PSY01.422	Field Experience
PSY01.426	Research Clinic in Psychology
PSY02.310	Learning and Behavior
PSY10.375	Drugs, The Brain, and Behavior
PSY10.415	Neuroplasticity and Learning
PSY10.425	Hormones, The Brain, and Behavior
PSY10.610	Psychopharmacology and Biological Basis of Behavior (with Senior Privilege)
	Or other approved coursework

CONCENTRATION IN BEHAVIORAL NEUROSCIENCE (C262 for BS Psychological Science, C267 for BA Psychology)

Required (Mid-Level) Courses for the Behavioral Neuroscience Concentration 9 s.h

PSY10.315	Physiological Psychology
PSY01.326	Perception
PSY10.480	Cognitive Neuroscience

Restricted Electives for the Behavioral Neuroscience Concentration *Six (6) s.h. of restricted electives from the following:*

PSY02.310	Learning & Behavior
PSY01.422	Field Experience
PSY01.426	Research Clinic in Psychology
PSY01.423	Seminar in Psychology- if the content is neuroscience-related

PSY01.329	Health Psychology
PSY10.375	Drugs, The Brain, and Behavior
PSY10.415	Neuroplasticity and Learning
PSY10.425	Hormones, The Brain, and Behavior
PSY10.610	Psychopharmacology and Biological Basis of Behavior

CERTIFICATE OF UNDERGRADUATE STUDY (CUGS) IN INDUSTRIAL/ORGANIZATION (I/O) PSYCHOLOGY

Valerie Davis-LaMastro
Advisor
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The CUGS in Industrial/Organizational Psychology (12 s.h.) will teach students to apply psychological theories to critical issues in the fields of psychology, business, and industry. Students will become adept at small group theory and team processes, dynamics of leadership and management, and the structure and procedures of organizational development. The coursework takes an interdisciplinary approach to the scientific study of the workplace. In particular, it examines the study of human behavior as it relates to employee productivity and well-being. This sequence provides students with a unique opportunity to learn about the relationship between psychology and organizational behavior and issues of critical relevance to the workplace. This CUGS is available to any matriculated Rowan student completing the required coursework.

Required Courses:

PSY08.310	Industrial/Organizational Psychology (prerequisite PSY01.107/PSY01.108)
PSY08.220	Personnel Psychology (prerequisite PSY01.107/PSY01.108)
PSY05.402	Psychology of Conflict and Conflict Resolution (prerequisite PSY01.107/PSY01.108)

Students must take 3 additional credits from the following list:

CMS04.240	Small Group Communication
CMS04.241	Small Group Communication –WI (prerequisite COMP01.112 OR ENGR01.201)
CMS04.260	Organizational Communication Theory and Research (prerequisite COMP01.112 OR ENGR01.201)
PSY01.331	Occupational Health Psychology
PSY01.423	Seminar in Psychology (topic must be related to I/O field and approved by the Coordinator of the CUGS) (prerequisite PSY01.107/PSY01.108)

School of Earth and Environment

Kenneth J. Lacovara
Dean of School of Earth and Environment
Professor of Paleontology & Geology
Director, Jean and Ric Edelman Fossil Park
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Mission

The School of Earth & Environment is dedicated to seeking solutions to the world's most pressing environmental problems while providing opportunities for our students to become part of the solution and advance their careers in growing fields. The School is dedicated to disseminating information about our planet through teaching and publishing while catalyzing change towards a more sustainable future.

The school is organized around key topics:

1. The Climate Crisis
2. The Biodiversity Crisis
3. The challenges of urbanization & regenerative growth
4. Big Picture perspective - using both deep time and deep space to contextualize our present and inform our choices

About the School

There is a great need for qualified professionals to address the most dramatic global challenges, including environmental sustainability, energy, and climate change. Students graduating from the School enjoy unparalleled opportunities to integrate classroom learning with hands-on experiences and will be superbly prepared for careers in industry, government agencies, professional studies, or graduate studies in related disciplines.

The Jean and Ric Edelman Fossil Park, a unique world-class reservoir of ancient ecosystems near the Glassboro campus, is a living laboratory and resource for education, research, and outreach. The Edelman Fossil Park offers students unparalleled opportunities for hands-on learning experiences and prominent research in paleontology. Because of the appeal of the Edelman Fossil Park and its importance to STEM outreach, the School coordinates with the Rowan University STEM Center to provide P-12 STEM outreach for the region.

Departments

The School consists of the Department of Geography Planning and Sustainability, the Department of Geology, and the Department of Environmental Science.

Programs Offered

The School offers the following undergraduate degrees: Bachelor of Arts in Environmental and Sustainability Studies, Bachelor of Arts in Geography, Bachelor of Science in Geographic Information Science (GIS), Bachelor of Science in Community & Environmental Planning, Bachelor of Science in Geology, Bachelor of Arts in Geology, Bachelor of Science in Environmental Science and the Bachelor of Arts in Environmental Science.

Majors

Bachelor of Arts in Environmental and Sustainability Studies

Bachelor of Arts in Geography

Bachelor of Science in Geographic Information Science (GIS)

Bachelor of Science in Community & Environmental Planning

Bachelor of Science in Geology

Bachelor of Arts in Geology

Bachelor of Science in Environmental Science

Bachelor of Arts in Environmental Science

Dual Degree

Dual Degree (4+1 program): B.A. in Environmental and Sustainability Studies with a Master of Business Administration
Dual Degree (4+1 program): B.S. in Community and Environmental Planning with an MS in Urban and Regional Planning
Dual Degree (4+1): B.A. in Geology with an M.A. in STEM Education

Minors

Minor in Environmental Science
Minor in Geology
Minor in Geography
Minor in Environmental & Sustainability Studies
Minor in Community & Environmental Planning
Minor in Geographic Information Systems (GIS)
Minor in Applied Geographic Knowledge and Skills (GeoEducation)
Minor in Geoscience
Minor in Geographic Inquiries into Global Issues
Minor in Sustainable Built Environments
Minor in Sustainability Science
Minor in Climate Science

Certificates of Undergraduate Study (CUGS)

Certificate of Undergraduate Study in Marine Science
Certificate of Undergraduate Study in Global Climate Change
Certificate of Undergraduate Study in Paleontology
Certificate of Undergraduate Study in Paleoart and Visualization
Certificate of Undergraduate Study in Environmental Humanities
Certificate of Undergraduate Study in Environmental Policy & Economics
Certificate of Undergraduate Study in Food Systems Planning
Certificate of Undergraduate Study in Geographic Information Systems and Science (GIS)
Certificate of Undergraduate Study in Sustainable Urbanism
Certificate of Undergraduate Study in Crime Mapping and Crime Analysis

Department of Environmental Science

Beth Christensen
Department Chair
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Environmental science is the scientific study of environmental processes and the impact of human activities on natural systems. Environmental scientists apply tools and techniques from a variety of disciplines such as biology, chemistry, toxicology, geology, geography, engineering, physics, and mathematics/statistics to study a range of topics. These topics include the interactions between the oceans, atmosphere and land; analysis of environmental samples with high tech instrumentation and computational software; implementing pollution control and mitigation; managing natural resources; and the effects of anthropogenic global climate change. Over the past few decades, anthropogenic climate change in particular has brought the imperative of understanding all earth system processes and our interactions with the environment into sharp focus, especially in New Jersey. For instance, understanding the effect of sea level rise and extreme weather on coastal communities and ecosystems is an important focus topic in New Jersey. Addressing the region's substantial problems with toxic waste and environmental contaminants will also drive the work of NJ's environmental scientists for decades to come.

BACHELOR OF ARTS IN ENVIRONMENTAL SCIENCE

The Bachelor of Arts in Environmental Science is designed for careers in environmental consulting, management, science writing, or science education. While rigorous, the BA is a more flexible pathway with enough free electives to permit a second major in areas such as Education, Communications, Environmental & Sustainability Studies, or Geology.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Rowan Core Courses		25 s.h.
Communicative Literacy		
COMP01.111	College Composition I	3 s.h
COMP01.112	College Composition II	3 s.h
CMS04.205	Public Speaking	3 s.h
Quantitative Literacy		
STAT02.260	Statistics I	3 s.h
Science Literacy		
CHEM06.100	Chemistry I	4 s.h
Global Literacy		
	Elective choice	3 s.h
Humanistic Literacy		
	Elective choice	3 s.h
Artistic Literacy		
GEOG16.160	Intro to Mapping and GIS	3 s.h
Non-Program General Education Courses		31 s.h.
CHEM06.101	Chemistry II	4 s.h
MATH01.124	Reasoning with Functions	3 s.h.
BIOL01.104	Introduction to Evolution and Scientific Inquiry	4 s.h
BIOL01.106	Introduction to Genetics	4 s.h
BIOL01.203	Introduction to Cell Biology	4 s.h
BIOL01.204	Introduction to Ecology	4 s.h
PHYS00.210	Physics I	4 s.h
GEOL01.101	Physical Geology	4 s.h
Environmental Science Core		28 s.h.
EVSC01.115	Environment in the Headlines	1 s.h
Choose one (3 s.h:)		
EVSC01.101/ENST94.101	Planet in Peril	
EVSC01.120	Oceans in Crisis	
EVSC01.121	Global Environmental Change	
EVSC01.122	Future of Food	
Choose one (4 s.h:)		
EVSC01.380	Principles of Atmospheric and Climate Science	
EVSC01.385	Oceans	
Choose All		
EVSC/ENST94.202	Environmental Science Research Methods & Data Analysis	4 s.h
ENST94.102	Human Nature: Introduction to Environmental and Sustainability Studies	3 s.h
ENST94.301	Environmental Ethics	3 s.h
EVSC01.305	Contaminants in the Environment	4 s.h
EVSC01.220	Global Climate Crisis (3 s.h)	
Choose one (3 s.h:)		
EVSC01.410	Environmental Science Clinic	
EVSC01.420	Senior Seminar in Environmental Science	
Restricted Electives		6 s.h.
In consultation with an advisor, choose two Environmental Science electives OR other approved courses		
Free Electives		30 s.h.
Total Hours Credits for Graduation		120 s.h.

BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE

The Bachelor of Science in Environmental Science is designed for students interested in scientific careers or pursuing graduate studies. Field experiences are an essential element of our curriculum, beginning in the first year. Students earning a BS in Environmental Science will leave Rowan University with a broad understanding of several scientific disciplines and mathematics. Course requirements offer flexibility within the degree, not only with a number of elective credits but with choices among specialized courses.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Rowan Core Courses		25 s.h.
Communicative Literacy		
COMP01.111	College Composition I	3 s.h
COMP01.112	College Composition II	3 s.h
CMS04.205	Public Speaking	3 s.h
Quantitative Literacy		
STAT02.260	Statistics I	3 s.h
Science Literacy		
CHEM06.100	Chemistry I	4 s.h
Global Literacy		
	Elective choice	3 s.h
Humanistic Literacy		
PHIL09.369	Philosophy of Science	
or elective choice	3 s.h	
Artistic Literacy		
GEOG16.160	Intro to Mapping and GIS	3 s.h
Non-Program General Education Courses		24 s.h.
CHEM06.101	Chemistry II	4 s.h
MATH01.130	Calculus I	4 s.h
MATH01.131	Calculus II	4 s.h
BIOL01.104	Biology 1: Diversity, Evolution, & Adaptation	4 s.h
PHYS00.210	Physics I	4 s.h
GEOL01.101	Physical Geology	4 s.h
Environmental Science Core		49 s.h.
BIOL01.106	Introduction to Genetics	4 s.h
BIOL01.203	ntroduction to Cell Biology	4 s.h
BIOL01.204	ntroduction to Global Ecology	4 s.h
CHEM07.200	Organic Chemistry I	4 s.h
EVSC01.110	The Environmental Experience	1 s.h
EVSC01.115	Environment in the Headlines	1 s.h
Choose one (3 s.h):		
EVSC01.101/ENST94.101	Planet in Peril	
EVSC01.120	Oceans in Crisis	
EVSC01.121	Global Environmental Change	
EVSC01.122	Future of Food	
Choose one (4 s.h):		
EVSC01.380	Principles of Atmospheric and Climate Science	
*or*EVSC01.385	Oceans	
Choose all:		
EVSC/ENST01.202	Environmental Science Research Methods & Data Analysis	4 s.h
ENST94.102	Human Nature: Introduction to Environmental and Sustainability Studies	3 s.h
ENST94.301	Environmental Ethics	3 s.h
EVSC01.350	Field Methods in Environmental Science	4 s.h
EVSC01.305	Contaminants in the Environment	4 s.h
EVSC01.220	Global Climate Crisis	3 s.h
Choose one (3 s.h):		
EVSC01.410	Environmental Science Clinic	
EVSC01.420	Senior Seminar in Environmental Science	
Restricted Electives		12-14 s.h.
In consultation with an advisor, choose four Environmental Science electives OR other approved courses		
Free Electives		8-10 s.h.
Total Hours Credits for Graduation		120 s.h.

MINOR IN ENVIRONMENTAL SCIENCE

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Harold Thompson
Advisor
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The Minor in Environmental Science offers students an opportunity majoring in disciplines other than EVSC to explore some of the issues and problems integral to Environmental Science without committing to the full major. It is well suited to students from Biology, Chemistry, Engineering, and other life and physical sciences. Environmental Studies majors will also benefit from the added scientific dimension.

Students will gain exposure to major environmental issues in one EVSC 100- level Gateway course and EVSC01.115 Environment in the Headlines (required). Environmental Science requires a basic knowledge of chemistry and the physical earth and so minors are required to take introductory courses from both of those disciplines (7-8 s.h.). Two EVSC electives (6 s.h.) will allow students to explore area of environmental science of interest at a deeper level, supported by the chemistry and geology courses. Students should choose electives based on their background.

Required Courses		18-20 s.h.
One EVSC Gateway Course from the following menu:		
EVSC01.101/ENST94.101	Planet in Peril	3 s.h.
EVSC01.120	Oceans in Crisis	3 s.h.
EVSC01.121	Global Environmental Change	3 s.h.
EVSC01.122	Future of Food	3 s.h.
Must Take:		
EVSC01.115	Environment in the Headlines	1 s.h.
One semester of chemistry, from the following menu:		
CHEM05.100	Essentials of General Chemistry	3 s.h.
CHEM05.102	Chemistry of Everyday Life	4 s.h.
CHEM05.301	Chemistry in the Environment	3 s.h.
CHEM06.100	Chemistry I	4 s.h.
Must Take:		
GEOL01.101	Physical Geology	4 s.h.
Two Environmental Science Electives		6-8 s.h.

Total Credits must reach a minimum of 18 credits. *If students take a 3 credit Chemistry class (CHEM05.100 Essentials of General Chemistry or CHEM05.301 Chemistry in the Environment) then 7 s.h. are required and one course must be at the 300 level or higher):*

EVSC01.210	Foraging for Edible Plants	3 s.h.
EVSC01.220	Global Climate Crisis	3 s.h.
EVSC01.290	Special Topics in Environmental Science	3 s.h.
EVSC01.379	Soil Science and Global Soil Resources	3 s.h.
EVSC01.380	Atmospheric and Climate Science	4 s.h.
EVSC01.385	Oceans	4 s.h.
EVSC01.490	Advanced Special Topics in Environmental Science	3 s.h.)

*Students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page.

JOINT ENVIRONMENTAL SCIENCE/GEOLOGY MINOR IN CLIMATE SCIENCE

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The Joint Environmental Science/Geology Minor in Climate Science offers students the opportunity to gain important insights into the extremely interdisciplinary realm of climate science from both environmental and geological perspectives. This minor is offered by the faculty of the Environmental Science and Geology programs and is designed to serve any matriculated student, though, due to the nature of the courses and the fact that some require basic science and math pre-requisites, it may be most suitable for students who are currently pursuing science degrees. It is likely that this program would be especially well-suited to Environmental Science, Geology, Biology, Physics, Engineering, and/or Math students. The Climate Science minor stipulates a minimum of 19 semester credit hours of courses that provide a fundamental grounding in the science of anthropogenic climate change. These courses include introductory classes that cover the basics of climate change, and courses that emphasize climate impacts on the ocean and atmosphere. Elective courses (at least one each from Environmental Science and Geology) assure students an opportunity to study individual impacts of climate change in greater depth.

Required Courses 10 s.h.

Unit A. Students must take one of the following two courses:

EVSC01.220	Global Climate Crisis	3 s.h.
GEOL01.131	Earth in Transition: The Science Behind Global Climate Change	3 s.h.

Unit B. Students must take one of the following two courses:

EVSC01.120	Oceans in Crisis	3 s.h.
GEOL01.136	Water Planet: Exploring the Hydrosphere	3 s.h.

Unit C. Students must take one of the following two courses:

EVSC01.380	Principles of Atmospheric and Climate Science	4 s.h.
GEOL01.250	Ocean-Atmosphere Interactions	4 s.h.

Elective Courses:

Unit D. Students must take (at least one) of the following courses from Geology:

GEOL01.230	Paleoclimatology	4 s.h.
GEOL01.133	Climate, Catastrophes, Civilizations, and Collapses	3 s.h.
GEOL01.430	Climate Variability and Diagnostics	4 s.h.
GEOL01.435	The Ice Ages and Quaternary Geology	4 s.h.
GEOL01.331	Climate Change and the Cryosphere	4 s.h.

Unit E. Students must take (at least) one of the following courses from Environmental Science:

EVSC01.122	Future of Food	3 s.h.
EVSC01.382	Understanding and Analyzing Climate Change Impacts	4 s.h.
EVSC01.381	Sea Level Change: Past, Present, and Future	3 s.h.
EVSC01.385	Oceans	4 s.h.

Please note:

- For all courses, students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page.
- Given that students may not minor in a program that shares the name of the department or draws on the same course requirements required to fulfill their major, students who are majoring in Environmental Science or Geology need to choose the options that are not already being used to fulfill their major.

CERTIFICATE OF UNDERGRADUATE STUDY IN GLOBAL CLIMATE CHANGE

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The Earth's climate is dynamic, complex, and changing at an alarming pace. The certificate of undergraduate study (CUGS) in Global Climate Change is an introduction to climate science and the fundamentals of the climate system. In this series of courses, students learn how climate change is affecting the world today, what the science says about future climate impacts, and the geological context for climate change both past and future. The CUGS in Global Climate Change is open to any matriculated or non- matriculated student with an interest in the science of Global Climate Change from any degree program.

Certificate of Undergraduate Study in Global Climate Change 13-14 s.h.

Required courses:

GEOL01.131	Earth in Transition: The science of global climate change *No Prerequisite*	3 s.h.
EVSC01.220	Global Climate Crisis *Prerequisite: STAT02.260 – Statistics 1*	3 s.h.

Students must take ONE of the following Courses:

GEOL01.230	Paleoclimatology *Prerequisite: GEOL01.101 – Physical Geology*	4 s.h.
GEOL01.131	Climate, catastrophes, civilizations and collapse *No Prerequisite*	3 s.h.

Students must take one Course from the following list such that they have completed at least 13 total credit hours from the listed CUGS courses.

Note: this requires taking at least one 4- credit course, either from above or below:

EVSC01.120	Oceans in Crisis *No Prerequisite*	3 s.h.
EVSC01.122	Future of Food *No Prerequisite*	3 s.h.
GEOL01.250	Ocean-Atmosphere Interactions *Prerequisite: GEOL01.101 Physical Geology, GEOL01.102 Earth Through Time, PHYS 00.210 Physics I without Calculus or PHYS00.220 Introductory Mechanics*	4 s.h.
GEOL01.435	The Ice Ages and Quaternary Geology *Prerequisite: GEOL01.101 Physical Geology, GEOL01.102 Earth Through Time*	4 s.h.
EVSC01.381	Sea Level Change: Past, Present and Future *Prerequisite: EVSC01.220 – Global Climate Crisis*	4 s.h.
GEOL01.430	Climate Variability and Diagnostics *Prerequisite: GEOL01.101 Physical Geology, GEOL01.230 Paleoclimatology*	4 s.h.
EVSC01.382	Understanding and Analyzing climate change impacts *Prerequisites: STAT 02.260--Statistics I or STAT 02.280—Biometry, MATH 01.130-- Calculus I, EVSC 01.220 Global Climate Crisis or GEOL 01.131--Earth in Transition: The Science Behind Global Climate Change*	4 s.h.

The CUGS in Global Climate Change is for non-Geology and/or non-Environmental Science majors who are matriculated students at Rowan University interested in the science of global climate change.

CERTIFICATE OF UNDERGRADUATE STUDY IN MARINE SCIENCE

The Certificate of Undergraduate Study (CUGS) in Marine Science introduces students to the interdisciplinary study of the ocean. Marine sciences integrates the physical, chemical, geological, and biological features and processes of oceans. Students completing this program will gain a foundational understanding of ocean systems and the tools used to collect samples and data in oceans. The CUGS in Marine Sciences ties together and builds upon existing course offerings across the departments of Biology, Environmental Science, and Geology to create a comprehensive program of study that introduces undergraduate students to the study of marine science. The CUGS in marine sciences is intended to serve undergraduate students in STEM disciplines from both academic units including, for example, environmental science, geology, and biological sciences.

Certificate of Undergraduate Study in Marine Science 14-15 s.h.

The requirements include the following 3 required courses and 1 elective course:

Required Courses 11 s.h.

EVSC01.120	Oceans in Crisis	3 s.h.
BIOL18.360	Marine Biology	4 s.h.
EVSC01.385	Oceans	4 s.h.

One Elective Course 3-4 s.h.

EVSC01.386	Estuaries	3 s.h.
GEOL01.250	Ocean-Atmosphere Interactions	4 s.h.
GEOL01.136	Water Planet: Exploring the Hydrosphere	3 s.h.
BIOL20.474	Tidal Marsh Ecology	3 s.h.
BIOL19.425	Coastal Marine Geology	4 s.h.

To be awarded the CUGS in Marine Science, students must complete all courses required for the CUGS in Marine Science with at least a 2.0 average. Students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page.

Department of Geology

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Geology is the study of the Earth system, the materials of which the Earth is made, the origin and evolution of those materials, the processes acting upon them (both external and interior), and the origin and evolution of its organisms and ecosystems. Geology investigates the relationship of how all components of the Earth interact within the Earth System. Lessons learned about the Earth system through geology are also applied to explore the origin and evolution of other bodies in the Solar System. Central to geology is the study of how rocky bodies like the Earth have changed over time.

BACHELOR OF SCIENCE IN GEOLOGY

The Bachelor of Science in Geology is a physical science major composed of foundation courses in biology, chemistry, physics, and mathematics; core courses in geology; and electives in geology, applied geology, or paleontology. The program is designed to prepare students to immediately enter positions in the geoscience workforce in consulting firms or government agencies; pursue professional studies; or undertake graduate studies in geoscience disciplines.

The curriculum is designed around the diverse expertise of our faculty. As such, nearly all of our courses are taught by full-time members of the department including professors actively conducting research. This provides our students with hands-on experience from experts in techniques, scientific methodologies, and critical thinking. The expertise of our faculty instills into our students the necessary, diverse perspectives along with a wide knowledge base of many subdisciplines of geology to successfully continue on to careers that solve the integrated issues facing our state, country, and planet.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

STAT02.260	Statistics I*	3 s.h.
or		
MATH01.130	Calculus I	4 s.h.
CHEM06.100	Chemistry I*	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
MATH01.131	Calculus II	4 s.h.
PHYS00.210	Physics I	4 s.h.
BIOL01.104	Biology 1: Diversity, Evolution, and Adaptation	4 s.h.
or PHYS00.211	Physics II	4 s.h.
GEOL01.101	Physical Geology	4 s.h.
GEOL01.102	Earth Through Time	4 s.h.
GEOL01.201	Mineralogy and Petrology	4 s.h.
GEOL01.210	Invertebrate Paleontology	4 s.h.
GEOL01.230	Paleoclimatology	4 s.h.
GEOL01.240	Introduction to Field Methods in Geology	4 s.h.
GEOL01.320	Sedimentology and Stratigraphy	4 s.h.
GEOL01.340	Tectonics and Structural Geology	4 s.h.
GEOL01.400	Practical Experience in Geology	6 s.h.
GEOL01.450	Senior Seminar in Geology	2 s.h.
GEOL01.460	Current Research in Geology	2 s.h.
GEOL01.470	Research Experience in Geology	2 s.h.

*Part of Rowan Core requirements

Required Geology Bank Course 12 s.h.

Students select one 200-level course from each of the following subject areas:

- General Geology
- Paleontology

- Global Climate Change

Geology Concentration Electives 12 s.h.

Students select 3-4 courses from one of the following Concentration Areas:

- General Geosciences
- Applied Geology
- Paleontology
- Global Climate Change: A Geologic Perspective

Free Electives 6 s.h.

Total Semester Hours 120 s.h.

BACHELOR OF ARTS IN GEOLOGY

The Bachelor of Arts in Geology is a physical science major composed of foundation courses in biology, chemistry, physics, and mathematics; core courses in geology; and electives in geology or related disciplines. The elective course choices in this program make it easier to pursue related minors or concentrations. The program is designed to prepare students to immediately enter positions in the geoscience workforce in consulting firms or government agencies; pursue professional studies; or undertake graduate studies.

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Required Courses

STAT02.260	Statistics I*	3 s.h.
CHEM06.100	Chemistry I*	4 s.h.
CHEM06.101	Chemistry II	4 s.h.
PHYS00.210	Physics I	4 s.h.
BIOL01.104	Biology 1: Diversity, Evolution, and Adaptation	4 s.h.
GEOL01.101	Physical Geology	4 s.h.
GEOL01.102	Earth Through Time	4 s.h.
GEOL01.201	Mineralogy and Petrology	4 s.h.
GEOL01.210	Invertebrate Paleontology	4 s.h.
GEOL01.230	Paleoclimatology	4 s.h.
GEOL01.240	Field Methods in Geology	4 s.h.
GEOL01.320	Sedimentology and Stratigraphy	4 s.h.
GEOL01.340	Tectonic and Structural Geology	4 s.h.
GEOL01.450	Senior Seminar in Geology	4 s.h.
GEOL01.460	Current Research in Geology	1 s.h.

*Part of Rowan Core requirements

Free Electives 30 s.h.

Total Semester Hours 120 s.h.

MINOR IN GEOLOGY

Harold C. Connolly Jr.
Chair
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856.256.5261
connollyh@rowan.edu

The Department of Geology offers a minor in Geology that gives students who are interested in Geoscience but are majoring in other disciplines, the flexibility to meet their educational goals and fulfill their passion for Earth Science. The minor in Geology provides a framework that positions students for interdisciplinary careers in a number of areas including, but not limited to, environmental science, biology, chemistry, and any discipline that investigates the relationship between global climate change and society. This framework allows for maximum flexibility for transfer students and students who discover an interest in Geosciences while pursuing other degrees. To obtain the minor, students are required to take two foundational courses in Geology and can then choose from a wide selection of courses to obtain 22 credits in Geology.

Students are required to take the following two foundational courses: 8 s.h.

GEOL01.101	Physical Geology	4 s.h.
GEOL01.102	Earth Through Time	4 s.h.

Then any two of the following 200 level courses: 8 s.h.

GEOL01.201	Mineralogy & Petrology	4 s.h.
GEOL01.210	Invertebrate Paleontology	4 s.h.
GEOL01.230	Paleoclimatology	4 s.h.
GEOL01.240	Introduction to Field Methods	4 s.h.
GEOL01.250	Ocean-Atmosphere Interactions	4 s.h.

The remaining 6 credits are to be earned by selecting any courses offered by the Department of Geology that fulfill the credit requirement.

Program total 22 s.h.

JOINT ENVIRONMENTAL SCIENCE/GEOLOGY MINOR IN CLIMATE SCIENCE

Harold Thompson
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The Joint Environmental Science/Geology Minor in Climate Science offers students the opportunity to gain important insights into the extremely interdisciplinary realm of climate science from both environmental and geological perspectives. This minor is offered by the faculty of the Environmental Science and Geology programs and is designed to serve any matriculated student, though, due to the nature of the courses and the fact that some require basic science and math pre-requisites, it may be most suitable for students who are currently pursuing science degrees. It is likely that this program would be especially well-suited to Environmental Science, Geology, Biology, Physics, Engineering, and/or Math students. The Climate Science minor stipulates a minimum of 19 semester credit hours of courses that provide a fundamental grounding in the science of anthropogenic climate change. These courses include introductory classes that cover the basics of climate change, and courses that emphasize climate impacts on the ocean and atmosphere. Elective courses (at least one each from Environmental Science and Geology) assure students an opportunity to study individual impacts of climate change in greater depth.

Required Courses 10 s.h.

Unit A. Students must take one of the following two courses:

EVSC01.220	Global Climate Crisis	3 s.h.
GEOL01.131	Earth in Transition: The Science Behind Global Climate Change	3 s.h.

Unit B. Students must take one of the following two courses:

EVSC01.120	Oceans in Crisis	3 s.h.
GEOL01.136	Water Planet: Exploring the Hydrosphere	3 s.h.

Unit C. Students must take one of the following two courses:

EVSC01.380	Principles of Atmospheric and Climate Science	4 s.h.
GEOL01.250	Ocean-Atmosphere Interactions	4 s.h.

Elective Courses:

Unit D. Students must take (at least one) of the following courses from Geology:

GEOL01.230	Paleoclimatology	4 s.h.
GEOL01.133	Climate, Catastrophes, Civilizations, and Collapses	3 s.h.
GEOL01.430	Climate Variability and Diagnostics	4 s.h.
GEOL01.435	The Ice Ages and Quaternary Geology	4 s.h.
GEOL01.331	Climate Change and the Cryosphere	4 s.h.

Unit E. Students must take (at least) one of the following courses from Environmental Science:

EVSC01.122	Future of Food	3 s.h.
EVSC01.382	Understanding and Analyzing Climate Change Impacts	4 s.h.
EVSC01.381	Sea Level Change: Past, Present, and Future	3 s.h.
EVSC01.385	Oceans	4 s.h.

Please note:

- For all courses, students must ensure that they have the appropriate prerequisites for any of the classes. Prerequisites for each class can be found in the Banner Course Catalog. Find the catalog entry for the course that you are interested in taking, scroll to the bottom of the page.
- Given that students may not minor in a program that shares the name of the department or draws on the same course requirements required to fulfill their major, students who are majoring in Environmental Science or Geology need to choose the options that are not already being used to fulfill their major.

CERTIFICATE OF UNDERGRADUATE STUDY IN GLOBAL CLIMATE CHANGE

Dr. Harold Connolly
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Dr. Gerald Rustic
Faculty Contact
Discovery Hall 324
856.256.5277
rustic@rowan.edu

The Earth's climate is dynamic, complex, and changing at an alarming pace. The certificate of undergraduate study (CUGS) in Global Climate Change is an introduction to climate science and the fundamentals of the climate system. In this series of courses, students learn how climate change is affecting the world today, what the science says about future climate impacts, and the geological context for climate change both past and future. The CUGS in Global Climate Change is open to any matriculated or non- matriculated student with an interest in the science of Global Climate Change from any degree program.

Certificate of Undergraduate Study in Global Climate Change 13-14 s.h.

Required courses:

GEOL01.131	Earth in Transition: The science of global climate change *No Prerequisite*	3 s.h.
EVSC01.220	Global Climate Crisis *Prerequisite: STAT02.260 – Statistics 1*	3 s.h.

Students must take ONE of the following Courses:

GEOL01.230	Paleoclimatology *Prerequisite: GEOL01.101 – Physical Geology*	4 s.h.
GEOL01.131	Climate, catastrophes, civilizations and collapse *No Prerequisite*	3 s.h.

Students must take one Course from the following list such that they have completed at least 13 total credit hours from the listed CUGS courses.

Note: this requires taking at least one 4- credit course, either from above or below:

EVSC01.120	Oceans in Crisis *No Prerequisite*	3 s.h.
EVSC01.122	Future of Food *No Prerequisite*	3 s.h.
GEOL01.250	Ocean-Atmosphere Interactions *Prerequisite: GEOL01.101 Physical Geology, GEOL01.102 Earth Through Time, PHYS 00.210 Physics I without Calculus or PHYS00.220 Introductory Mechanics*	4 s.h.
GEOL01.435	The Ice Ages and Quaternary Geology *Prerequisite: GEOL01.101 Physical Geology, GEOL01.102 Earth Through Time*	4 s.h.
EVSC01.381	Sea Level Change: Past, Present and Future *Prerequisite: EVSC01.220 – Global Climate Crisis*	4 s.h.
GEOL01.430	Climate Variability and Diagnostics *Prerequisite: GEOL01.101 Physical Geology, GEOL01.230 Paleoclimatology*	4 s.h.
EVSC01.382	Understanding and Analyzing climate change impacts *Prerequisites: STAT 02.260--Statistics I or STAT 02.280—Biometry, MATH 01.130-- Calculus I, EVSC 01.220 Global Climate Crisis or GEOL 01.131--Earth in Transition: The Science Behind Global Climate Change*	4 s.h.

The CUGS in Global Climate Change is for non-Geology and/or non-Environmental Science majors who are matriculated students at Rowan University interested in the science of global climate change.

CERTIFICATE OF UNDERGRADUATE STUDY (CUGS) IN PALEONTOLOGY FOUNDATIONS

Dr. Harold Connolly
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Dr. Paul Ullmann
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Dr. Kristyn Voegele
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voegele@rowan.edu

The Paleontology Foundations CUGS offers an introduction to Earth history and evolution from the wide array of paleontology courses taught by full-time faculty paleontologists from the Department of Geology. Our program balances practical skills with current theory while emphasizing the importance of field research. Students are immersed in popular science, debates, and new research frontiers. Current and future citizen scientists, geoscience educators and researchers, and career paleontologists will gain a solid foundation in paleontology. Students can explore their passion for paleontology, the Earth, and deep time as preserved in the rock record within our unique program and wide range of course offerings. The range of offerings and options offers flexibility to ensure this CUGS is interesting and useful to students from diverse backgrounds and with varied career goals. This CUGS is open to any matriculated or non-matriculated student with an interest in paleontology from any degree program, including Geology.

Certificate of Undergraduate Study in Paleontology Foundations 15-16 s.h.

Required course

GEOL01.102	Earth Through Time *No prerequisite*	4 s.h.

Students must take ONE of the following courses:

GEOL01.210	Invertebrate Paleontology *Prerequisites: GEOL01.101 Physical Geology and GEOL01.102 Earth Through Time*	4 s.h.
GEOL01.311	Vertebrate Paleontology *Prerequisite: GEOL01.102 Earth Through Time*	4 s.h.

Students take two courses from the following Paleontology Elective Bank, with a limit of one 100 level course:

GEOL01.110	Dinosaurs and Their World *No prerequisite*	3 s.h.
GEOL01.111	The Edelman Fossil Park Experience *No prerequisite*	3 s.h.
GEOL01.112	Motion of Life *No prerequisite*	3 s.h.
GEOL01.210	Invertebrate Paleontology *Prerequisites: GEOL01.101 Physical Geology and GEOL01.102 Earth Through Time*	4 s.h.
GEOL01.310	Paleontology Laboratory Techniques *Prerequisite: GEOL01.102 Earth Through Time*	4 s.h.
GEOL01.311	Vertebrate Paleontology *Prerequisite: GEOL01.102 Earth Through Time*	4 s.h.
GEOL01.312	Dinosaur Paleontology *Prerequisite: GEOL01.102 Earth Through Time*	4 s.h.
GEOL01.410	Taphonomy *Prerequisite: GEOL01.102 Earth Through Time*	4 s.h.
GEOL01.411	Paleoecology *Prerequisite: GEOL01.102 Earth Through Time*	4 s.h.
GEOL01.412	Macroevolution *Prerequisite: GEOL01.210 Invertebrate Paleontology*	4 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY (CUGS) IN GLOBAL CLIMATE CHANGE

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The Earth's climate is dynamic, complex, and changing at an alarming pace. The certificate of Undergraduate Study (CUGS) in Global Climate Change is an introduction to climate science and the fundamentals of the climate system. In this series of courses, students learn how climate change is affecting the world today, what the science says about future climate impacts, and the geological context for climate change both past and future. The CUGS in Global Climate Change is open to any matriculated or non-matriculated student with an interest in the science of Global Climate Change from any degree program.

Certificate of Undergraduate Study in Global Climate Change 13-14 s.h.

Required courses:

GEOL01.131	Earth in Transition: The science of global climate change *No Prerequisite*	3 s.h.
EVSC01.220	Global Climate Crisis *Prerequisite: STAT02.260 – Statistics 1*	3 s.h.

Students must take ONE of the following Courses:

GEOL01.230	Paleoclimatology *Prerequisite: GEOL01.102 - Earth Through Time*	4 s.h.
GEOL01.131	Climate, catastrophes, civilizations and collapse *No Prerequisite*	3 s.h.

Students must take one course from the following list such that they have completed at least 13 total credit hours from the listed CUGS courses. Note: this requires taking at least one 4- credit course, either from above or below:

EVSC01.120	Oceans in Crisis *No Prerequisite*	3 s.h.
EVSC01.122	Future of Food *No Prerequisite*	3 s.h.
GEOL01.250	Ocean-Atmosphere Interactions *Prerequisite: GEOL01.230 Paleoclimatology, PHYS00.210 Physics I without Calculus or PHYS00.220 Introductory Mechanics*	4 s.h.
GEOL01.435	The Ice Ages and Quaternary Geology *Prerequisite: GEOL01.230 Paleoclimatology*	4 s.h.
EVSC01.381	Sea Level Change: Past, Present and Future *Prerequisite: EVSC01.220 – Global Climate Crisis*	4 s.h.
GEOL01.430	Climate Variability and Diagnostics *Prerequisite: GEOL01.101 Physical Geology, GEOL01.230 Paleoclimatology*	4 s.h.
EVSC01.382	Understanding and Analyzing climate change impacts *Prerequisites: STAT02.260--Statistics I or STAT02.280—Biometry, MATH01.130-- Calculus I, EVSC01.220 Global Climate Crisis or* GEOL01.131--Earth in Transition: The Science Behind Global Climate Change	4 s.h.

CERTIFICATE OF UNDERGRADUATE STUDY (CUGS) IN PALEOART AND VISUALIZATION

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Dr. Zachary Boles
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The certificate of undergraduate study (CUGS) in Paleoart and Visualization is a coordinated program featuring courses from the Department of Geology and the Biomedical Art and Visualization Program. This CUGS offers an introduction to the science of paleontology and the techniques of reconstructing prehistoric life and environments. Students can also focus on their personal interests within these fields with a flexible program offering multiple course options. This flexibility will allow this CUGS to be interesting and useful to students from diverse backgrounds and with varied artistic and career goals. It is open to any matriculated or non-matriculated student with an interest in paleontology and art from any degree program.

Certificate of Undergraduate Study in Paleoart and Visualization 13-14 s.h.

Required courses

GEOL01.313	Breathing Life Into Fossils: The Science of Paleoart *No prerequisite*	4 s.h.
BMV/ART09.252	Intro to Natural Science and Zoological Illustration *No prerequisite*	3 s.h.

Students must take ONE of the following courses:

BMV/ART09.253	Introduction to Digital 3D Modeling *No prerequisite* ***OR***	3 s.h.
BMV/ART09.361	Scientific and Medical Sculpture (former title: Medical Sculpture & Forensic Reconstruction) *No prerequisite*	3 s.h.

Students select one courses from the following:

GEOL01.102	Earth Through Time *No prerequisite*	4 s.h.
GEOL01.110	Dinosaurs and Their World *No prerequisite*	3 s.h.
GEOL01.112	Motion of Life *No prerequisite*	3 s.h.

Accelerated Dual Degree: B.A. in Geology and an M.A. in STEM Education

Overview

The Department of Geology and the Department of STEAM Education has created this accelerated program to provide a seamless transition between undergraduate and graduate coursework for students wishing to pursue teacher certification in Earth Science. The program will allow qualified students to complete both programs and earn their initial certification in five years.

3.5 + 1.5 UNDERGRADUATE PROGRAM REQUIREMENTS

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Bachelor of Science Program Requirements 89 s.h.

Geology Major Core Courses 37 s.h.

GEOL01.101	Physical Geology
GEOL01.102	Historical Geology
GEOL01.201	Mineralogy and Petrology
GEOL01.210	Invertebrate Paleontology
GEOL01.230	Paleoclimatology
GEOL01.240	Introduction to Field Methods
GEOL01.320	Sedimentology and Stratigraphy
GEOL01.340	Tectonics and Structural Geology
GEOL01.450	Senior Seminar in Geology
GEOL01.460	Current Research in Geology

Non-Program related

STAT02.260	Statistics I
CHEM06.100	Chemistry I
CHEM06.101	Chemistry II
PHYS00.210	Physics I
BIOL01.104	Introduction to Evolution and Scientific Inquiry
MATH01.123	College Algebra

Restricted Electives N/A

3.5 + 1.5 GRADUATE PROGRAM REQUIRMENTS 33 s.h.

SMED60.550	Schools & Society: Foundations for Secondary Teaching*	3 s.h.
STEM60.501	STEM Teaching & Research Methods I*	3 s.h.
READ30.520	Content Area Literacy*	3 s.h.
STEM60.510	Teaching STEM in Diverse Settings*	3 s.h.
SELN60.576	Inclusive Instruction in STEM Classrooms	3 s.h.
STEM60.504	Professional Seminar for STEM Educators	3 s.h.
STEM60.512	STEM Education Residency I	1 s.h.
STEM60.513	STEM Education Residency II	3 s.h.
STEM60.522	STEM Teaching & Research Methods: Science II	5 s.h.
STEM60.523	STEM Teaching & Research Methods: Science III	6 s.h.
Total Required Credits for the Entire 3.5 + 1.5 Program		141 s.h.

Graduate courses marked with * above are counted in the 120 s.h. undergraduate program.

Requirements for Admission:
Applicants to the Accelerated Degree program will submit applications for admission to the graduate program in the fall semester of their sophomore year of the undergraduate program. Application requirements are as follows:

- A minimum overall GPA of 3.0 in undergraduate coursework
- A complete online Rowan Global application, including a personal statement
- 2 recommendation forms

Upon reaching senior standing, students must have maintained a cumulative GPA of 3.0 to continue in the accelerated degree program. Students also must have earned a grade of at least "C-" in all geology courses. If the minimum GPA and geology overall course grades are not met, the student will be removed from the accelerated degree program; s/he will be eligible to apply for readmission into the accelerated degree program upon earning a minimum cumulative GPA of 3.0. Students must also follow through with the prior noted application requirements. To ensure flexibility for students, they can apply through the spring of their junior year with the same requirements as indicated above. However, for those students who submit applications in their junior year, they will need to ensure that they address courses required to earn initial NJ certification to teach in the public schools: Adolescent Development (PSY 09.210); Characteristics of Knowledge Acquisition (FNDS 21.230) or Educational Psychology (PSY 22.215); Health and Wellness (HLTH 00103) or a Biology course. Undergraduate benchmarks must also be met by the end of their senior year. These are:

- Cumulative GPA of at least 3.0
- No grades lower than C-in overall geology courses.
- Passing scores on Praxis Core Academic Skills for Educators (Reading—156; Writing—162; Math—150) or SAT, ACT, or GRE scores above the cut scores
- Passing score of 153 on Praxis II Earth Science: Content Knowledge (5571) and 152 on General Science Knowledge (5435) tests

Requirements for Graduation:

To graduate from the accelerated program students must have a 2.00 GPA per university guidelines for the B.A., then earn a 3.0 GPA and earn a "Basic" on all indicators of the Final Performance Evaluation in the Residency I and II courses. **Contingency for Students who do not Complete the Master of Arts program:** Students who choose not to complete the Master's portion of the program will still be eligible to earn the B.A. in Geology.

Department of Geography, Planning & Sustainability

Kevin Keenan
Chair
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The Department of Geography, Planning & Sustainability is a leader in critical assessment and communication of human-environment relationships and sustainable community solutions. The mission of the Department is teaching, research, and outreach that focuses on understanding the globalized world, protecting the environment, and building a sustainable future. The Department offers several programs, including four baccalaureate degrees, one master's degree, nine minors, four Certificates of Undergraduate Study (CUGS), a Certificate of Graduate Study (COGS), and a Post Baccalaureate Certificate. The programs include a BA and minor in Geography, a BA and minor in Environmental & Sustainability Studies, a BS and minor in Community & Environmental Planning, and a BS and minor in Geographic Information Science. Minors include Geoscience, Applied Geographic Knowledge and Skills (GeoEducation), Geographic Inquiries into Global Issues, Sustainability Science, and Sustainable Built Environments. The CUGS include Environmental Humanities, Food Systems Planning, Geographic Information Systems & Science, and Sustainable Urbanism. All of these programs integrate theory and practice, blending both academic and applied facets of geography, environmental studies, planning, and geospatial technologies.

In addition, the Department offers two combined advanced degree programs (4+1). Students may earn a BA in Environmental and Sustainability Studies and a Master of Business Administration in 5 years. They may also choose to earn a BS in Community and Environmental Planning and a Master of Science in Urban and Regional Planning in 5 years.

The Department houses the Geospatial Research Laboratory (GeoLab), including four computer labs with high-level GIS and remote sensing software, high-resolution plotters and scanners, and survey-quality global positioning system (GPS) receivers. Students also have full access to these labs in which they can pursue class projects and research, often working directly with faculty members.

All of our undergraduate degree programs require an internship, which provides valuable real-world experience and offers our majors a significant advantage in finding employment upon graduation. Our graduates have a strong track record in well-paying and engaging careers that make a significant impact: teaching elementary or secondary school, working in environmental consulting and remediation firms, as planners or as GIS specialists in various government agencies, as environmental protection specialists, or by continuing their education at the graduate level.

Many of our courses are available as online or hybrid (partially online) options.

BACHELOR OF ARTS IN GEOGRAPHY

For information related to this major or minor, please contact:
Kevin Keenan, Ph.D., AICP
865.256.4231
keenankp@rowan.edu

The discipline of geography focuses on understanding the world across scales from local to global. It is an integrative science that explores the spatial relationships and functional systems of the natural and human world. The geography major at Rowan maximizes flexibility so that students can design a program of study that meets individual interests and career goals. Geography students complete a common core of 22 s.h. worth of courses and then complete an additional 18+ s.h. of course credit within a specialty area (one of the minors offered in the department).

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Geography Program Common Core: Required 22 s.h.

Take two of the three following courses:

GEOG16.100	Earth, People and Environment
GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography

Take the following five courses:

GEOG16.160	Intro to Mapping and Geographic Information Science
GEOG16.290	History & Methods of Modern Geography
GEOG16.130	Earth Sciences Lab
GEOG16.390	Geography Research Clinic/Studio or Internship (note: course waived for education dual majors)
GEOG16.490	Senior Seminar in Geography - WI

Geography Program Electives 18 s.h.

Majors must take 6 additional courses offered within the department selected in consultation with the program coordinator. It is highly recommended that these 6 courses are chosen to fulfill one of the minors in the department.

Free Electives 53 s.h.

Total Credits for Graduation 120 s.h.

Note: Coordinate Education-Geography dual majors must use their 18 s.h. of geography program electives to fulfill the requirements for the Minor in Applied Geographic Knowledge and Skills (see below). Also, Coordinate Education-Geography dual majors can use their student teaching experience in place of GEOG16.390 Geography Research Clinic/ Internship.

BACHELOR OF ARTS IN ENVIRONMENTAL & SUSTAINABILITY STUDIES

For information related to this major or minor, please contact:
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The BA in Environmental & Sustainability Studies (BAESS) is an opportunity to explore humanity's relationship with the natural world from a range of perspectives in the social sciences and humanities. BAESS is designed to complement more technical studies in the physical sciences or engineering with a focus on the human context of environmental problems; at the same time, BAESS offers students in humanities, social sciences, education, communications, and artistic programs a clear topical focus for their work, emphasizing environmental issues and humanity's relationship with the natural world. BAESS is also a great option for students interested in environmental policy. The BAESS program is designed with great flexibility in mind: and students will have ample flexibility in their schedules to pursue an additional major, minors, CUGS, and anything else that suits students' interests and career plans.

Environmental problems are priority issues of local, national, and global concern. Core courses emphasize major issues and approaches in environmental studies, along with establishing a foundation in social science and humanistic research design. Elective courses offer students the chance to explore the Environmental Humanities, Environmental Policy & Economics, and Applications of Environmental & Sustainability Studies. BAESS' internship requirement offers students a chance to apply their classroom education in the 'real world'. Graduates of the program will be well-suited for a variety of careers working with the environment, especially those in government, non-profit, and environmental education sectors, and also strong candidates for graduate studies in a range of fields.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Program Requirements: 19 s.h.

(Note: all of these also meet General Education Requirements

STAT02.260	Statistics I	3 s.h.
ECON04.102	Microeconomics	3 s.h.
COMP01.111	College Comp I	3 s.h.
COMP01.112	College Comp II	3 s.h.
CMS04.205	Public Speaking	3 s.h.
	Various any lab-designated science course	4 s.h.

Environmental & Sustainability Studies Requirements 28 s.h.

Take either of the following:

ENST94.102	Human Nature: Introduction to Env. & Sust. Studies	3 s.h.
EVSC01.121	Global Environmental Change	3 s.h.

Take each of the following courses:

ENST94.101	Planet in Peril: Environmental Science in the 21st Century	3 s.h.
PLAN31.280	Foundations of Planning and Environmental Design	3 s.h.
GEOG16.100	Earth, People and Environment	3 s.h.
GEOG16.160	Introduction to Mapping and GIS	3 s.h.
ENST94.301	Environmental Ethics	3 s.h.
ENST94.202	Environmental Science Research Methods and Data Analysis	4 s.h.
ENST94.401	Senior Seminar in Environmental & Sustainability Studies	3 s.h.
GEOG16.390	Geography Research Clinic / Studio	3 s.h.

Environmental & Sustainability Studies Program Electives 18 s.h.

Students pursuing the BAESS major must take six additional courses from the Environmental & Sustainability Studies elective banks*, including at least one course from each of the three specified banks. The course banks are: Environmental Humanities, Environmental Policy, Economics, & Social Sciences, and Sustainability Studies.

A current listing of the courses in each bank can be found on the BA in Environmental and Sustainability Studies program guide, available through the Dept. of Geography, Planning & Sustainability website (http://www.rowan.edu/geography). Upcoming BAESS courses can also be found on the Dept. webpage.

Free Electives 31 s.h.

These can be courses leading to another major, minors, CUGS, or whatever else students are interested in. Our advisors and faculty will be happy to help students craft a program that meets their needs and interests.

Environmental Studies Requirements

2.00 overall G.P.A.

2.5 Major G.P.A.

Environmental & Sustainability Studies Core Requirements and Program Electives Courses must be passed with a 'C' or higher grade

Program Total 120 s.h.

Note: Courses in the list above marked with * may be substituted for additional courses, only upon approval of Program Coordinator.

Dual Degree (4+1 program): B.A. in Environmental and Sustainability Studies with a Master of Business Administration

For information related to this major or minor, please contact:
Jordan Howell, Ph.D.
856.256.4831
howellj@rowan.edu

The 4+1 dual degree program offers students an opportunity to earn a B.A. in Environmental and Sustainability Studies and an MBA in five years. The program combines a strong liberal arts undergraduate degree focused on understanding and addressing environmental problems with the professional skillset offered through undergraduate and graduate courses in business administration. Students interested in the program should contact Dr. Jordan Howell in their freshman year. Students may be preliminarily admitted into the program after they earn 60 credits, which usually corresponds to the end of the sophomore year. Transfer students who have fulfilled the requirements may also apply. Students admitted to the program will complete a total of 108 credits for the undergraduate program, and 12 credits of graduate coursework in Business Administration that is applied to the undergraduate degree. The student will then complete an additional 24 credits for the MBA. The total semester hours required for the student to complete both the undergraduate B.A. in Environmental and Sustainability Studies and the Master of Business Administration is 144.

Eligibility & Admission

Students are eligible for admission if they meet the following requirements:

- Sophomore status (60 or more credits earned)
- Minimum 3.3 GPA in undergraduate coursework
- Must have completed at least five of the MBA prerequisite courses listed below with at least a C in each course:
  - Calculus: Techniques and Applications (MATH03.125) OR Calculus 1 (MATH01.130)
  - Statistics 1 (STAT02.260)
  - Introduction to Macroeconomics (ECON04.101)
  - Introduction to Microeconomics (ECON04.102)
  - Principles of Accounting 1 (ACC03.210)
  - Principles of Accounting II (ACC03.211)
- Must earn at least a C in all courses that are required for the combined program

Students meeting the above criteria will be preliminarily accepted into the accelerated program after contacting the Environmental and Sustainability Studies Program Coordinator.

To begin taking MBA courses during their senior year, students who have been preliminarily accepted into this accelerated dual degree program must meet the criteria listed below by the spring of their junior year or the semester in which they will have earned 90 credits:

- Earned at least 90 credits (including credits in-progress during the semester in which this analysis is taking place) with a 3.3 overall GPA
- The GMAT requirement is waived for students maintaining a 3.3 GPA after completing 90 undergraduate credits.
- Completed all prerequisites for the MBA with a grade of at least C, or enrolled in these courses in the semester in which they will have earned 90 credits:
  - Calculus: Techniques and Applications (MATH03.125) OR Calculus I (MATH01.130)
  - Statistics I (STAT02.260)
  - Introduction to Macroeconomics (ECON04.101)
  - Introduction to Microeconomics (ECON04.102)
  - Principles of Accounting I (ACC03.210)
  - Principles of Accounting II (ACC03.211)
  - Principles of Marketing (MKT09.200)
  - Operations Management (MGT 06.305)
  - Principles of Finance (FIN04.300)

Upon successful review of these materials, students will be formally admitted to the accelerated program and will be eligible to take graduate courses in their senior year.

Students who meet the above criteria should submit to the Department Chairperson the material listed below, preferably in the first month of the semester in which this application is taking place:

- A statement of purpose (300-500 words);
- An academic transcript (unofficial) detailing the completion of the above requirements;

- Names and email addresses of two professors who will provide letters of recommendation (preferably one from the Rohrer College of Business faculty)

Students enrolled in this accelerated BA/MBA program may take up to 12 credits of graduate courses at the undergraduate rate in their senior year (two in fall and two in spring), providing they meet the criteria listed above. However, students must meet with the Director of the MBA program, prior to course registration for the next semester after achieving this status, to review course work and requirements for the MBA program.

Graduation

To graduate from this accelerated dual degree program with a BA and an MBA, students must:

- Complete all requirements for the B.A. in Environmental and Sustainability Studies, including any General Education / Rowan Experience / Rowan Core requirements;
- Earn a grade of C or better in all undergraduate courses required by the B.A. in Environmental and Sustainability Studies and undergraduate pre-reqs for the MBA program;
- Complete all prerequisites for the MBA program;
- Complete all requirements for the MBA, which is a "Category 3" program at Rowan. Category 3 program students must: Earn no more than two total "C" grades of any combination of "C+" or "C." (C- grades are not acceptable.); earn no grades lower than a "C"; earn an official cumulative GPA (according to matriculation level) of at least 3.000 on Rowan's 4.000 scale

Students who enter the combined program but do not maintain satisfactory progress or who simply choose to not continue pursuing the MBA degree will be allowed to apply up to 12 credits of graduate coursework to the undergraduate degree in Environmental and Sustainability Studies. If the student "opts out" before 12 graduate credits have been completed, any remaining credits needed for the 120 credits required for the undergraduate degree will be selected through consultation between the Environmental & Sustainability Studies academic advisor, the Program Coordinator for Environmental and Sustainability Studies, and the student.

The Program Coordinator for Environmental and Sustainability Studies will meet with students who do not meet the criteria outlined above, and/or who have not gained permission to take graduate-level courses, to discuss the best alternative for the student. It is most likely that students who opt out of graduate-level courses or do not meet the criteria to take graduate-level courses will graduate with a BA in Environmental & Sustainability Studies and possibly a minor in business administration.

BACHELOR OF SCIENCE IN COMMUNITY AND ENVIRONMENTAL PLANNING

For information related to this major or minor, please contact:
John Hasse, Ph.D., AICP
856.256.4812
hasse@rowan.edu

The Bachelor of Science in Community and Environmental Planning major is a professional degree program that prepares students for positions in local, state, and federal agencies, private companies, planning departments, engineering firms, and many others as well as graduate education in planning. The program introduces students to the diversity of the planning profession while providing an understanding of the broader purpose of planning and the opportunity to focus on practice and application through research and studio credits. It is intended to serve high-achieving students interested in advanced careers in the diverse and dynamic field of planning. The program at Rowan has a special focus on sustainable community design, land conservation, and the specific planning practices and challenges of the region.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Introductory Geography Requirements 6 s.h.

MUST TAKE

GEOG16.100	Earth, People and Environment

AND Take one of the two following courses:

GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography

Methods and Practice Courses 15 s.h.

Take the following courses:

GEOG16.160	Introduction to Mapping and Geographic Information Sciences*
GEOG16.350	Quantitative and Qualitative Methods

GEOG16.390	Geography Research Clinic/Studio or Internship	
GEOG16.490	Undergraduate Research Seminar in Geography-WI (Senior Seminar)	
PLAN31.495	Planning Studio	
Planning Core:		24 s.h.
Must complete the following courses		
PLAN31.280	Foundations of Planning and Environmental Design*	
GEOG16.302	Urban Geography*	
PLAN31.380	History and Theory of Planning	
PLAN31.383	Metropolitan & Regional Planning*	
PLAN31.386	Land Use and Conservation*	
PLAN31.385	New Jersey Planning Practice*	
PLAN31.389	Environmental / Sustainable Planning*	
PLAN31.486	Community Planning & Site Design*	
Planning Program Electives		15 s.h.

Choose 5 elective program classes (15 s.h.) in consultation with your academic advisor. It is highly recommended that courses chosen contribute to completing a minor such as GIS Minor, Sustainability Science Minor, or Environmental Studies Minor.

Free Electives	33 s.h.
Program Total	120 s.h.

Bachelor of Science Community and Environmental Planning Graduation Requirements

2.00 Overall G.P.A.

2.5 Major G.P.A.

Bachelor of Science Community and Environmental Planning majors must complete all Planning Courses with a 'C' or better (classes marked with *).

Dual Degree (4+1 program): B.S. in Community and Environmental Planning with an M.S. in Urban and Regional Planning

For information related to this major or minor, please contact:
Kevin Keenan, Ph.D., AICP
856.256.4231
keenankp@rowan.edu

The 4+1 dual degree program offers students an opportunity to earn a BS in Community and Environmental Planning and an MS in Urban and Regional Planning in five years. The program combines a strong undergraduate degree focused on understanding and addressing community and environmental planning problems with the advanced perspective of urban and regional planning at the graduate level. Students graduating from this program will be extremely well-positioned to work in any planning position, thus bolstering the employment prospects of program graduates. Students interested in the program should contact the Coordinator for the Community and Environmental Planning Program in their freshman year. Students may be admitted into the program after they earn 60 credits, which usually corresponds to the end of the sophomore year. Transfer students who have fulfilled the requirements may also apply. Students admitted to the program will complete a total of 108 credits for the undergraduate program, and 12 credits of graduate coursework in urban and regional planning that is applied to the undergraduate degree. The student will then complete an additional 34 credits for the MS. The total semester hours required for the student to complete both the undergraduate BS in Community and Environmental Planning and an MS in Urban and Regional Planning is 154.

Eligibility & Admission

Students are eligible for admission if they meet the following requirements:

- Declared major in Community and Environmental Planning
- Sophomore status (60 or more credits earned)
- Minimum 3.3 GPA in undergraduate coursework
- Minimum grade of B in all Community and Environmental Planning courses

To be admitted to the accelerated program, students must submit to the program coordinator the following materials no later than 1 November of the fall semester of the student's junior year:

- An unofficial academic transcript
- 2 letters of recommendation from Rowan University faculty
- A statement of purpose (300 – 500 words) that outlines the student's educational and career goals.

Students enrolled in this accelerated BS/MS program will take 12 credits of graduate courses at the undergraduate rate in their senior year (two in fall and two in spring). The student must meet with the program coordinator during the next semester's registration period to determine the courses that the student will take.

Graduation

To graduate from this accelerated dual degree program with a BS and an MS, students must:

- Complete all requirements for the B.S. in Community and Environmental Planning, including any General Education / Rowan Experience / Rowan Core requirements;
- Earn a grade of C or better in all undergraduate courses required by the B.S. in Community and Environmental Planning;
- Complete all requirements for the MS in Urban and Regional Planning.

Student Status

The MS in Urban and Regional Planning is a "Category 3" program at Rowan. Category 3 program students must: Earn no more than two total "C" grades of any combination of "C+" or "C." (C- grades are not acceptable.); earn no grades lower than a "C"; earn an official cumulative GPA (according to matriculation level) of at least 3.000 on Rowan's 4.000 scale.

Students who enter the combined program but do not maintain satisfactory progress or who simply choose to not continue pursuing the MS degree will be allowed to apply up to 12 credits of graduate coursework to the undergraduate degree in Community and Environmental Planning. If the student "opts out" before 12 graduate credits have been completed, any remaining credits needed for the 120 credits required for the undergraduate degree will be selected through consultation between the Community and Environmental Planning academic advisor, the Program Coordinator for Community and Environmental Planning, and the student.

BACHELOR OF SCIENCE IN GEOGRAPHIC INFORMATION SCIENCE (GIS)

For information related to this major or minor, please contact:
Zachary Christman, Ph.D.
856.256.4810
christmanz@rowan.edu

The Bachelor of Science in Geographic Information Science (BSGIS) major is a professional degree program that prepares students for a range of careers dealing with geospatial technologies, modeling, and spatial problem-solving. Graduates of our program are well-prepared for positions in research laboratories, local, state, and federal agencies, private companies, planning departments, engineering firms, and many others. Our students are also excellently prepared for pursuing advanced graduate degree programs. The BSGIS program provides students with in-depth skills in GIS analysis and programming. The program has a special focus on web-based mapping, environmental sustainability and the emerging field of geodesign which coordinates well with our planning offerings.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Introductory Geography Requirements 6 s.h

Take two of the following courses

GEOG16.100	Earth, People and Environment
GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography

GIS Foundational Courses: 12 s.h.

Take the following courses:

GEOG16.160	Introduction to Mapping and Geographic Information Sciences *
GEOG16.260	Fundamentals of Geographic Information Systems*
GEOG16.290	History and Methods of Modern Geography*
GEOG16.261	Cartography*
GEOG16.350	Quantitative and Qualitative Methods*
GEOG16.360	Applications of Geographic Information Systems*
GEOG16.365	Geospatial Measurement and Environmental Modeling*
GEOG16.370	Drones, Planes, and Satellites*
GEOG16.390	Undergraduate Research Seminar in Geography-WI (Senior Seminar)*
GEOG16.490	Geography Research Clinic/Studio or Internship

Quantitative Methods Elective 3-4 s.h.

Choose one of the courses below:

CS04.103	Computer Science and Programming
MATH01.130	Calculus I
MATH01.131	Calculus II
STAT02.260	Statistics I
STAT02.261	Statistics II

GIS Electives 6 s.h.
Must complete two additional GIS or related courses (6 sh) chosen in consultation with your academic advisor. *

Geography Program Electives 12 s.h.

Majors must take four additional courses (12 sh) offered within the department, selected in consultation with the academic advisor. It is imperative that these courses are chosen to complete a second major, minor, or CUGS offered by the Department.

Free Electives 34-35 s.h.

Program Total 120 s.h.

Bachelor of Science GIS Graduation Requirements

2.00 Overall G.P.A.

2.5 Major G.P.A.

GIS BS majors must complete all GIS Courses with a 'C' or better (classes marked with *).

MINOR IN GEOGRAPHY

For information regarding all minors offered through the Department of Geography, Planning, & Sustainability please contact the Department chair.

Kevin Keenan
Chair
Discovery Hall
Room 218
856.256.4231
keenankp@rowan.edu

Total Credits 18-19 s.h.

The Minor in Geography requires students to take two of the following introductory courses (6-7 s.h.):

GEOG16.100	Earth, People, and Environment
GEOG16.130	Earth Sciences Lab (Lab)
GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography
GEOG16.160	Intro to Mapping and Geographic Information Sciences

Students then select four (4) additional geography courses in consultation with the academic advisor.

MINOR IN ENVIRONMENTAL & SUSTAINABILITY STUDIES

Total Credits 18 s.h.

Environmental Studies Core Courses 6 s.h.

Take the following required course:

ENST94.101	Planet in Peril: Environmental Science in the 21st Century

Take either of the following courses:

	ENST94.102	Human Nature: Introduction to Environmental & Sustainability Studies
OR	EVSC01.121	Global Environmental Change

Environmental Studies Electives 12 s.h.

Students must select four courses from the following list:

ANTH02.321	Cultural Ecology	3 s.h.
CEE08.436	Sustainable Technologies for the Built Environment	3 s.h.
CEE08.437	Sustainable Buildings	3 s.h.
ECON04.210	Environmental Economics	3 s.h.
ENED13.202	Approaches to Environmental Education	3 s.h.
ENST94.201	Sustainability Assessment	3 s.h.
ENST94.301	Environmental Ethics	3 s.h.
ENST94.302	Technology and the Environment	3 s.h.
ENST94.303	Environmental Advocacy	3 s.h.
ENSC01.201	Environmental Science Research Methods and Data Analysis	3 s.h.
ENST94.400	Environmental Impact Assessment	3 s.h.
EVSC01.210	Foraging for Edible Plants	3 s.h.
GEOG16.260	Fundamentals of GIS	4 s.h.
GEOG16.301	Natural Resources, Capitalism and Society	3 s.h.
GEOG16.331	Geography Of The National Parks	3 s.h.
GEOG16.334	The Geography Of Natural Disasters	3 s.h.
GEOG16.390	Geography Research Clinic / Studio	3 s.h.

GEOG16.308	Sensing the Sustainable City	3 s.h.
HES00.109	Adventure and Experiential Learning	3 s.h.
HES00.209	Adventure Process and Facilitation	3 s.h.
HES00.309	Wilderness First Responders	3 s.h.
HLT00.303	Environmental Issues and Health	3 s.h.
MGT06.381	Sustainable Business	3 s.h.
HIST05.333	Environmental History	3 s.h.
REL10.331	Spirituality and Nature	3 s.h.
RTF03.351	Experiencing Documentary	3 s.h.
PLAN31.384	Water Resources Planning	3 s.h.
PLAN31.386	Land Use And Conservation	3 s.h.
PLAN31.389	Environmental / Sustainable Planning	3 s.h.
POSC07.385	Environmental Policy	3 s.h.
PSY05.205	Environmental Psychology	3 s.h.
SOC08.400	Environment, Policy & Society	3 s.h.
SOC08.442	Environmental Justice: Race, Class, and Gender	3 s.h.
WA01.325	Scientific Writing & Rhetoric	3 s.h.
WA01.326	Writing for Nonprofits	3 s.h.
WA00.335	Environmental Writing and Rhetoric	3 s.h.

MINOR IN COMMUNITY & ENVIRONMENTAL PLANNING

Total Credits 18 s.h.

The Minor in Planning requires students to take one of the following introductory courses:

GEOG16.100	Earth, People and Environment
GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography

Must take the following course:

PLAN31.280	Foundations of Planning & Environmental Design

Students then select any four (4) other courses from the Planning Bank in consultation with the academic advisor.

MINOR IN GEOGRAPHIC INFORMATION SYSTEMS

Total Credits 18 s.h.

The Minor in GIS requires students to take one of the following introductory courses:

GEOG16.100	Earth, People and Environment
GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography

Must take the following two courses:

GEOG16.160	Introduction to Mapping and GIS
GEOG16.260	Fundamentals of Geographic Information Systems

Students then select any three courses (9 s.h.) from the Geospatial Techniques Bank in consultation with the academic advisor.

MINOR IN APPLIED GEOGRAPHIC KNOWLEDGE AND SKILLS (GeoEducation)

Total Credits 18 s.h.

(replaces previous coordinate education dual major track) Take the following courses:

GEOG16.241	Geography of New Jersey
GEOG16.304	Population Geography
GEOG16.355	Foundations in Geographic Knowledge

- Take at least one (1) course in the Regional Geography course bank.
- Take any two other geography courses in consultation with the Geography Program Coordinator.

Note: For dual majors on track for teacher certification, the Applied Geographic Knowledge and Skills minor will layer on top of the base geography BA program requirements fulfilling the 18 s.h. of program elective credits. Coordinate education majors are allowed to use their student teaching experience to fulfill the GEOG16.390 requirement for geography.

MINOR IN GEOSCIENCE

Total Credits 24 s.h.

Students must take one of the following introductory courses:

GEOG16.100	Earth, People and Environment
GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography

Must take the following two lab courses

GEOL01.101	Physical Geology
GEOG16.130	Earth Sciences Lab

Then select three (3) courses from the Geosciences Course bank in consultation with the academic advisor.

MINOR IN GEOGRAPHIC INQUIRES INTO GLOBAL ISSUES

Total Credits 18 s.h.

Must take:

GEOG16.140	World Regional Geography

- Select any two courses from the Geographic Studies Bank (note: courses selected cannot double count for fulfilling geography core requirements)
- Select any two courses from the Regional Bank
- Select any one other Geography course in consultation with the academic advisor.
- *Note: (A study abroad experience, field course, or internship related to global issues is strongly recommended and can be used to fulfill the above requirements with prior approval, but is not required at this time. Foreign Language courses are also highly recommended for this minor.)*

MINOR IN SUSTAINABILITY SCIENCE

Total Credits 18-21 s.h.

Required: *Students must take each of the following classes:*

GEOG16.100	Earth, People, and Environment
ENST94.102	Human Nature: Intro. to Environmental and Sustainability Studies
GEOG16.260	Fundamentals of GIS

In consultation with the academic advisor, a student will choose a course of study that matches the student's interests. The student will choose 2 classes from the list of courses in one of the following banks: Social Sciences Bank; Natural and Systems Science Bank; Environmental Methods and Modelling Bank. The student will then choose 1 additional course from the list of courses in **one** of the other banks.

Social Science Bank

GEOG16.301	Natural Resources, Capitalism, and Society
GEOG16.308	Sensing the Sustainable City
GEOG16.334	Geography of Natural Disasters
ENST94.201	Sustainability Assessment
PLAN31.280	Foundations of Planning and Environmental Design

Natural and Systems Science Bank

GEOG16.331	Geography of the National Parks
GEOG16.332	Geomorphology
GEOG16.391	Climatology
GEOG16.338	Principles of Earth Science
GEOG16.133	Meteorology
BIOL01.203	Introduction to Cell Biology
BIOL01.204	Introduction to Ecology
CHEM06.101	Chemistry II

Environmental Methods and Modelling Bank

GEOG16.350	Quantitative and Qualitative Methods
GEOG16.360	Applications of Geographic Information Systems
GEOG16.365	Geospatial Measuring and Environmental Modeling
GEOG16.370	Drones, Planes, and Satellites
GEOG16.375	Remote Sensing of the Environment

MINOR IN SUSTAINABLE BUILT ENVIRONMENTS

Total Credits 21-22 s.h.

Required:

GEOG16.160	Introduction to Mapping and Geographic Information Science
PLAN31.280	Foundations of Planning and Environmental Design
PLAN31.389	Environmental/Sustainable Planning
CEE08.436	Sustainable Technologies for the Built Environment
CEE08.437	Green Buildings

Students must choose two (2) additional courses from the Sustainable Built Environment course bank or alternate courses approved in consultation with the academic advisor.

CERTIFICATE OF UNDERGRADUATE STUDY IN CRIME MAPPING AND CRIME ANALYSIS

The Certificate of Undergraduate Study (CUGS) in Crime Mapping and Crime Analysis will prepare students for careers as crime analysts by providing them with both hands on and theoretical content that is relevant to crime analysis work. Geography, Planning, and sustainability courses ensure that students are provided a background in spatial data, the operation of geographic information systems, and geographic concepts related to analyzing and displaying spatial data and information. Law and Justice courses provide students with experience performing actual crime analysis functions and how to take the results of analyses that are learned and present them in ways that are relevant and practical to police practitioners.

Certificate of Undergraduate Study in Crime Mapping and Crime Analysis 15 s.h.

The requirements include the following five courses:

Three of the five courses will serve as the foundation of the CUGS and will be taken early on in the pursuit of the CUGS. These courses may also be used to fulfill curriculum requirements of the Law and Justice Studies and Geography, Planning, and Sustainability degree programs. They will operate without prerequisites. These courses are:

LAWJ05.364	Critical Issues in American Law Enforcement
GEOG16.160	Introduction to Mapping and Geographic Information Science
LAWJ05.381	Crime Mapping and Crime Analysis I

Upon completion of these three courses, students will begin pursuing the remaining two advanced courses. These courses are:

GEOG16.260	Fundamentals of Geographic Information Systems
LAWJ05.382	Crime Mapping and Crime Analysis II

GEOG16.260 has a prerequisite of either GEOG06.193 or GEOG16.160. Students may fulfill either of these prerequisites; however, GEOG16.160 is a required course for successful CUGS completion. Crime Mapping and Crime Analysis II will have a prerequisite of Crime Mapping and Analysis I. In addition to this prerequisite, students have two options in fulfilling a second requirement before enrolling in Crime Mapping and Crime Analysis II. With instructor or program advisor approval, students may concurrently enroll in the prerequisite, GEOG16.260, and Crime Mapping and Crime Analysis II. To be awarded the CUGS in Crime Mapping and Crime Analysis, students must complete all courses required for the CUGS in Crime Mapping and Crime Analysis with at least a 2.0 average.

CERTIFICATE OF UNDERGRADUATE STUDY IN ENVIRONMENTAL HUMANITIES

Kevin Keenan, Ph.D., AICP
Discovery Hall, Room 218
856.256.4231
keenankp@rowan.edu

This CUGS in Environmental Humanities introduces students to the methods of the Humanities to interrogate the human contexts of environmental issues, which are crucial for effectively applying STEM findings and developments in complex cultural worlds. At the same time, this program offers students in the Humanities opportunities to explore how the critical thinking and communication skills they have developed might be applied to other fields and career paths.

Certificate of Undergraduate Study in Environmental Humanities 12 s.h.

Take any four of the following courses:

ENST94.301	Environmental Ethics
ENST94.302	Technology & the Environment
REL10.331	Spirituality & Nature
ENGL02.123	Experiencing Literature ("Literature & the Environment" sections **only**)
GEOG16.308	Sensing the Sustainable City
WA01.325	Scientific Writing & Rhetoric

CERTIFICATE OF UNDERGRADUATE STUDY IN FOOD SYSTEMS PLANNING

Mahbubur Meenar
Discovery Hall
856.256.5812
meenar@rowan.edu

Food systems planning is an emergent subfield of planning that has gained popularity among the planning community through the recognition of the economic, environmental and social benefits of a strong regional food system. This recognition has led to the rise of planning-related policies and programs that focus on supporting regionally-based food supply chains and developing a strong regional food identity. The American Planning Association is now incorporating food systems planning as an important dimension of its advocacy and professional training. The CUGS in Food Systems Planning provides students with a foundation in community and regional planning concepts along with a specific focus on how food can foster community and individual-level health, local and regional economic development, and food justice. This CUGS complements the other programs already being offered in the GPS department, and will add to students' in other departments' degree experiences by adding an explicit focus on community and environmental planning topics related to

community and regional food systems.

Certificate of Undergraduate Study in Food Systems Planning 12 s.h.

Students must take the following 3 courses:

PLAN31.280	Foundations of Planning and Environmental Design
PLAN31.387	Food Systems Planning
PLAN31.386	Land Use and Conservation

In addition, students must take one of the following courses:

ANTH02.240	Food and Culture
EVSC01.122	Future of Food
EVSC01.210	Foraging for Edible Plants
NUT00.410	Nutrition and Public Health
PLAN31.389	Environmental/Sustainability Planning
GEOG16.307	Geography of Transportation
PLAN31.495	Planning Studio

CERTIFICATE OF UNDERGRADUATE STUDY IN GEOGRAPHIC INFORMATION SYSTEMS AND SCIENCE (GIS)

Zachary Christman
GIS Program Coordinator
Discovery Hall
856.256.4810
christmanz@rowan.edu

Geospatial and mapping technologies have been important throughout history but have become indispensable during the past several decades. This CUGS in GIS provides a foundation in GIS, and it provides a means of enhancing the resumes of students of various majors with a certificate indicating to employers their readiness to perform and support GIS activities. This CUGS exposes students in disciplines such as business, engineering, political science, psychology, communication, the natural sciences, and education to key concepts, practices, and techniques in GIS and their application to geospatial/environmental problems. Engineering students in particular will benefit from this program because they are often interested in gaining GIS credentials but are unable to complete all 18 credits necessary for the GIS minor.

Certificate of Undergraduate Study in GIS 13 s.h.

The requirements include the following four courses:

GEOG16.160	Introduction to Mapping and Geographic Information Systems
GEOG16.260	Fundamentals of Geographic Information Systems
	Geospatial Bank Course #1
	Geospacial Bank Course #2

In consultation with an advisor, students choose **any two** of the department's Geospatial Bank courses (6 s.h.) which include: GEOG16.261 (Cartography); GEOG16.350 (Quantitative Methods in Geography); GEOG16.360 (Applications of GIS); GEOG16.361 (Geovisualization); GEOG16.365 (Geospatial Measurement and Environmental Modeling); GEOG16.370 (Drones, Planes, and Satellites); GEOG16.375 (Remote Sensing of the Environment); GEOG16.462 (Web Mapping and GIS Services)

To be awarded the CUGS in GIS, students must complete all courses required for the CUGS in GIS with at least a 2.0 average. This CUGS is available to students not enrolled in the Bachelor of Science in GIS and BS GIS Minor programs.

CERTIFICATE OF UNDERGRADUATE STUDY IN SUSTAINABLE URBANISM

Jen Kitson
Coordinator
Discovery Hall
856.256.4817
kitson@rowan.edu

Two global imperatives make knowledge of sustainable urbanism a critical topic in the 21st century: first, the majority of the world's population is now urban; and second, the cumulative effects of urban life are generating the most pressing global environmental problems facing humanity. Cities, in short, are both the cause of major environmental problems and the solution. With our population expected to reach 9.6 billion by 2050, humanity's future is hinged upon our ability to make cities sustainable: the capacity to meet the needs of the present, without comprising the needs of future generations. To support humanity in the 21st century, we must re-think the processes of urban environments in regards to both their built form and social practices. This Certificate of Undergraduate Study (CUGS) emphasizes the social and place-based dimensions of sustainability, from issues of social equity to the role of communication technologies and aesthetics. Students in disciplines such as business, engineering, political science, psychology, communication, the natural sciences, and education will be exposed to key concepts, practices, and technologies in sustainability and their application to urban

environments. This certificate in sustainable urbanism will position students from diverse disciplines for employment in the burgeoning green economy.

Certificate of Undergraduate Study in Sustainable Urbanism 12 s.h.

The curriculum for the CUGS in Sustainable Urbanism is as follows:

1. Students must take PLAN31.280 – Foundations of Planning and Environmental Design (3 s.h.)
2. Students must take **any three** courses from the following list (9 s.h.): ENST94.102 (Human Nature: Introduction to Environmental & Sustainability Studies); ENST94.302 (Technology and the Environment); GEOG16.302 (Urban Geography); GEOG16.301 (Economic Geography); GEOG16.304 (Population Geography); GEOG16.312 (Cultural Landscapes); PLAN31.389 (Environmental/Sustainable Planning); PLAN31.486 (Community Planning & Design).

To be awarded the CUGS in Sustainable Urbanism, students must complete all courses required for the CUGS in Sustainable Urbanism with at least a 2.0 average. This CUGS is available to students not enrolled in the BS Sustainable and Community Planning or Planning Minor programs.

Geography Planning, & Sustainability Course Banks

Geographic Studies Bank

GEOG16.100	Earth, People & Environment
GEOG16.110	Cultural Geography
GEOG16.140	World Regional Geography
GEOG16.240	Geography of the US and Canada
GEOG16.250	Selected Topics in Geography & Environment
GEOG16.290	History and Methods of Modern Geography
GEOG16.301	Natural Resources, Capitalism, and Society
GEOG16.302	Urban Geography
GEOG16.303	Political Geography
GEOG16.304	Population Geography
GEOG16.312	Cultural Landscapes
GEOG16.391	Directed Geographic Field Experiences
GEOG16.490	Undergraduate Research Seminar in Geography
GEOG16.491	Independent Study
GEOG16.553	Workshop in Geography (graduate level)
GEOG16.591	Independent Study (graduate level)

Regional Geography Bank

GEOG16.140	World Regional Geography
GEOG16.240	Geography of the United States and Canada
GEOG16.241	Geography of New Jersey
GEOG16.342	Geography of Europe
GEOG16.343	Geography of Asia
GEOG16.344	Geography of Latin America
GEOG16.345	Geography of Africa
GEOG16.346	Geography of Russia and Its Neighbors
GEOG16.347	Geography of the Middle East

Geosciences Bank

GEOG16.100	Earth, People & Environment
GEOG16.130	Earth Sciences Lab
GEOG16.331	Geography of the National Parks
GEOG16.332	Geomorphology
GEOG16.334	The Geography of Natural Disasters
GEOG16.335	Field Studies in Geography
GEOG16.338	Climatology
GEOG16.370	Drones, Planes, and Satellites
GEOG16.131	Principles of Earth Science
GEOG16.133	Meteorology

Geospatial Techniques Bank

GEOG16.160	Introduction to Mapping and GIS
GEOG16.260	Fundamentals of Geographic Information Systems
GEOG16.261	Cartography
GEOG16.350	Quantitative and Qualitative Methods in Geography
GEOG16.360	Applications of Geographic Information Systems
GEOG16.361	Geovisualization
GEOG16.365	Geospatial Measuring and Environmental Modeling
GEOG16.370	Drones, Planes, and Satellites
GEOG16.371	Remote Sensing II

GEOG16.375	Remote Sensing of the Environment
GEOG16.460	GEO INFO SYS
GEOG16.462	Web Based GIS Mapping
GEOG16.565	GIS Topics and Applications (graduate level)

Planning Bank

GEOG16.160	Introduction to Mapping and GIS
GEOG16.241	Geography of New Jersey
GEOG16.308	Sensing the Sustainable City
PLAN31.280	Foundations of Planning & Environmental Design
PLAN31.380	History and Theory of Planning
PLAN31.383	Metropolitan/Regional Planning
PLAN31.384	Water Resources Planning
PLAN31.386	Land Use and Conservation
PLAN31.385	New Jersey Planning Practice
PLAN31.387	Food Systems Planning
PLAN31.389	Environmental/Sustainable Planning
PLAN31.486	Community Planning and Site Design
PLAN31.495	Planning Studio
GEOG16.301	Natural Resources, Capitalism, and Society
GEOG16.302	Urban Geography
GEOG16.304	Population Geography
GEOG16.307	Geography of Transportation
GEOG16.335	Field Studies in Geography
GEOG16.361	Geovisualization
GEOG16.370	Drones, Planes, and Satellites
ENST94.400	Environmental Impact Assessment

Environmental Bank

ENST94.101	Planet in Peril: Environmental Science in the 21st Century
ENST94.102	Human Nature: Introduction to Environmental & Sustainability Studies
ENST94.301	Environmental Ethics
ENST94.302	Technology & the Environment
ENST94.202	Environmental Science Research Methods & Data Analysis
ENST94.400	Environmental Impact Assessment
ENST94.401	Senior Seminar in Environmental Studies I

Sustainable Built Environments Bank

PLAN31.384	Water Resources Planning
PLAN31.386	Land Use and Conservation
PLAN31.486	Community Planning & Site Design
ENST94.302	Technology & the Environment
ENST94.400	Environmental Impact Assessment
GEOG16.361	Geovisualization
GEOG16.390	Geography Research Clinic/Studio
CEE08.311	Environmental Engineering I
CEE08.312	Sustainable Civil and Environmental Engineering
CEE08.342	Water Resources Engineering
CEE08.412	Environmental Treatment Process Principles
CEE08.432	Pollutant Fate I Transport Principles
CEE08.422	Site Remediation Engineering Principles
CEE08.433	Principles of Integrated Solid Waste Management

Virtua Health School of Nursing & Health Professions

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About the School

The Virtual Health School of Nursing & Health Professions provides rigorous academic instruction, exceptional clinical and internship experiences, and interprofessional opportunities for students interested in careers in nursing and health-related fields. Our students learn from accomplished faculty in a collaborative environment and gain hands-on training both on and off campus.

Departments

The Virtua Health School of Nursing & Health Professions consists of three departments: Allied Health, Health & Exercise Science, and Nursing.

Programs Offered

The Department of Health & Exercise Science offers the following undergraduate degrees:

Athletic Training – MS (BS in Athletic Training Studies earned en route to MS – students must apply to MS as freshmen)
Exercise Science - BS
Health Studies – BA (degree completion program)
Health Promotion and Wellness Management – BA
Nutrition - BS
- BS in Nutrition
- BS Nutrition with Dietetics Concentration (restricted BS - leads to an MS in Nutrition and Dietetics)

Public Health and Wellness - BS
Fitness Management – BA (3+1 degree completion program with Rowan College of South Jersey)

Minors within the Department of Health and Exercise Science

- Public Health and Wellness
- Psychology of Sport & Exercise

Certificates of Undergraduate Studies (CUGS)

- Adventure Leadership Education
- Psychology of Sport & Exercise
- Sport Management

Endorsement

Undergraduate Endorsement: Teacher of Driver Education

At the undergraduate level, the Department of Nursing offers:

Nursing - RN to BSN.

Programs in Nursing are offered through Rowan Global Learning & Partnerships.

Post-Baccalaureate

Pre-Health Studies Post-Baccalaureate

Department of Allied Health

The Department of Allied Health is a new department under the Virtua Health School of Nursing & Health Professions. It will be the academic home of Respiratory Therapy. This comprises two undergraduate programs: Entry into Practice and Degree Advancement.

The **Entry into Practice Bachelor of Science in Respiratory Therapy (BSRT)** is designed for students who have completed an appropriate pre-professional associate's degree or required pre-professional courses. Upon acceptance into the program, students will complete two years (60 semester hours) of professional advanced study and clinical coursework to earn the Bachelor of Science in Respiratory Therapy. Graduates of the program will be eligible to sit for the National Board for Respiratory Care (NBRC) exam. The program goals of the Entry into Practice BSRT are:

- To prepare graduates with demonstrated competence in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains of respiratory care practice as performed by Registered Respiratory Therapists (RRTs); and
- To prepare leaders for the field of respiratory care by including curricular content with objectives related to the acquisition of skills in one or more of the following: management, education, research and advanced clinical practice (which may include an area of clinical specialization).

The **Degree Advancement Bachelor of Science in Respiratory Therapy (BSRT)** is designed for individuals who have completed an associate's degree in respiratory care and who hold the RRT credential. Students will complete one year (30 semester hours) of professional advanced study and additional coursework as needed to earn the Bachelor of Science in Respiratory Therapy. The program goal of the Degree Advancement BSRT is:

- To provide graduates of entry into respiratory care professional practice degree programs with additional knowledge, skills, and attributes in leadership, management, education, research, and/or advanced clinical practice that will enable them to meet their current professional goals and prepare them for practice as advanced degree respiratory therapists.

BACHELOR OF SCIENCE IN RESPIRATORY THERAPY (B.S.) ENTRY INTO PRACTICE

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The Bachelor of Science in Respiratory Therapy (BSRT) entry-level program responds to the need to educate the next generation of respiratory care professionals to lead this dynamic area of health care. The program is designed for students who have completed foundational and general education coursework in a pre-health professions associate's degree and offers two years of professional advanced study and clinical coursework culminating in a Bachelor of Science in Respiratory Therapy. The entry-level program is intended for students with no prior knowledge or clinical skills in respiratory care. Graduates of the program will be eligible to sit for the National Board for Respiratory Care (NBRC) examination. The program will accept its charter class for Fall 2023, pending achievement of provisional accreditation by the Commission on Accreditation for Respiratory Care (CoARC).

- Students are admitted with an earned associate's degree in pre-health professions.
- Students must fulfill the general education requirements of Rowan Core, either through the transfer of credits or completion of courses at Rowan University, and meet pre-requisite requirements for advanced and clinical coursework.
- Additional coursework may be required, depending on the number of credits transferred to Rowan University.
- Students must complete all required clinical courses with a grade of "C" or higher.
- Students must meet Rowan University requirements for graduation, including general education and minimum GPA requirements, along with program requirements.

Course of Study

Rowan University requires a minimum of 120 credits to be taken within approved general education and major coursework in order to graduate with a Bachelor's degree. To obtain the Bachelor of Science in Respiratory Therapy, all students complete the following coursework:

- 60 credits minimum from the associate's degree
- 60 credits respiratory therapy program coursework

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Program Requirements

Required Courses

(s.h.: semester hours/credit hours)

RESP09.300	Fundamentals of Respiratory Care Lecture	3 s.h.
RESP09.301	Fundamentals of Respiratory Care Lab	2 s.h
RESP09.302	Cardiopulmonary Anatomy & Physiology	3 s.h
RESP09.303	Respiratory Care Pharmacology	2 s.h
RESP09.304	Critical Care	3 s.h
RESP09.305	Clinical Practice I	2 s.h
RESP09.310	Principles of Ventilatory Support I Lecture	3 s.h
RESP09.311	Principles of Ventilatory Support I Lab	2 s.h
RESP09.306	Cardiopulmonary Evaluation	3 s.h
RESP09.307	Cardiopulmonary Pathophysiology	3 s.h
RESP09.315	Clinical Practice II	2 s.h
RESP09.410	Principles of Ventilatory Support II Lecture	3 s.h
RESP09.411	Principles of Ventilatory Support II Lab	2 s.h
RESP09.402	Pediatric & Neonatal Respiratory Care Lecture	3 s.h
RESP09.403	Pediatric & Neonatal Respiratory Care Lab	1 s.h
RESP09.400	Introduction to Clinical Research	3 s.h
RESP09.425	Clinical Practice III	3 s.h
RESP09.404	Respiratory Care in the Long Term, Home Care and Rehab Setting	3 s.h
RESP09.401	Evidence-Based Practice	3 s.h
HCNV07.401	Interprofessional Teamwork in Healthcare	2 s.h
HCM51.101	Introduction to Healthcare Management	3 s.h
RESP09.435	Clinical Practice IV	3 s.h
RESP09.450	Senior Seminar	3 s.h
Total Hours		60 s.h.
Total Hours Required for Graduation		120 s.h.

BACHELOR OF SCIENCE IN RESPIRATORY THERAPY (B.S.) DEGREE ADVANCMENT

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The Bachelor of Science in Respiratory Therapy (BSRT) Degree Advancement program responds to the need to enhance the credentials and skills of the respiratory therapy workforce. Trends in the profession, developments in healthcare services, and the COVID-19 pandemic have combined to create unprecedented demand for a bachelor's degree program. This degree-advancement program is designed for students holding the RRT credential and offers one year of professional advanced study, leading to the Bachelor of Science in Respiratory Therapy

- Students are admitted with an earned associate's degree from an accredited respiratory therapy program and a Registered Respiratory Therapist credential.
- Students must fulfill the general education requirements of Rowan Core, either through the transfer of credits or completion of courses at Rowan University.
- Additional coursework may be required, depending on the number of credits transferred to Rowan University.
- Students must meet Rowan University requirements for graduation, including general education and minimum GPA requirements, along with program requirements.

Course of Study

Rowan University requires a minimum of 120 credits to be taken within approved general education and major coursework in order to graduate with a Bachelor's degree. To obtain the Bachelor of Science in Respiratory Therapy, all students complete the following coursework:

- 60 credits minimum from the associate's degree
- 30 credits in free electives or general education (Rowan Core)
- 30 credits in respiratory therapy program coursework

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Program Requirements

Required Courses

(s.h.: semester hours/credit hours)

WA01.330	Medical Writing and Rhetoric	3 s.h.
RESP09.460	Advanced Concepts in Respiratory and Critical Care	3 s.h.
RESP09.400	Introduction to Clinical Research	3 s.h.
RESP09.401	Evidence-based Practice	3 s.h.
RESP09.461	Disease Management	3 s.h.
RESP09.462	Ethics and End of Life Issues	3 s.h.
HCM51.301	Healthcare Delivery and Quality	3 s.h.
RESP09.463	Polysomnography and Topics in Sleep Medicine	3 s.h.
RESP09.464	Leadership in Respiratory Care	3 s.h.
RESP09.465	Capstone	3 s.h.
Total Hours		30 s.h.
Total Hours Required for Graduation		120 s.h.

Department of Health and Exercise Science

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Chair
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The Department of Health and Exercise Science prepares professionals who can assume leadership roles in health care professions, health promotion, exercise science, nutrition, and public health. Career opportunities include providing healthcare to athletes; managing health promotion programs in the community, corporate and medical settings, and developing exercise and performance enhancement, and nutritional programs for athletes, patients, and clients.

The Department of Health and Exercise Science offers undergraduate programs in the following majors:

The Bachelor of Science in Athletic Training Studies (BSATS) is designed for a dual purpose: 1) to enable students to successfully complete the Master of Science in Athletic Training; 2) allow students to apply to another allied healthcare professional school (i.e., PT, OT, etc.) or athletic training program within or outside the state should they either choose not to, or cannot complete the MSAT requirements. Hence, students who choose not to finish or cannot complete the MSAT requirement will be able to graduate within their original graduation timeline. This degree will also be awarded en route to completing the MSAT for students successfully completing all academic requirements. **The BSATS will not be available to incoming freshmen**.

The Bachelor of Science in Exercise Science (120 s.h.) prepares students interested in careers related to the field of Exercise Science. These include clinical exercise physiology, medical and hospital-based exercise and fitness programs, strength and conditioning, corporate and community-based fitness and wellness centers along with other exercise science related fields. Students develop the knowledge, skills, and disposition to successfully promote improvements in health, fitness, and performance for a variety of populations. Graduates will be prepared to earn national certifications through the American College of Sports Medicine, the National Strength and Conditioning Association, the National Academy of Sports Medicine, the International Society of Sports Nutrition and others. In addition, students will be uniquely prepared to succeed in graduate programs in cardiac rehabilitation, physical and occupational therapy, physician assistant and accelerated nursing programs, medical and chiropractic programs, and other allied health care professions.

The Bachelor of Arts in Health Studies (60 s.h.) provides a degree completion program for those students who have a two-year Associate in Applied Science (AAS) degree in medical technology, or clinical assistant certification. Individuals with an AAS in a healthcare tech. related area may also be eligible and should contact the program advisor to ascertain eligibility. This program will provide students with a path to a Bachelor's degree and with critical professional skills not covered in AAS degree programs that will make them highly competitive in the job market. Graduates will be prepared to enter or continue in the workforce with greater awareness of and ability to implement critical professional skills, and/or be competitive for advancement within their profession.

The Bachelor of Arts in Health Promotion & Wellness Management (120 s.h.) is designed to prepare graduates for careers supporting health and wellness in private fitness facilities, corporate health and wellness centers, and private and non-profit community and public health programs.

The Bachelor of Science in Nutrition (120 s.h.) prepares graduates to work as nutrition educators and counselors to serve clients in hospitals, worksites, community, and school-based wellness and fitness programs. The BS in Nutrition is a stand-alone degree program; however, students can apply for admission into a highly competitive dietetics concentration in their second year in the program. Students who are accepted into the dietetics concentration will participate in coursework that provides the foundation for them to pursue the **Master of Science in Nutrition & Dietetics** to become Registered Dietitians. Students must apply to the professional phase of study (junior and senior year in the programs) in the **spring of their sophomore year**.

The Bachelor of Science in Public Health and Wellness (120 s.h.) prepares graduates for a wide range of careers in public health, community health, wellness and health promotion. The curriculum includes courses in the areas of health

program planning, implementation and evaluation; wellness coaching, stress management and behavior change; and nutrition and exercise science. Relevant current issues related to social justice, global and environmental sustainability and addressing worldwide pandemic threats are also explored. Graduates are prepared to successfully become Certified Health Education Specialists (CHES). The program is in the process of becoming accredited through the Council on Education in Public Health (CEPH). Students have multiple opportunities to gain professional experience outside of the classroom, including a semester-long senior internship. Graduates are prepared for entry into professional positions and for graduate studies in the areas of public health, wellness and lifestyle management, wellness coaching, and social services.

The Bachelor of Arts in Fitness Management (120 s.h.) is a 3+1 program in collaboration with Rowan College of South Jersey designed as a practical degree for students desiring a career in the fitness industry. It will provide graduates with the required knowledge and skills needed to utilize medical histories and fitness testing to assess individuals' health-related fitness needs, and help individuals design and implement exercise, nutritional, and lifestyle plans to improve health and monitor their progress. It is also designed to teach graduates the ability to communicate effectively with clients and participants in a variety of fitness-related settings and to demonstrate leadership in both program and facility design and development.

Additional Program Information

All students complete courses in General Education, and core and an academic concentration for their major. The upper-level major and/or concentration courses are specific and unique to the professional preparation of the student.

The Department has a two-level admission and retention policy. Students seeking admission into Health and Exercise Science programs must meet the admission standards established for all Rowan University students. In order to be admitted into and continue with any major, a student must demonstrate an above-average academic ability and be involved in professional-related activities. Each of the majors offered within the department provides students with numerous experiences and opportunities to grow professionally.

The philosophy of the department is to extend the classroom knowledge and theory into field experience settings. For Students in Health Promotion and Wellness Management, Exercise Science, Public Health and Wellness, and Nutrition, internships are completed in corporate wellness facilities, strength and conditioning facilities, physical and occupational therapy companies, community health agencies, and hospital-based wellness and rehabilitation centers. Athletic Training students gain clinical experiences with different patient populations and clinical settings.

BACHELOR OF SCIENCE IN ATHLETIC TRAINING STUDIES

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The Bachelor of Science in Athletic Training Studies (BSATS) is designed for a dual purpose: 1) to enable students to successfully complete the Master of Science in Athletic Training; 2) allow students to apply to another allied healthcare professional school (i.e., PT, OT, etc.) or athletic training program within or outside the state should they either choose not to, or cannot complete the MSAT requirements. Hence, students who choose not to finish or cannot complete the MSAT requirement will be able to graduate within their original graduation timeline. This degree will also be awarded en route to completing the MSAT for students successfully completing all academic requirements. **The BSATS will not be available to incoming freshmen**.

Freshman students will apply to the Pre-Athletic Training Curriculum when applying to Rowan University. The first three years of the BS in Athletic Training Studies will match up with the Pre-Athletic Training Curriculum. In the spring of the 3rd year, eligible students can apply to the Athletic Training Program. Those who are accepted will begin taking graduate-level courses in the summer after their junior year. Those not accepted to the Athletic Training Program will need to either change their major to Exercise Science or reapply to the Athletic Training Program one year later during the scheduled application cycle. The BSATS will only be available to those students who are unable to continue in the Athletic Training Program or choose not to continue in the Athletic Training program once they have been accepted. Please see the Master of Science in Athletic Training course sequence in the Graduate Catalog.

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Students must earn a grade of at least a C in each course under Non-program and Program requirements to be eligible to apply to the Master of Science in Athletic Training. Students must also maintain a 3.0 overall and major GPA to be eligible to apply to the MSAT. Students not accepted into the MSAT are required to maintain a 2.0 overall GPA to graduate with a BS in Athletic Training Studies.

Non-Program Requirement (29 s.h.)

BIOL10.210	Anatomy & Physiology I	4 sh
BIOL10.212	Anatomy & Physiology II	4 sh
CHEM06.100	Chemistry I	4 sh
PHYS00.150 or PHYS00.210	Physics of Everyday Life or Physics I – no calc	4 sh
MCB01.101	Foundations of Biology	4 sh
PSY01.107	Essentials of Psychology	3 sh
STAT02.260	Statistics I	3 sh
	Writing Intensive Course/Choice	3 sh

Required Courses (34 s.h.)

ATR00.105	Introduction to Healthcare in Sports Medicine	3 sh
ATR00.210	Foundations in Sports Medicine I	3 sh
ATR00.339	Foundations in Sports Medicine II	3 sh
ATR00.340	Foundations in Sports Medicine III	3 sh
HES00.349	Exercise Physiology in Health Care Professions	4 sh
HES00.401	Exercise Prescription	3 sh
HES00.346	Introduction to Biomechanics	3 sh
ATR00.347	Applied Biomechanics	3 sh
NUT00.200	Basic Nutrition	3 sh
NUT00.415	Nutrition for Fitness	3 sh
STAT02.323	Applied Statistical Analysis in Health Care	3 s.h.

Students who are not accepted into the Master of Science in Athletic Training (MSAT) Program will be advised to change their major to Exercise Science. The BSATS degree is for those students who have been suspended from or have decided not to continue in the MSAT. For these students, the courses listed below must also be taken. For those continuing into the MSAT, the 4th-year graduate courses will fulfill the BS in Athletic Training Studies requirements.

BSATS required courses for students not continuing to MSAT (15 s.h.)

HES00.348	Human Disease & Epidemiology in Health & Exercise Science	3 sh
HLT00.370	Introduction to Sport and Exercise Physiology	3 sh
HES00.301	Research Methods in Health & Exercise Science	3 sh
HLT00.371	Social Psychology of Sport	3 sh
HES00.412	Exercise for Special Populations	3 sh
Free Electives		27 s.h.
Total Hours Required for Graduation (with Gen Ed Courses)		120 s.h.

BACHELOR OF SCIENCE IN EXERCISE SCIENCE

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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Required Courses

To complete the program, students must have a minimum 2.00 overall GPA, 2.00 GPA in the major.

HES00.105	Foundations of Exercise Science	3 s.h.
MCB01.101	Foundations in Biology for Biomedical Science I	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Science II	4 s.h.
BIOL10.210	Anatomy and Physiology I	4 s.h.
BIOL10.212	Anatomy and Physiology II	4 s.h.
PSY01.107	Essentials of Psychology	3 s.h.
CHEM06.100	Chemistry 1	4 s.h.
HES00.116	Safety, First Aid & Basic Understanding of Athletic Injury	3 s.h.
NUT00.200	Basic Nutrition	3 s.h.
HES00.201	Essentials of Strength and Conditioning	3 s.h.
HES00.243	Motor Control and Learning	3 s.h.
STAT02.260	Statistics 1	3 s.h.
HES00.346	Introduction to Biomechanics	3 s.h.
HES00.349	Exercise Physiology for the Health Care Professions	4 s.h.
HPW00.350	Health Behavior Theory and Counseling	3 s.h.
HES00.301	Research Methods in Health and Exercise Science	3 s.h.
HPW00.360	Facility & Program Management in Wellness	3 s.h.
HES00.348	Human Disease and Epidemiology in HES	3 s.h.
NUT00.415	Nutrition for Fitness	3 s.h.
HES00.401	Exercise Prescription	3 s.h.
HES00.412	Exercise for Special Populations	3 s.h.
HES00.402	EKG Interpretation and Basic Pharmacology in HES	3 s.h.
ATR00.347	Applied Biomechanics	3 s.h.
HES00.413	Senior Seminar in Exercise Science	3 s.h.
HES00.484	Senior Internship in Exercise Science	6 s.h.
Total Semester Hours		120 s.h.

BACHELOR OF ARTS IN HEALTH STUDIES (B.A.)

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The Bachelor of Arts in Health Studies provides a degree completion program for those students that have an Associate's Degree within a Medical Technology (MT) or Clinical Medical Assistant (CMA) profession (e.g., ultrasound, radiology, etc). Students must also have a certification in one of these areas to apply to this program. Individuals with an AAS in a healthcare tech. related area may also be eligible and should contact the program advisor to ascertain eligibility. This program will provide students with critical professional skills not covered in the Associate's Degree program that will make them highly competitive in the job market. These skills include but are not limited to: professionalism, adaptability, problem-solving, leadership, multicultural sensitivity, and planning and organization.

The first two years of this program are fulfilled by completing an AAS degree. Some general education requirements will transfer to Rowan University from the AAS degree to fulfill some of the BA in Health Studies degree requirements. The overall credit distribution for the final two years of this program is as follows: 30 major semester hours, 15 general education semester hours (or enough to meet Rowan University requirements), and 15 free elective semester hours.

- Students must fulfill the general education requirements of Rowan Core, either through the transfer of credits or completion of courses at Rowan University.
- Additional coursework may be required, depending on the amount of credits transferred to Rowan University.

Course of Study

Rowan University requires a minimum of 120 credits to be taken within approved general education and major coursework in order to graduate with a Bachelor's degree. To obtain the Bachelor of Arts in Health Studies all students complete the following coursework:

- 60 credits minimum for AAS degree
- 27 credits in free electives at Rowan and/or in general education (Rowan Core) credits
- 33 credits of Health Studies major coursework

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Program Requirements

Required Courses 33 s.h.

(s.h.: semester hours/credit hours)

HES00.116	Safety, First Aid, and Basic Understanding of Athletic Injuries	3
HLT00.170	Stress Management	3 s.h.
HLT00.200	Introduction to Public Health and Wellness	3 s.h.
NUT00.200	Basic Nutrition	3 s.h.
HLT00.262	Drugs, Alcohol, and Tobacco	3 s.h.
HLT00.344	US Health Care Systems	3 s.h.
HLT00.345	US Health Care Policy, Ethics, and Advocacy	3 s.h.
HLT00.300	Health and Diverse Populations	3 s.h.
HLT00.303	Environmental Issues in Health	3 s.h.
HPW00.340	Program Planning and Leadership in Health Promotion and Wellness	3 s.h.
Or		
GEOG16.160	Intro to Mapping	3 s.h.
HPW00.350	Health Behavior: Theory and Practice	3 s.h.
Or		

ANTH02.215	Medical Anthropology	3 s.h.
Total Required Credits for the BA in Health Studies Major Courses		33 s.h.

BA in Health Studies Prerequisite Courses

AAS degrees are accepted as providing pre-requisite course credits for the BA in Health Studies pending a review of the transcripts of applicants to the program and/or based on cooperative agreements with AAS degree-granting institutions.

Graduation/Exit, Benchmark, and/or Thesis Requirements

Program exit includes successful completion of all required coursework totaling 120 credits, including a "C-" or better in all identified courses (e.g., prerequisite courses), and an overall GPA of 2.0 or better per Rowan University policy. Student will receive a Bachelor of Arts in Health Studies degree, awarded by Rowan University.

BACHELOR OF ARTS IN HEALTH PROMOTION & WELLNESS MANAGEMENT

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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Required Courses

To complete the program, students must have a minimum of 2.00 overall GPA, 2.00 GPA in the concentration.

BIOL01.113	General Biol Human Focus	4 s.h.
BIOL10.210	Anatomy and Physiology I	4 s.h.
BIOL10.212	Anatomy and Physiology 2	4 s.h.
PSY01.107	Essentials of Psychology	3 s.h.
HLT00.303	Environmental Issues and Health	3 s.h.
HLT00.227	Consumer Health Decisions	3 s.h.
HLT00.301	Health and Diverse Populations	3 s.h.
HES00.347	Wellness Programming for Children	1 s.h
HES00.348	Human Disease and Epidemiology	3 s.h.
HLT00.262	Drugs, Alcohol & Tobacco	3 s.h.
PSY05.310	Psychology of Human Sexuality	3 s.h
HES00.116	Safety, First Aid & Basic Understanding of Athletic Injury	3 s.h.
HES00.272	Technology & Assessment HES	3 s.h.
HLT00.200	Into to Public Health and Wellness	3 s.h.
HLT00.170	Stress Management	3 s.h.
HPW00.350	Health Behavior Theory and Counseling	3 s.h.
NUT00.200	Basic Nutrition	3 s.h.
NUT00.420	Contemporary Issues in Nutrition	3 s.h.
HPW00.340	Prog. Planning & Leadership in Health Prom. & Wellness	3 s.h.
HES00.301	Research Methods in HES	3 s.h.
HES00.349	Exercise Physiology with Lab	4 s.h.
HES00.329	Lab/Personal Training Technology	1 s.h.
HPW00.360	Facility & Program Management in Wellness	3 s.h.
HPW00.430	Practicum in Health Promotion & Wellness Management	3 s.h.
HES00.483	Senior Internship in Health & Exercise Science	9 s.h.

*Students are strongly encouraged to complete a minor or concentration using General Education and Free Electives. Recommended minors include Business, Dance, Speech Communication, Computer Science, Foreign Language, and Psychology. Recommended concentrations include Pre-medicine, International Studies, Women's Studies, Leadership, and Honors.

Total Semester Hours 120 s.h.

BACHELOR OF SCIENCE IN NUTRITION

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The Bachelor of Science in Nutrition (120 s.h.) major prepares graduates to work as nutrition educators and counselors to serve clients in hospitals, worksites, community, and school-based wellness and fitness programs. The BS in Nutrition is a stand-alone degree program, however, students can apply for admission into a highly competitive dietetics concentration in their second year in the program.

Students who are accepted into the dietetics concentration will participate in coursework that provides the foundation for them to pursue the **Master of Science in Nutrition & Dietetics** to become Registered Dietitians. Students must apply to the professional phase of study (junior and senior year in the programs) in the **spring of their sophomore year**. This degree is accredited as a Coordinated Program in Dietetics from Accreditation Council for Education in Nutrition and Dietetics (ACEND)

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on 4

Required Courses

To complete the BS-Nutrition, students must have a minimum of 2.00 overall GPA and have met minimum grade requirements in all major courses.

To be accepted into and maintain their standing in the professional phase of the program for the Dietetics concentration, students must maintain an overall GPA of 3.0 and a GPA of 3.0 in major courses.

Course Requirements in the BS in Nutrition

NUT00.200	Basic Nutrition	3 s.h.
HPW00.350	Health Behavior	3 s.h.
HES00.301	Research Methods in HES	3 s.h.
NUT00.230	Intro to Nutrition Professions	3 s.h.
NUT00.490	Macronutrients (Dietetics concentration only)	3 s.h.
NUT00.490	Macronutrients	3 s.h.
NUT00.495	Micronutrients (Dietetics concentration only)	3 s.h.
NUT00.495q	Micronutrients	3 s.h.
NUT00.300	Lifecycle Nutrition	3 s.h.
NUT00.310	Management of Food and Nutritional Services	3 s.h.
NUT00.415	Nutrition for Fitness	3 s.h.
NUT00.420	Contemporary Issues Nutrition	3 s.h.
STAT00.260	Statistics 1	3 s.h.
CHEM06.100	Chemistry 1	4 s.h.
BIOL10.210	Anatomy and Physiology 1	4 s.h.
BIOL10.212	Anatomy and Physiology 2	4 s.h.
BIOL01.113	Biology Human Focus-Scientific Literacy	4 s.h.
NUT00.350	Community Nutrition	3 s.h.
NUT00.470	Nutrition Education	3 s.h.
HLT00.227	Consumer Health Decisions	3 s.h.

INTR01.488	Career Planning and Development	3 s.h.
NUT00.460	Functional and Integrative Nutrition	3 s.h.
NUT00.465	Maternal and Child Nutrition	3 s.h.
NUT00.410	Nutrition and Public Health	3 s.h.
NUT00.484	Senior Seminar in Nutrition	1 s.h.
NUT00.485	Senior Internship in Nutrition	6 s.h.
ECON04.102	Intro to Macroeconomics	3 s.h.
HES00.272	Technology and Assessment in HES	3 s.h.
HPW00.340	Program Plan and Leadership in Health Promo & Wellness	3 s.h.
Total Nutrition Requirements		45 s.h.
Free Electives		12 s.h.

BS in Nutrition with Dietetics Concentration: (leads to an MS in Nutrition and Dietetics)

The Coordinated Master's Program in Nutrition and Dietetics at Rowan University is a Master's degree pathway to become Registered Dietitian Nutritionist RD/RDNs.

The first two years of undergraduate study is a foundational phase for the MS in Nutrition and Dietetics. Students MUST apply for the professional phase (which begins with Dietetics concentration) in their sophomore year to continue the pathway to become RD/RDNs. Each year a maximum of 17 students will be accepted to the Coordinated Master's Program in Nutrition and Dietetics. For students beginning the MS in Nutrition with the Dietetics program in their freshman year and who are accepted into the professional phase of the major in their sophomore year, the M.S. degree would be completed in five years.

The three-year professional phase includes a junior, senior, and master's year of study in Nutrition and Dietetics. This is a Coordinated Program (CP) accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND®) of the Academy of Nutrition and Dietetics. The CP curriculum combines academic instruction with a rotation plan of 1000 hours of supervised practice experience giving students the opportunity to apply their knowledge beyond the classroom. By the end of the master's year, successful students will graduate with an M.S. in Nutrition and Dietetics. The M.S. pathway will prepare graduates with an M.S. degree and eligibility to take the Dietitian Registration Exam. Once the candidate passes the exam, they are certified as a Registered Dietitian Nutritionist (RD/RDN). By 2024, a master's degree will be required to sit for the Registration Exam for Dietitians.

Course Requirements for the CP Professional Component:

CHEM06.101	Chemistry II	4 s.h.
CHEM07.200	Organic Chemistry I	4 s.h.
MCB01.101	Foundations in Biology for Biomedical Sciences I	4 s.h.
MCB01.102	Foundations in Biology for Biomedical Sciences II	4 s.h.
and NUT00.341	Medical Nutrition Therapy Lab	1 s.h.
CHEM07.205	Biochemical Foundations of Nutrition	3 s.h.
ANTH02.215	Medical Anthropology	3 s.h.
BIOL14.440	Intro to Biochemistry	3 s.h.
BIOL11.330	Microbiology	4 s.h.
PSY01.107	Essentials of Psychology	3 s.h.
NUT00.320	Techniques of Food Preparation	3 s.h.
NUT00.330	Nutrition Therapy 1	3 s.h.
NUT00.340	Nutrition Therapy 2	3 s.h.
NUT00.350	Community Nutrition	3 s.h.
NUT00.470	Nutrition Education	3 s.h.
NUT00.410	Nutrition and Public Health	3 s.h.
NUT00.425	Principles of Food Science	3 s.h.
Free Electives		6 s.h.
TOTAL Dietetics undergraduate		60 s.h.

PROGRAM TOTAL SEMESTER HOURS

BS in Nutrition (45 Nutrition Core, 45 Nutrition Program Courses, 12 Free Electives, 18 Rowan Core) 120 Credits

BS in Nutrition-Concentration in Dietetics (45 Nutrition Core, 54 Concentration, 6 Free Electives, 15 Rowan Core) 120 Credits

BACHELOR OF SCIENCE IN PUBLIC HEALTH AND WELLNESS

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General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Required Courses

To complete the program, students must have a minimum of 2.00 overall GPA, 2.00 GPA in the concentration. Students must receive a grade of C or better in specified courses totaling 27 semester hours of upper-level Community Health.

BIOL01.113	General Biol Human Focus	4 s.h.
HLT00.200	Introduction to Public Health and Wellness	3 s.h.
STAT02.260	Statistics I	3 s.h.
BIOL10.210	Human Anatomy & Physiology I	4 s.h.
BIOL10.212	Human Anatomy & Physiology II	4 s.h.
ANTH02.215	Medical Anthropology	3 s.h.
NUT00.200	Basic Nutrition	3 s.h.
HLT00.344	US Health Care Systems	3 s.h.
HCM51.255	Data Analytics in Healthcare Management	3 s.h.
HLT00.301	Health and Diverse Populations	3 s.h.
HPW00.350	Health Behavior Theory and Counseling	3 s.h.
HLT00.302	Global Health	3 s.h.
HLT00.304	Grant Writing for Public Health	3 s.h.
HLT00.303	Environmental Issues and Health	3 s.h.
HPW00.340	Prog. Planning & Leadership in Health Prom. & Wellness	3 s.h.
HLT00.348	Public Health Epidemiology	3 s.h.
HPW00.351	Wellness Coaching Seminar	3 s.h.
HLT00.347	Wellness Programming for Children	3 s.h.
HLT00.345	US Health Care Policy, Ethics and Advocacy	3 s.h.
HLT00.300	Implementation and Assessment in Public Health	3 s.h.
HES00.301	Research Methods in HES	3 s.h.
HLT00.415	Public Health Methods and Interventions	3 s.h.
HLT00.410	Senior Seminar in Public Health and Wellness	3 s.h.
HLT00.483	Senior Internship in PHW	6 s.h.

Students choose one of the following focused programs of study. If applicable, students that desire the notation of the concentration or CUGS on their transcript must declare the concentration or CUGS with their advisor. Students are not required to declare either of these, but must complete one area. Each area is a supporting area of Public Health and Wellness.

Concentration: Emergency Management

DPEM00.101	Intro to Emergency Management and Homeland Security	3 s.h.
DPEM00.211	Incident Command-Theory and Practice	3 s.h.
DPEM00.310	Critical Infrastructure – (Prereq: DPEM 00101)	3 s.h.
DPEM00.391	Natural & Technological Hazards: Mitigation & Response	3 s.h.
Program Total		12 s.h.

Concentration: Geographic Information Systems--*This concentration is 13 credits.
Electives will total 11 hours rather than 12.

GEOG16.160	Intro to Mapping and GIS	3 s.h.
GEOG16.260	Fundamentals of Geographic Information Systems (GIS)	4 s.h.

Choose two of the following:

GEOG16.261	Cartography (Pre-req GEOG16.160 Intro to Mapping and GIS)	3 s.h.
GEOG16.462	Web GIS Mapping (Pre-req GEOG16.260 Fundamentals of Geographic Information Systems)	3 s.h.
GEOG16.361	Geovisualization (Pre-req GEOG16.160 Intro to Mapping and GIS)	3 s.h.
GEOG16.360	Applications of Geographic Information Systems (Prerequisite: GEOG16.260 Fundamentals of Geographic Information Systems)	3 s.h.

**This concentration is 13 credits. Electives will total 11 hours rather than 12.*

Program Total 13 s.h.

CUGS: Disaster Public Health*

DPEM00.101	Intro to Emergency Management and Homeland Security	3 s.h.
HLT00.200	Introduction to Public Health and Wellness	3 s.h.
DPEM00.321	Humanitarian Response to Disasters and Crisis	3 s.h.
DPEM00.442	Preparedness and Public Health Response	3 s.h.
DPEM00.444	Emerging Health Threats: Risks and Surveillance	3 s.h.

Program Total 12 s.h.

Public Health is a CUGS and may be declared in this way if desired. This CUGS sequence includes HLT00.200 which is required in the BS in PHW major. Therefore, the sequence remains as 12 credit hours. Please contact the advisor in Emergency Management to declare this CUGS.

Concentration: Spanish for Public Health

HES00.202	Medical Terminology	3 s.h.
SPAN05.212	Spanish Reading and Composition – (Prereq: SPAN05.211 or STAMP test)	4 s.h.

Choose two of the following:

SPAN05.305	Oral Spanish (pre-requisite SPAN05.211)	3 s.h.
SPAN05.313	Spanish For Medical Personnel (pre-requisite SPAN05.212)	3 s.h.
SPAN05.316	Spanish for Medical Emergencies and Disaster Response (SPAN05.211)	3 s.h.

Program Total 12 s.h.

The concentration begins at the intermediate level. Students may test into the first Spanish language class (Spanish Reading and Composition – Prereq: SPAN05.211 or STAMP test).

CUGS: Food Systems Planning*

PLAN31.280	Foundation of Planning and Environmental Design	3 s.h.
PLAN31.387	Food Systems Planning	3 s.h.
PLAN31.386	Land Use and Conservation	3 s.h.

Choose one of the following:

NUT00.410	Nutrition in Public Health (Prerequisite: NUT00.300 – Lifecycle Nutrition)--Recommended	3 s.h.
ANTH02.240	Food and Culture	3 s.h.
PLAN31.389	Environmental/Sustainability Planning (Prerequisite: PLAN31.280 – Foundations of Planning and Environmental Design)	3 s.h.
GEOG16.307	Geography of Transportation	3 s.h.
PLAN31.495	Planning Studio – (course will be applied when content is on food systems planning) (Prerequisites: GEOG16.160 – Intro to Mapping and Geographic Information Science; PLAN31.280 – Foundations of Planning; PLAN31.387 – Food Systems Planning and PLAN31.389 – Environmental / Sustainable Planning)	3 s.h.

Program Total 12 s.h.

Food Systems Planning is a CUGS and may be declared in this way if desired. This CUGS sequence includes is a total of 12 credit hours which is the same as concentrations. Please contact the advisor in the Department of Geography to declare the CUGS.

Concentration: Health Communication and the Discourse of Medicine

HSC08.100	Intro to HSC (Co-req: COMP01.112 or HONR01.112 or ENGR01.201)	3 s.h.
HSC08.200	Developing Health and Scientific Literacy	3 s.h.

Choose two of the following:

CMS04.382	Communication in Health Campaigns and Interventions (Pre-requisites: COMP01.112)	3 s.h.
WA01.330	Medical Writing and Rhetoric (Prerequisite: COMP01.112)	3 s.h.
CMS04.380	Health Communication (Prerequisite: COMP01.112)	3 s.h.

Program Total 12 s.h.

Concentration: Contexts of Environmental Health

GEOG16.100	Earth, People and Environment	3 s.h.
ENST94.102	Human Nature—Introduction to Env. and Sustainability Studies	3 s.h.

GEOG16.140	Intro to Mapping and GIS	3 s.h.
Choose one of the following:		
ENST94.301	Environmental Ethics	3 s.h.
GEOG16.338	Climatology	3 s.h.
REL10.331	Spirituality and Nature	3 s.h.
GEOG16.304	Population Geography	3 s.h.
Program Total		12 s.h.

Concentration: Community Nutrition

ANTH02.240	Food and Culture	3 s.h.
NUT00.410	Nutrition in Public Health (pre req Basic Nutrition)	3 s.h.
NUT00.350	Community Nutrition	3 s.h.
Choose one of the following:		
NUT00.460	Integrative and Functional Nutrition (pre-req Basic Nutrition)	3 s.h.
NUT00.475	Maternal and Child Nutrition (pre-req Basic Nutrition)	3 s.h.
PLAN31.387	Food Systems Planning	3 s.h.
Program Total		12 s.h.

Concentration: Global Public Health

ANTH02.202	Cultural Anthropology	3 s.h.
ANTH02.355	Global Health in Anthropological Perspective	3 s.h.
Choose two of the following:		
ANTH02.221	Human Variation	3 s.h.
PHRE11.350	Spirituality and Healing	3 s.h.
ANTH02.350	Comparative Cultures	3 s.h.
ANTH02.312	Anthropological Perspectives on Physical Growth and Development	3 s.h.
ANTH02.371	Anthropological Approaches to Global Development (Prerequisites: ANTH02.202 or SOC08.120)	3 s.h.
Program Total		12 s.h.
Total Semester Hours		120 s.h.

MINOR IN PUBLIC HEALTH AND WELLNESS

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Many professions in the health arena draw from practices learned from community health and public health. From prevention of chronic diseases to promotion of positive health behaviors, the Introduction to Public Health and Wellness Minor examines the issues facing communities today. The mission of public health at its core is to improve the health of the individual and the community at large. The Introduction to Public Health and Wellness Minor entails two required foundational classes followed by four elective courses. The elective courses allow students to emphasize in an area that will support their intended career path. **Required—Two courses**

HLT00.200	Introduction to Public Health and Wellness	3 s.h.
HLT00.344	US Health Care Systems	3 s.h.

Select four of the following classes totaling 12 semester credit hours. Each class is a 3 semester credit hour course. Although the classes below are divided into two paths grouped for guidance, the student may choose any of the four courses based upon their interest and career path. Classes below have prerequisites that are included in the course sequences.

Path 1—Intended for individuals who desire public health practice

1. HLT00.303 Environmental Issues and Health (pre-req HLT00.200 Introduction to Public Health and Wellness) or SOC08.340 Environment, Policy and Society
2. HPW00.350 Health Behavior Theory and Counseling (Pre-req options HPW00.210 Foundations of Health Promotion and Wellness Management, or HLT00.200 Introduction to Public Health and Wellness, or NUT00.230 Intro to Nutrition Professions or HES00.105 Health and Wellness)
3. HPW00.340: Program Planning and Leadership (Pre-req HPW00.350 Health Behavior Theory and Counseling)

4. HPW00.415: Public Health Methods and Interventions (Pre-req HPW00.340 Program Planning and Leadership, HPW00.350 Health Behavior Theory and Counseling)

Path 2—Intended for individuals desiring to work more in hospital or healthcare facilities

1. HLT00.345 US Health Care Policy, Ethics, and Advocacy (pre-req HLT00.245 US Health Care Systems)
2. HLT00.348 Public Health Epidemiology
3. HLT00.302 Global Health (pre-req HLT00.200 Introduction to Public Health and Wellness) or ANTH02.215 Medical Anthropology
4. HLT00.301 Health and Diverse Populations (pre-req HLT00.200 Introduction to Public Health and Wellness)

3 +1 PROGRAM: B.A. IN FITNESS MANAGEMENT

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Overview

The Bachelor of Arts in Fitness Management is a unique program that will provide students interested in careers in the fitness industry a low-cost bachelor's degree option through collaboration between Rowan College of South Jersey (RCSJ) and Rowan University. The B.A. in Fitness Management is offered exclusively as a 3+1 program. Students must complete the first three years at RCSJ and their final year at Rowan University. Students will be charged the RCSJ tuition rate for the initial three years and Rowan University tuition rate for the final year.

This unique 3 + 1 program offers an affordable, accessible, high-quality educational experience that will prepare students for careers in the fitness industry at a significant cost reduction compared to traditional 4-year programs.

3 + 1 Undergraduate Program Requirements

General Education

All students starting *before* Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience Requirements as described on page 4

Required Courses

To complete the program, students must have a minimum 2.00 overall GPA, 2.00 GPA in the major.

Taught at Rowan College of South Jersey

BIO105	General Biology I	4 s.h.
BIO105	Anatomy and Physiology I	4 s.h.
PSY101	General Psychology	3 s.h.
MAT	Mathematics Elective	3 s.h.
HPE240	Introduction to Health, PE and Recreation	3 s.h.
HPE136	Nutrition	3 s.h.
BIO102	General Biology II	4 s.h.
BIO106	Anatomy and Physiology II	4 s.h.

CHEM111	General Chemistry I	4 s.h.
HPE170	Stress Management	3 s.h.
HPE245	Motor Development and Motor Learning	3 s.h.
HPE233	Safety First Aid, CPR, and Injury Prevention	3 s.h.
HPE211	Consumer Health Decisions	3 s.h.
HPE270	Essentials of Personal Training	1 s.h.
HPE265	Fitness Assessment and Exercise Prescription	3 s.h.
HPE300	Kinesiology	3 s.h.
PSY300	Introduction to Sport and Exercise Psychology	3 s.h.
HPE305	Exercise Physiology with Laboratory	3 s.h.
CEP211	Internship Career Connections	3 s.h.
HPE238	Principles of Coaching	3 s.h.
General Education/Rowan Core/Elective courses		27 s.h.
Semester Hours at RCSJ		90 s.h.

Taught at Rowan University

HPW00.360	Facilities & Program Mgmt. in Wellness	3 s.h.
HES00.348	Human Disease and Epidemiology	3 s.h.
HPW00.350	Health Behavior Theory and Counseling	3 s.h.
HES00.401	Exercise Prescription	3 s.h.
Elective courses		18 s.h.
Semester Hours at Rowan		30 s.h.
Total Semester Hours		120 s.h.

MINOR IN PSYCHOLOGY OF SPORT AND EXERCISE

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The goal of the Psychology of Sport and Exercise minor is to enhance knowledge in the field of psychology as it pertains to sport and exercise performance. The objective of the minor is to provide concepts of psychology and exercise as they relate to behavioral theories, physiological processes, social psychology of sport and exercise, and psychological modalities related to performance in a sport and exercise environment.

This minor will be valuable to students interested in working in health & healthcare professions (e.g., strength and conditioning coaches, occupational and physical therapists, athletic trainers, educators, health behavior coaches, etc.) because data shows that understanding the psychology involved in sport and exercise is critical to providing quality whole-body care and enhancing performance when working with potential clients, patients, and athletes.

Completing this minor in Psychology of Sport and Exercise will also prepare students that are interested in obtaining a graduate degree in psychology and enhance their ability to get a job without a graduate degree by being marketable as having knowledge of theoretical framework and modalities in enhancing the well-being of clients in their health & healthcare profession.

Course Sequence

PSY01.107	Essentials to Psychology (Prerequisite to all except HLT00170)	3 s.h.
HLT00.170	Stress Management	3 s.h.
ATR00.477	Psychosocial Aspects of Physical Activity	3 s.h
HLT00.370 *or* PSY05.320	Introduction to Sport and Exercise Psychology	3 s.h.
HES00.371 *or* PSY00.371	Social Psychology of Sport (prerequisite HLT00.370 or PSY05.320)	3 s.h.
HLT00.372	Evidence-Based Approach to Applied Sport Psychology and Exercise (prerequisite HLT00.370 or PSY05.320)	3 s.h.

CERTIFICATES OF UNDERGRADUATE STUDY AND ENDORSEMENTS

CERTIFICATE OF UNDERGRADUATE STUDY IN ADVENTURE EDUCATION LEADERSHIP

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The Certificate of Undergraduate Study (CUGS) in Adventure Education Leadership allows students to facilitate basic adventure and outdoor pursuits to expose those involved to focus attention to challenge, adventure, and growth experiences. The goal of the CUGS in Adventure Education Leadership is to prepare students for entry-level positions in the adventure education field or to diversify their ability to lead activities requiring group cohesiveness in the adventure field. The program is a combination of theory, philosophy and experiential learning. The coursework emphasizes the incorporation of physical safety, respectful environment and emotional well-being for the future leaders as well as their clientele. Students will be eligible to earn the Wilderness First Responder Certification (WFR).

Certificate of Undergraduate Study in Adventure Education Leadership 12 s.h.

The requirements include the following five courses:

HES00.109	Adventure and Experiential Learning	2 s.h.
HES00.209	Adventure Processing and Facilitation	3 s.h.
HES00.309	Wilderness First Responder	4 s.h.
HES00.409	Adventure Programming	3 s.h.
or HWP00.360	Facilities and Program Management in Wellness	3 s.h.
or KIN00.490	Human Performance in Clinical Settings Learning Assistant Seminar	3 s.h.

To be awarded the CUGS in Adventure Education Leadership, students must complete all courses required for the CUGS in with at least a 2.0. To earn the WFR students must pass the national exam at the certifying agency's required test scores.

CERTIFICATE OF UNDERGRADUATE STUDY IN PSYCHOLOGY OF SPORT AND EXERCISE

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The Psychology of Sport and Exercise CUGS will provide students with a sequence of courses to enhance knowledge in the field of psychology and performance in the sport and exercise environment. Achieving this certificate will enhance awareness of general information regarding sports psychology, performance and exercise by focusing on theories, models, and processes. This CUGS will be of value to students interested in working in health profession fields in positions such as a strength and conditioning coach, athletic trainer, occupational and physical therapist, educator, health behavior coach, etc. Having an understanding of sport and exercise psychology when working with potential clients, patients, students and athletes are critical to providing care utilizing a whole-body approach. Although students will not be receiving a degree in Sports Psychology, this CUGS can prepare those that are interested in obtaining a graduate degree in psychology, a doctoral degree in Sports Psychology and even those with future professional goals of becoming a certified consultant for the Association of Applied Sport Psychology after receiving their terminal degree with theoretical framework of this field. Since Rowan University does not have a minor in sport psychology, this CUGS will provide the first experience in this field for students to obtain a certificate of specialization.

Certificate of Undergraduate Study in Psychology of Sport and Exercise 12 s.h.

The requirements include the following four courses:

PSY01.107	Essentials of Psychology
HLT00.370/PSY05.320	Introduction to Sport and Exercise Psychology
HES00.371/PSY00.371	Social Psychology of Sport
ATR00.477	Psychosocial Aspects of Physical Activity

To be awarded the CUGS in Psychology of Sport and Exercise, students must complete all courses required for the CUGS in Psychology of Sport and Exercise.

CERTIFICATE OF UNDERGRADUATE STUDY IN SPORT MANAGEMENT

JoAnne Bullard
Coordinator
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Laurie Dwyer
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The Certificate of Undergraduate Study (CUGS) in Sport Management utilizes a sequence of courses that combines sport psychology and business/management related courses to provide an experience for HES students and psychology students who may be interested in sport or fitness related entrepreneurship, or for business students with an interest in related sport and fitness management/administrative fields. This CUGS can provide a foundational experience for students who would like to study Sport Management as a major, possibly at the graduate level. The program can also provide a starting point for possible internship or related experiences athletic developments on Rowan's "West Campus", as well as with the Rowan Rec Center. The program prepares students to consider management careers in sport-related business. Increased growth in competitive athletics and sport participation by all segments of society has created a need for individuals trained in sport management.

Certificate of Undergraduate Study in Sport Management 15 s.h.

The requirements include the following five courses:

PSY01.107	Essentials of Psychology (pre requisite course for HES00350)	3 s.h.
MGT06.222	Introduction to Sport Management	3 s.h.
MGT06.300	Organizational Behavior	3 s.h.
HPW00.360	Facility and Program Management in Wellness	3 s.h.
HLT00.370/PSY05.320	Introduction to Sport and Exercise Psychology	3 s.h.

To be awarded the CUGS in Sport Management, students must complete all courses required for the CUGS in Sport Management with at least a 2.0 average. The pre-requisite for Introduction to Sport and Exercise Psychology make this CUGS appropriate for students majoring in psychology, and the balance of coursework make it attractive for HES and business majors. However, this CUGS is appropriate for any Rowan student with an interest in the "business of sports".

UNDERGRADUATE ENDORSEMENT: TEACHER OF DRIVER EDUCATION

Shari Willis
Program Coordinator
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This program is designed for those who possess a standard New Jersey Instructional Certificate or CEAS (Teacher of Health and Physical Education) or are currently enrolled in a health/physical education teacher prep/certification program in the State of New Jersey, and who wish to earn New Jersey Driver Education Teacher Endorsement†. The content includes learning to teach motor vehicle operation and within driving environments, as well as the student development of teaching techniques emphasizing safety, risk perception, and decision-making processes applied in a vehicle. Learning how to instruct others in performing behind-the-wheel driving will be scheduled outside of class time.

Those who matriculate in and successfully complete the Driver Education Course and Endorsement Program will then be recommended by Rowan University to the New Jersey State Department of Education for certification as a Teacher of Driver Education†.

Program Requirements

Required Courses 3 s.h.

(s.h.: semester hours/credit hours)

HES00.100* Teaching Concepts of Driver Education

** This course is offered in an accelerated format. In addition to face-to-face meetings on Rowan University's main campus and behind-the-wheel sessions, some coursework will be completed online.*

Total Required Credits for the Program 3 s.h.

Foundation Courses

Successful completion of an undergraduate-level course in Safety and First Aid, or CPR, First Aid, and AED Certification is highly recommended.

Department of Nursing

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The Department of Nursing is an academic department within the Virtua Health School of Nursing & Health Professions that collaborates with Global Learning & Partnerships of Rowan University to deliver nursing programs in a manner that accommodates the busy schedules of working and aspiring nurses. This is accomplished by online coursework to provide a balance of convenient scheduling and access to our expert nursing faculty.

BACHELOR OF SCIENCE IN NURSING (RN TO BSN)

Angela Ruckdeschel
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Patrice Henry-Thatcher
RN to BSN Program Advisor
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Urielle Bender
Advising Specialist-Nursing
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The Bachelor of Science Degree in Nursing is offered jointly by the Virtual Health School of Nursing & Health Professions at Rowan University and the Division of Global Learning & Partnerships. It is designed to give additional professional education at the baccalaureate level to practicing nurses. The BSN degree prepares registered nurses to work in the ever-expanding field of nursing. This degree allows nurses to augment their knowledge base and thus enhance their careers. The Bachelor of Science Degree also acts as a stepping stone for the nurse who wishes to pursue a Master of Science Degree in Nursing with six graduate nursing credits included in the program curriculum. The program is designed as a part-time program to accommodate professionals' schedules while still completing the degree in a timely manner.

RN-to-BSN Curriculum

The complete curriculum includes 120 credits: 30 credits in the RN-to-BSN major, and 60 credits of general education and foundational courses required by Rowan University for graduation from any bachelor's degree program, and 30 credits of pre-licensure nursing coursework. Students graduating from an Accreditation Commission for Education in Nursing (ACEN) associate degree or diploma program are awarded 30 pre-licensure nursing credits upon matriculation into the program. Students transfer credits for coursework completed prior to admission to the program. Degree candidates are encouraged to plan a course of study that meets both the programmatic criteria as well as courses that meet their individual needs and interests.

- Students may transfer up to 90 credits

- Students must fulfill the general education requirements of Rowan University, either through the transfer of credits or completion of courses at Rowan University
- Additional coursework may be required, depending on the amount of credits transferred to Rowan University
- Program must be completed on a part-time basis. There is not a full-time option available

Course of Study

Rowan University requires 120 credits taken within approved general education and major coursework in order to graduate with a Bachelor's degree. To obtain the BSN all students complete the following coursework:

- 60 credits in general education and foundational course requirements
- 30 credits awarded for pre-licensure nursing coursework
- 30 credits in the major sequence

General Education

All students starting ***before*** Fall 2018 must complete the University General Education Requirements as described on page 39

Rowan Core

All first-time Freshmen starting in Fall 2018 or after and all transfer students starting in Fall 2021 or after must complete the University Rowan Core Requirements as described on page 38

Rowan Experience

All students must complete the Rowan Experience requirements as described on page 4

Nursing Concentration		30 s.h.
NURS03.303	Comprehensive Health Assessment	3 s.h.
NURS03.304	Nursing Informatics	3 s.h.
NURS03.404	Research, Applications in Nursing Practice (Prereq: Statistics)	3 s.h.
NURS03.401	Community Health Nursing (45 hours of Clinical)	6 s.h.
NURS03.405	Healthcare Policy & Finance	3 s.h.
NURS03.403	Nursing Care Delivery Systems	3 s.h.
NURS05.504	Advanced Pathophysiology (Graduate Course)*	3 s.h.
Or NURS03.300	Pathophysiology for Nurses	3 s.h.
NURS05.505	Advanced Pharmacology (Graduate Course)*	3 s.h.
Or NURS03.308	Pharmacology for Nursing	3 s.h.
NURS03.309	Ethics in Healthcare	3 s.h.
General Education and Foundational course Requirements		60 S.H.
Pre-Licensure Nursing Courses in Transfer		30 S.H.
Consult an academic advisor for policies relating to awarding of prior nursing credit		
All RN to BSN students are required to complete an EBI Exit Survey before being cleared for graduation.		
Program Total		**120 s.h.**

Faculty List

Department of Accounting and Finance

Folkinshteyn, Daniel(2011) Professor
B.A. Yale; MS, MBA, Ph.D Temple University

Henry, Joseph(2019) Assistant Professor
B.A., University of California at Irvine; M.S., West Virginia University; Ph.D., The Pennsylvania State University

Hughes, Diane(1987) Associate Professor
B.A., Rutgers College; M.B.A., Long Island University; J.D., Rutgers University

Isik, Ihsan(2001) Professor
B.S., Middle East Technical University; M.S., Texas Tech University, M.A., Ph.D., University of New Orleans

Li, Pei(2020) Assistant Professor
B.S., Southwestern University of Finance and Economics; Ph.D., Rutgers University

Lin, Liang Ju (Tony)(2020) Assistant Professor
B.S., National Taipei University of Technology; M.S., University of California; Ph.D., Drexel University

Lysak, Amy(2017) Assistant Professor
B.S., Rutgers University (New Brunswick); M.S., University of Virginia; Ph.D., Rutgers University (Newark)

Marmon, Richard(1986) Associate Professor
B.S., Glassboro State College (Rowan); M.B.A., LaSalle University; J.D., Widener University; CPA; CMA; LL.M., Villanova University

McFarland, Daniel J.(2002) Professor
B.S., M.B.A., Ph.D., Drexel University

Moore, Jordan(2017) Assistant Professor
B.S., Massachusetts Institute of Technology; M.S.B.A., Ph. D., University of Rochester

Omar, Ayishat(2018) Assistant Professor
B.S., Ahmadu Bello University; M.B.A., Morgan State University; Ph.D., Morgan State University

Papakroni, Erlina(2019) Assistant Professor
B.S., University of Tirana; M.P.A., Ph.D., West Virginia University

Sacchetta, Robert(2018) Senior Lecturer
B.A., Glassboro State College (Rowan University); M.S., Drexel University; CPA

Sagedy, Robert(2018) Lecturer
B.S., St. Francis de Sales; M.B.A., Mount St. Mary's; CPA

Scarpa, Robert(2013) Instructor
B.S., St. Joseph's University; M.B.A., Drexel University

Uygur, Ozge(2010) Professor
B.S., Middle East Technical University; Ph.D., Temple University

Van Hook, Andrew(2018) Sentior Lecturer
B.S., Rowan University; M.S., Goldy-Beacom College; CPA

Wang, Jia(2007) Professor
B.S., Tsinghua University: M.S., Ph.D., University of Massachusetts-Amherst

Weidman, Stephanie M.(1995) Professor
B.S., University of Delaware; M.B.A., Duke; Ph.D., Drexel University; CMA

Xue, Ying (Ian)(2019) Assistant Professor
B.S., University of Hong Kong; M.S., Stanford University; Ph.D., Duke University

Zhang, Mei(2009) Associate Professor
B.A., M.S., Tsinghua University-China; Ph.D., University of Maryland

Department of Art

Appelson, Herbert(1967) Professor
B.A., Brooklyn College; M.S., M.F.A., Univ. of Wisconsin; Ed.D., Columbia University

Drumgoole, Jennifer(2018) Assistant Professor
B.A., Fordham University; M.F.A., Yale School of Art

Kitson, Jennifer(2015) Associate Professor
B.A., San Francisco State University; M.A., Cal State University, Los Angeles; Ph.D., Arizona State University

Ohanian, Nancy L.(1992) Professor
B.F.A., Layton School of Art and Design; M.F.A., Pratt Institute

Sophy, Nancy M.(2022) Lecturer
B.A., Moravian College; M.F.A., Pennsylvania Academy of the Fine Arts

Sweigart, Donna(2004) Associate Professor
BFA Arcadia University, MFA Tyler School of Art Temple University

Thomas, Skeffington N.(1997) Professor
B.A., Lewis and Clark College; M.F.A., Southern Illinois University

Watanabe, Marisa(2022) Lecturer
B.S., Drexel University; M.F.A., Tyler School of Art, Temple University

Zarfsaz, Mina(2022) Assistant Professor
B.A., Alzahra University; B.F.A., SUNY Plattsburgh; M.F.A., Montclair State University

Department of Biological and Biomedical Sciences

Alpaugh, Mary(2016) Associate Professor
B.S., King's College; Ph.D., University of Houston

Bealor, Matthew(2010) Assistant Professor
B.S., California State University; M.S., San Diego State University; Ph.D., University of Colorado

Bentivenga, Stephen(2021) Professor and Department Head
B.A., Illinois Wesleyan University; M.S., Illinois State University; Ph.D., Kansas State University

Bogush, Marina Leonidovna(2018) Lecturer
B.S., M.S., Lomonosov Moscow State University; Ph.D., Research Center for Medical Genetics, Academy of Medical Sciences

Carone, Benjamin(2016) Associate Professor
B.S., Ph.D., University of Connecticut

Chen, Yong(2019) Assistant Professor
B.S., Shandong University, China, Ph.D., joint from Shandong U and University of Georgia

Crumrine, Patrick(2006) Associate Professor
B.S., Plattsburgh State University; Ph.D., University of Kentucky

DiStefano, Ginnene(2018) Senior Lecturer
B.A., Arcadia University; Ph.D., Drexel University

Eaton, Gregory(2018) Senior Lecturer
B.S., Rowan University; Ph.D., Thomas Jefferson University

Farber, Grace(2021) Associate Professor
PhD

Grove, Michael W.(2001) Associate Professor
B.S., The Ohio State University; Ph.D., University of South Carolina

Heindl, Jason(2022) — Assistant Professor
B.A., Amherst College; Ph.D. Harvard University

Holbrook, Luke T.(1999) — Professor
B.S., Fordham University; M.S., Ph.D., University of Massachusetts

Hough, Gerald(2003) — Associate Professor
B.S., Purdue University: M.S., Ph.D., The Ohio State University

Iftode, Cristina(2001) — Professor
B.S., M.S., University of Bucharest; M.S., Ph.D., New York University-Medical Center

Krufka, Alison(2003) — Associate Professor
B.S., College of William and Mary; Ph.D., University of Wisconsin-Madison

Krummenacher, Claude(2014) — Associate Professor
B. S., Ph.D. University of Lausanne, Switzerland

Kruse, Svjetlana(2014) — Associate Professor
B.A., M.Sc. University of South Alabama; Ph.D. University of Copenhagen

O'Brien, Terry(2000) — Associate Professor
B.S., M.S., University of Iowa; Ph.D. University of California - Berkeley

Richmond, Courtney E.(2001) — Professor
B.A., Swarthmore College; Ph.D., University of South Carolina

Ruhl, Nathan(2019) — Senior Lecturer
B.S., Allegheny College; M.S., Saint Joseph's Univerity; Ph.D., Ohio University

Thomas, Shelly(2019) — Lecturer
B.S., Eastern University; Ph.D., University of Maine

Travis, Matthew(2018) — Senior Lecturer
B.A., Bowdoin College; Ph.D., State University of New York at Stony Brook

Wright, Sara(2019) — Lecturer
B.S., The University of Texas at Austin; Ph.D., Washington University

Department of Biomedical Engineering

Abedin-Nasab, Mohammad(2020) — Assistant Professor
B.S., KNT University of Technology; M.S., Ph.D., Sharif University of Technology

Beachley, Vince(2014) — Associate Professor
B.S. Virginia Tech; Ph.D. Clemson University

Byrne, Mark(2014) — Professor and Department Head
B.S., Carnegie Mellon University; M.S., Ph.D., Purdue University

Daringer, Nichole(2019) — Assistant Professor
B.S.E., University of Iowa; Ph.D. Northwestern University

Galie, Peter(2015) — Associate Professor
BSE - Princeton University; MS Rensselaer Polytechnic; PhD -University of Michigan

Lowman, Anthony(2013) — Professor
B.S. U of Virginia; Ph.D. Purdue

Riley, Rachel(2020) — Assistant Professor
B.S. Rowan University.; Ph.D. University of Delaware

Staehle, Mary M.(2010) — Associate Professor
B.S., The Johns Hopkins University; Ph.D., University of Delaware

Vega, Sebastian(2018) — Assistant Professor
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Department of Chemical Engineering

Capellades, Gerard(2020) Assistant Professor
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Dahm, Kevin D.(1999) Professor
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Gephardt, Zenaida Otero(1989) Professor
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Hesketh, Robert P.(1996) Professor
B.S., University of Illinois, Champaign-Urbana; Ph.D., University of Delaware

Lau, Kenneth(2022) Professor and Department Head
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Meadowcroft, Tom(2018) Senior Lecturer
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Newell, James(1998) Professor
B.S., Carnegie-Mellon University; M.S., Penn State University; Ph.D., Clemson University

Palmese, Giuseppe(2021) Professor
B.S., Princeton University, Ph.D., University of Delaware

Savelski, Mariano J.(1999) Professor
B.S., University of Buenos Aires; M.S., University of Tulsa; Ph.D., University of Oklahoma

Stanzione III, Joseph F.(2013) Professor
B.S., Drexel University, Ph.D., University of Delaware

Thompson, Gary(2017) Assistant Professor
B.S., University of South Carolina; Ph.D., Clemson University

Yenkie, Kirti(2017) Assistant Professor
B. Tech, Laxminarayan Institute of Technology, India; M. Tech, Indian Institute of Technology; Ph.D., University of Illinois at Chicago

Department of Chemistry and Biochemistry

Barrett, Kristen(2018) Senior Lecturer
B.S., Ph.D., University of Sciences Philadelphia

Caputo, Greg(2007) Professor and Associate Dean
B.S., The Stevens Institute of Technology; Ph.D., Stony Brook University

Grinias, James(2016) Associate Professor
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Hoy, Erik(2018) Assistant Professor
BS, Tennessee Technological University; MS, The University of Chicago; PhD, The University of Chicago

Jonnalagadda, Subash(2008) Professor and Department Head
B.Sc., Pondicherry University; M.Sc., University of Hyderabad; Ph.D., Purdue University

Keck, Thomas(2014) Associate Professor
B.S., University of Southern California; Ph.D., Oregon Health & Science University

Kelly, Mary Allison(2018) Lecturer
BS, University of Maryland; PhD, University of North Carolina, Chapel Hill

Liu, Zhiwei(2021) Associate Professor
PhD

Lu, Ping(2019) Assistant Professor
B.S., M.S., Donghua University; Ph.D., University of California - Davis

Moura-Letts, Gustavo(2013) Associate Professor
B.S., Universidad Peruana; Ph.D., University of Pittsburgh

Mucha, Neil(2018) Lecturer
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Mugweru, Amos(2006) Professor
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Perez, Lark(2012) Associate Professor
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Pilarz, Matthew(2018) Lecturer
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Quarels, Rashanique(2020) Assistant Professor
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Ramanujachary, Kandalam V.(1994) Professor
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Toal, Siobhan(2019) Lecturer
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Vaden, Timothy(2010) Professor
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Jahan, Kauser(1996) Professor and Department Head
B.S., Engineering University, Bangladesh; M.S., University of Arkansas; Ph.D., University of Minnesota

Jalayer, Mohammad(2018) Associate Professor
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Lomboy, Gilson(2016) Associate Professor
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Mantawy, Islam(2022) Assistant Professor

Mehta, Yusuf A.(2001) Professor
B.S., University of Bombay, India; M.S., University of Oklahoma; Ph.D., Pennsylvania State University

Riddell, William(2004) Associate Professor
B.S., University of Massachusetts-Amherst; Ph.D., Cornell University

Torlapati, Jagadish(2019) Senior Lecturer

Trias-Blanco, Adriana(2020) Assistant Professor
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Zhu, Cheng(2017) Assistant Professor
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Department of Communication Studies

Brager, Karen Noel(2018) Lecturer
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Broad, Garrett(2022) Associate Professor
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Cirucci, Angela(2014) Assistant Professor
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Coleman, Miles(2015) Assistant Professor
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Coughlan, Patricia A.(2018) Senior Lecturer
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Cypher, Joy M.(2000) Professor
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Feaster, John(2010) Associate Professor
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Harman, Katherine R.(2018) Senior Lecturer
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Haynes, Julie A.(1998) Professor
B.A., University of Richmond; M.A., Texas A&M University; Ph.D., Pennsylvania State University

Hottle, Andrew D.(2004) Professor
B.A., M.A., Ohio State University; Ph.D., Temple University Tyler School of the Arts

Ikpah, Maccamas M.(1994) Associate Professor
B.A., Eastern Washington University; M.E., Gonzaga University; Ed.D., Oklahoma State University

Marshall, Pam(2010) Assistant Professor
B.A., Montclair State Univeristy; M.A., Temple University

Popa, Clara(2004) Associate Professor
B.A., University of Bucharest; M.A., Ph.D.,Kent State University

Qadar, Farah(2022) Lecturer
B.A., Harvard University; M.A., University of Arizona

Schowalter, Daniel F.(2002) Associate Professor
B.S., University of Wisconsin-Stevens Point; M.A., University of Arkansas; Ph.D., Indiana University

Shi, Rui(2018) Assistant Professor
B.A. Beijing Foreign Studies University; M.A. Wake Forest University; Ph.D. University of Pennsylvania

Strasser, Daniel S(2012) Professor
B.A. College of Mount Saint Joseph; M.A. Northern Kentucky University; Ph.D., University of Denver

Department of Computer Science

Baliga, Ganesh R.(1993) Professor
B. Tech., M. Tech., Indian Institute of Technology, Bombay; M.S., Ph.D., University of Delaware

Bergmann, Seth D.(1980) Associate Professor
B.S., Rensselaer Polytechnic Institute; M.S.E., University of Pennsylvania.

Breitzman, Anthony(2016) Associate Professor
B.S., Stockton University; M.A., Temple University; M.S., Ph.D, Drexel University

Chien, Chia(2017) Senior Lecturer
B.S., M.S., Drexel University

Chu, Heng Yi (Mike)(2018) Lecturer
B.S., Johns Hopkins University, M.S.B.A., Temple University, Executive Master, University of Pennsylvania

Fiedler, Frank(2022) Senior Lecturer
M.S., Technische Universität Dresden; Ph.D. University of Delaware

Guo, Guimu(2022) Assistant Professor
B.Eng. Shandong Jianzhu University; M. Eng. Tongji University, Ph.D. University of Alabama at Birmingham

Heydari, Vahid(2017) Associate Professor
Ph.D., University of Alabama

Hnatyshin, Vasil Y.(2003) Professor
B.S., Widener University; M.S., Ph.D.,University of Delaware

Ho, Shen-Shyang(2016) Associate Professor
B.S., National University of Singapore; M.S., Ph.D., George Mason University

Hristescu, Gabriela(2000) Associate Professor
B.S.E., Polytechnic Institute of Bucharest, Romania; M.S., Ph.D., Rutgers University.

Kay, Jennifer S.(1998) Professor
B.A., B.S.E., University of Pennsylvania; M.S., Ph.D., Carnegie Mellon University

Kokalj-Filipovic, Silvija(2022) Professor
M.S., University of Belgrade; Ph.D., Rutgers University

Lobo, Andrea F.(1997) Professor
B.S., Universidad de Costa Rica; M.S., Ph.D., University of Delaware

McKee, Patrick(2018) Lecturer
B.A. Rowan University, M.S., Rowan University

Provine, Darren(2018) Senior Lecturer
B.S., University of Maryland, M.A., Rowan University

Rabbitz, Richard(2022) Lecturer
B.S., West Chester University; M.S., University of Pennsylvania

Stinchcombe, Frederick(2022) Lecturer
B.S. University of the West of England; M.S. University of the West of England

Sun, Bo (Beth)(2017) Associate Professor
Ph.D., Old Dominion University

Tinkham, Nancy Lynn(1990) Assistant Professor
B.S., Wheaton College; Ph.D., Duke University

Wang, Ning(2018) Assistant Professor
B.S., University of Electronic Science and Technology, Ph.D., Temple University

Department of Educational Services and Leadership

Callueng, Carmelo(2016) Assistant Professor
B.A., St. Paul University; M.S., De La Salle University; PhD, University of Florida

Coaxum III, James(1999) Associate Professor
B.S., Morehouse College, Ed.M., Harvard University; Ph.D., Vanderbilt University

Ieva, Kara(2010) Associate Professor
B.A., Towson University; M.Ed., Towson University/Loyola College; Ph.D., University of Central Florida

Kerrigan, Monica(2010) Professor/Department Chair
B.S., Haverford College; M.A., Teachers College; Ed.D., Teacher's College

Lu, Huan-Tang(2018) Assistant Professor
B.S., National Tiawan University; m.S. State University of NY at Plattsburg; P.h.D, Ohio University

McCombs, Tyrone(2001) Associate Professor
B.A., M.A., Rutgers University; Ph.D. University of Pennsylvania

Mitani, Hajime(2016) Assistant Professor
B.A. Nihon University, Ed.M., Columbia University; PhD, Vanderbilt University

Sam, Cecile(2016) Assistant Professor
B.A., Loyola Marymount University; M.A., Loyola Marymount University; PhD, University of Southern California

Sun, Qian Anna (2014) Associate Professor
B.A. Tianjin Teachers' College, Ed. M., Ph.D. State University of New York at Buffalo (SUNY)

Thompson, Carol(2006) Associate Professor
B.A., Wake Forest University; M.Ed., Duke University; Ph.D., University of Pennsylvania

Turner Johnson, Ane(2009) Professor
B.A., Hollins College; M.S., George Mason University; Ph.D., Virginia Tech

Walpole, MaryBeth(2000) Professor
B.A., Wells College; M.A., Stanford University; Ph.D., UCLA

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Nomenclature of Courses

Course Information

ACC	Accounting	Accounting and Finance
ADV	Advertising	Public Relations and Advertising
AFRI	African Languages	World Languages
AFST	Africana Studies	Africana Studies
AH	Allied Health	Biological Sciences
ATR	Athletic Training	Health and Exercise Science
AMST	American Studies	American Studies
ANTH	Anthropology	Sociology and Anthropology
ARAB	Arabic	World Languages
ARHS	Art History	Art
ART	Art	Art
ASL	American Sign Language	World Languages
ASTR	Astronomy	Physics and Astronomy
BIOL	Biology	Biological Science
BINF	Bioinformatics	Molecular & Cellular Biosciences
BLED	Languages & Lingusitics	Interdisciplinary & Inclusive Education
BME	Biomedical Engineering	Biomedical Engineering
BMS	Biomedical Sciences	Biomedical and Translational Sciences
BMV	Biomedical Art & Visualization	Radio, Television and Film
BUS	Business	Business
CANN	Cannabis Studies Research	Various Departments
CASE	Center for Access/Success/Equity	Education
CEE	Civil and Environmental Engineering	Civil Engineering
CHE	Chemical Engineering	Chemical Engineering
CHEM	Chemistry	Chemistry and Biochemistry
CHIN	Chinese	World Languages
CM	Construction Management	Engineering
CMB	Cell Biology & Neuroscience	Grad Sciences
CMS	Communication Studies	Communication Studies
COMP	Composition	Writing Arts
CRWR	Creative Writing	Writing Arts
CS	Computer Science	Computer Science
DA	Data Analytics	Interdisciplinary
DPEM	Disaster Planning and Emergency Preparedness	Sociology
DS	Data Science	Computer Science
ECE	Electrical and Computer Engineering	Electrical and Computer Engineering
ECED	Early Childhood Education	Education - Various
ECON	Economics	Political Science and Economics
EDSU	Educational Supervision	Education - Various
EDUC	Education	Education - Various
EDPA	Public Administration Education	Political Science and Economics
EET	Electrical Engineering Technology	Engineering Technology
ELEM	Elementary Education	Education - Various
ENED	Environmental Education	Sci Tech Eng Art & Math=STEAM
ENGL	English	English
ENGR	Engineering	Engineering
ENST	Environmental Studies	Geography, Planning & Sustainability
ENT	Entrepreneurship	Management and Entrepreneurship
ESL	English as a Second Language	Writing Arts
EVSC	Environmental Science	Environmental Science
FIN	Finance	Accounting and Finance
FNDS	Foundations of Education	Education - Various
FREN	French	World Languages
GEOG	Geography	Geography, Planning & Sustainability
GEOL	Geology	Geography, Planning & Sustainability

GERM	German	World Languages
HES	Health & Exercise Science	Health & Exercise Science
HIST	History	History
HLT	Health	Health and Exercise Science
HONR	Honors	Honors
HPE	Health & Physical Education	STEAM or Health & Exercise Science
HPW	Health Promotion & Wellness	Health & Exercise Science
HRM	Human Resources Management	Management and Entrepreneurship
HSRV	Human Services	Sociology & Anthropology
INCL	Inclusive Education	Interdisciplinary & Inclusive Education
INTR	Interdisciplinary	Interdisciplinary
ITAL	Italian	World Languages
IS	International Studies	International Studies
JAPA	Japanese	World Languages
JRN	Journalism	Journalism
LAT	Latin	World Languages
LAWJ	Law and Justice Studies	Law and Justice Studies
MATH	Mathematics	Mathematics
MCB	Molecular & Cellular Biosciences	Molecular & Cellular Biosciences
MBS	Microbiological Sciences	Grad Studies
MGT	Management	Management and Entrepreneurship
ME	Mechanical Engineering	Mechanical Engineering
MILS	Military Science	ROTC
MIS	Management Information Systems	Marketing and Business Information Systems
MKT	Marketing	Marketing and Business Information Systems
MUS	Music	Music
MUSG	Music	Music
NURS	Nursing	Nursing
NUT	Nutrition	Health and Exercise Science
PLAN	Planning	Geography, Planning & Sustainability
PHIL	Philosophy	Philosophy and Religion Studies
PHRE	Philosophy & Religion	Philosophy and Religion Studies
PHYS	Physics	Physics and Astronomy
POSC	Political Science	Political Science and Economics
PSY	Psychology	Psychology
PR	Public Relations	Public Relations and Advertising
READ	Reading	Education - Various
REL	Religion Studies	Philosophy and Religion Studies
RESP	Respiratory Therapy	Allied Health
RTF	Radio/TV/Film	Radio/Television/Film
RUSS	Russian	World Languages
SCL	Supply Chain Logistics	Marketing/BIS
SECD	STEAM Education	STEAM
SELN	Inclusive Education	Education - Various
SMED	Subject Matter Education	Education -Various
SNUR	School Nursing	Education - Various
SPAN	Spanish	World Languages
SPED	Special Education	Education - Various
SPRT	Sports Communication	Journalism
STAT	Statistics	Mathematics
SOC	Sociology	Sociology and Anthropology
SWHL	Swahili	World Languages
TBS	Translational Biomedical Sciences	Molecular & Cellular Biosciences
THD	Theater/Dance	Theater and Dance
WA	Writing Arts	Writing Arts
XEED	Experiential Engr Ed\ExEED	

Course Descriptions

ACC 03150: Introduction to Business and Analytics for Financial Information 3 s.h.
In this course students will be introduced to business data analytics and use software tools, such as Microsoft Excel, to analyze data to support business decision making.

ACC 03200: Accounting Mentorship 0 s.h.
The Accounting Mentorship Program links College of Business students who are interested in an accounting career with working professionals in the field of accounting. Students enrolling in this course are matched with a mentor who is presently working in an area of accounting in which the student expresses an interest, (such as public, corporate, tax, government, or forensic accounting). Students and mentors communicate via email, phone and in-person meetings, in order for students to obtain a better understanding of the challenges and rewards of accounting as a profession from those presently working as accounting practitioners. This enhanced understanding should help solidify the choice of profession and allow students to begin developing professional networking skills.

ACC 03210: Principles of Accounting I 3 s.h.
This course includes accounting theory and practice in the analysis of business transactions and the recording of business data; complete accounting cycle; interpretation of financial data for sole proprietorships, partnerships, and corporations.

ACC 03211: Principles of Accounting II 3 s.h.
Prerequisites: ACC 03210
This course includes accounting theory and practice applied to corporations; budgeting and estimating; analysis and comparison of cost and financial data.

ACC 03300: Supervised Internship in Accounting 3 s.h.
Prerequisites: ACC 03310
This course provides accounting field experience in government, industry or non-profit organizations. Interns are given assignments that prepare them for productive employment upon graduation. The learning process is monitored by an accounting faculty member.

ACC 03301: Accounting Analytics 3 s.h.
Prerequisites: STAT 02260 and ACC 03211 and (MATH 03125 or MATH 01130 or MATH 01140)
This course provides an introduction to accounting analytics. Accounting data will be identified, described, extracted, transformed, and manipulated using analytical, visualization, and data storage/management technologies to solve business problems. Students will employ ETL, (extract, transform, and load), descriptive, predictive, and exploratory analytical and visualization techniques.

ACC 03310: Intermediate Accounting I 3 s.h.
Prerequisites: ACC 03210 and ACC 03211 minimum grade of C in both courses
This course includes a review of the accounting process, the preparation of each of the financial statements - i.e., Statement of Financial Position, Statement of Income, Statement of Changes in Owner's Equity, and Statement of Cash Flows - and the specific principles related to the accounting for current assets, current liabilities and long-term liabilities. A special section is devoted to the time value of money as related to accounting.

ACC 03311: Intermediate Accounting II 3 s.h.
Prerequisites: ACC 03310 minimum grade of C-
This course includes the accounting principles related to investments, operating assets, current and long-term liabilities and owner's equity accounts. In addition, special topics cover accounting for leases, pensions and current value accounting.

ACC 03316: Concepts in Federal Taxation 3 s.h.
Prerequisites: ACC 03310 and 57 Credits Required
This course presents an overview of the Federal Tax System in a conceptual framework with emphasis on transactions common to all entities. It exposes students to taxation and its interrelationship between individuals, corporations, partnerships and other business entities. Students will review recent tax legislation and will gain experience in research and preparation of tax returns in a manual and computerized environment.

ACC 03320: Accounting Information Systems 3 s.h.
Prerequisites: ACC 03310 and (MIS 02234 or MIS 02210)
The course is designed to give the accounting student an introduction to the concepts and tools related to the use, development, and adaptation of computer-based accounting information systems. The course will emphasize information system analysis and design, internal controls, and technology of accounting systems. Students will gain hands-on experience with a commercial accounting software system throughout the course.

ACC 03326: Strategic Cost Analysis 3 s.h.
Prerequisites: ACC 03210 and ACC 03211 minimum grade of C in both courses
This course deals with techniques and systems used for internal control. It views the cost accounting system as the connecting link between planning and control functions of management. Topics include cost accumulation procedures; job order and process cost accounting cycles, variance analysis, master and flexible budgets, cost-volume-profit analysis, and transfer pricing.

ACC 03328: Entrepreneurial Accounting 3 s.h.
Prerequisites: FIN 04300
This course provides students with the accounting and financial tools essential for effective decision making in starting and managing small to mid-sized businesses. It focuses on the measurement and evaluation of financial performance, effective cash management techniques, internal control concepts, good decision making for growth and long-term solvency of the business. A hands-on, project-based learning experience is emphasized to integrate the various financial tools and to assist students in applying what they learn.

ACC 03330: Selected Topics in Accounting .5 to 4 s.h.
Prerequisites: ACC 03310
In this course students will investigate new areas and developments in theory, research, and the practice of accounting. Specialized topics will vary each semester. The topics will be determined by the department and the instructor teaching the course. Course activities include in-depth study of selected topics, case analysis, and research.

ACC 03405: Foundations of Accounting 3 s.h.
This course presents an overview of accounting as an information system useful for decision making. It provides students with an understanding of the basic concepts of financial and managerial accounting from the perspective of a future user of accounting information.

ACC 03410: Auditing 3 s.h.
Prerequisites: ACC 03310 minimum grade of C- and STAT 02261
This course introduces students to the basic concepts underlying audit and assurance services and demonstrates how to apply the concepts to these services. It studies the framework of an audit which includes pre-planning, planning, evidence gathering, considering and/or auditing internal controls, performing various audit tests, audit completion, and rendering audit opinions via audit reports, and the use of statistics and audit software in the auditing process. This course also includes the application of auditing principles and procedures through the use of audit software.

ACC 03411: Advanced Auditing and Analytics 3 s.h.
Prerequisites: ACC 03410
This course builds on the knowledge base from Auditing (ACC 03410), to provide students with an in-depth understanding of the auditor's legal liability, the profession's regulatory environment, the audit process using advanced auditing techniques, the auditor's role in ensuring that publicly issued financial statements are fairly presented, and analyzing data to determine the reasonableness of financial information. The course will cover advanced topics concerning complex auditor judgments, data analysis, and the use of audit software tools for sampling and audit procedures.

ACC 03416: Advanced Accounting 3 s.h.
Prerequisites: ACC 03311 minimum grade of C-
This course covers concepts and accounting for business combinations, and specialized financial statement disclosures. It also covers the accounting for inter-company transfers, segment reporting, and interim reporting. It provides an overall review of generally accepted accounting principles in producing consolidated financial statements for the business and non-business organization.

ACC 03419: Forensic Accounting and Fraud Investigation 3 s.h.
Prerequisites: Minimum grade of C in both ACC 03210 and ACC 03211
This course provides an introduction to forensic accounting and fraud investigation. It examines the major causes of fraud and white-collar crime and methods to detect and prevent fraud. Tools and systems used in detecting fraud will be discussed. A key component of the course will allow students to understand the ethical and professional responsibility of the accounting profession as it relates to financial reporting. The course provides students exposure to case study, analytics and critical thinking in order to confirm that financial information is presented fairly.

ACC 03425: International Accounting 3 s.h.
Prerequisites: ACC 03311 minimum grade of C-
This course provides students with exposure to the critical role of foreign and international business perspectives and enables students to understand and compare the two most commonly applied accounting standards in the world, U.S. GAAP and IFRS. Topics covered will include IFRS, foreign currency transaction, analysis of foreign financial statements, international taxation, and transfer pricing.

ACC 03428: Integrative Accounting Seminar 3 s.h.
Prerequisites: ACC 03311 minimum grade of C- or ACC 02311
This course provides an integrative experience in which students synthesize knowledge from the accounting content areas to interpret, evaluate, and analyze financial information in order to enhance planning and decision making. The course uses case analyses to involve students in active rather than passive learning, and places emphasis on skills in analytical and critical thinking, technology, communication, and teamwork.

ACC 03430: Individual Taxation 3 s.h.
Prerequisites: ACC 03311
This course surveys the tax structure of the United States, emphasizing the Internal Revenue code and regulations that affect federal income tax liabilities of individuals. Basic tax research and preparation skills are a consistent theme throughout the course.

ACC 03431: Taxation of Business Entities 3 s.h.
Prerequisites: ACC 03430 or ACC 03432 or ACC 03316
This is an introductory course in the federal income taxation of business transactions relating to corporations, partnerships, LLCs, and estates and trusts. Students will explore tax policy issues, apply basic tax research to specific case problems, prepare common IRS forms and schedules, and develop skills necessary for effective tax planning and its impact on business decisions.

ACC 03432: Federal Taxation 3 s.h.
Prerequisites: ACC 03310
This course introduces the principles of federal income taxation as it relates to business transactions and decision making. Primary emphasis is on individual taxation with an overview of tax considerations and planning for business entities.

ACC 03500: Financial and Managerial Accounting 3 s.h.
This course takes a managerial approach with emphasis on decision making. It includes financial statement analysis and topics on determination of cost behavior using regression analysis and learning curves, activity-based costing, cost allocation, performance measurement, and the decision making process.

ACC 03502: Advanced Managerial Accounting 3 s.h.
Prerequisites: ACC 03500
This course explores advanced managerial accounting topics, beyond the introductory topics covered in ACC 03500 – Managerial Accounting, pertaining to the three basic managerial activities – planning, controlling and decision making. Several of these topics are further explored through case study analysis and discussion. The course also utilizes data analytics tools to better prepare students for challenges they face in the professional world.

ACC 03507: Government and Not-For-Profit Accounting 3 s.h.
Prerequisites: ACC 03500
This financial accounting course focuses on the contemporary accounting issues of governmental and non-profit organizations. It includes financial reporting, budgeting, forecasting and strategic planning in the environments of local, state, and federal government, colleges and universities, hospitals, and voluntary health and welfare organizations.

ACC 03509: Intermediate Financial Accounting 3 s.h.
This course will include a review of the accounting process, the conceptual framework, the preparation of financial statements and specific principles related to the accounting for current assets, property, plant and equipment, liabilities, leases, income taxes, pensions, and shareholders' equity. Research and empirical evidence will be emphasized. This course is restricted to students who have not taken Intermediate Accounting I and II at the undergraduate level.

ACC 03510: Financial Statement Analysis 3 s.h.
This course will take an expanded study of financial statement analysis from the point of view of the primary users of financial statements: equity and credit analysts. The analysis and use of financial statements will also emphasize the properties of numbers derived from these statements, and the features of the environment in which key decisions are made in using financial statement information. Research and empirical evidence will be emphasized.

ACC 98300: Law for Accountants 3 s.h.
Prerequisites: MGT 98242
This course includes the study of the legal aspects of sales, liability, secured transactions, commercial paper and consumer credit.

BUS 01100: How to Succeed in Business School 0 to 3 s.h.
This course is designed to help students adjust to college, provides information needed to be a successful business student, and introduces students to their chosen program of study. Focus will be on an overview of the Rohrer College of Business, introduction to a culture of professionalism, time management and successful academic skills, overview of major/career exploration, and engagement in Rowan and the business community.

BUS 01488: Career Planning and Development 2 s.h.
This course will provide students with multifaceted experiences in career planning and development. Students will engage in self-assessment, career exploration, job search strategies and decision making.

FIN 04300: Principles of Finance 3 s.h.
Prerequisites: ACC 03211 (may be taken concurrently) and STAT 02260 minimum grade of C- and (MATH 03125 or MATH 01130 or MATH 01140 minimum grade of C-) and ECON 04101 and ECON 04102
This course includes the following topics: financial goals; depreciation, taxation and cashflows; financing the firm via short-term, intermediate, and long-term debt, and preferred and common stock; capital budgeting and leasing; dividend policy; and business growth and contraction.

FIN 04310: Financial Analytics 3 s.h.
Co-requisite: FIN 04300 Prerequisite(s): Enrolled in BS Finance
This course provides an introduction to financial analytics. Students in this course will conceptualize, build, and interpret machine learning models relating to finance. Specifically, students will employ ETL (extract, transform, and load), descriptive, predictive, and exploratory analytical and visualization techniques to explore, understand, describe, and predict financial data/performance.

FIN 04327: Selected Topics in Finance .5 to 4 s.h.
Prerequisites: FIN 04300 minimum grade of C
In this course students will investigate new areas and developments in theory, research, and practice in finance. Specialized topics will vary each semester. The topics will be determined by the department and the instructor teaching the course. Course activities include in-depth study of selected topics, case analysis, and research.

FIN 04328: Selected Topics in Finance II 3 s.h.
Prerequisites: FIN 04300 minimum grade of C
In this course students will investigate new areas and developments in theory, research, and practice in finance. Specialized topics will vary each semester. The topics will be determined by the department and the instructor teaching the course. Course activities include in-depth study of selected topics, case analysis, and research.

FIN 04330: Finance Internship 3 s.h.
Prerequisites: FIN 04300
This course provides field experience in the finance discipline which includes commercial banking, investment banking, brokerage houses, corporations, government, and not-for-profit organizations. Interns are given assignments that prepare them for productive employment upon graduation. The learning process is monitored by a finance faculty member.

FIN 04350: Personal Financial Planning 3 s.h.
Prerequisites: FIN 04300
This course provides the framework and tools for preparing personal financial plans that serve as road maps for goal achievement. This course emphasizes the dynamics of the personal financial planning process by considering the impact of life changes - birth, marriage, divorce, job and career and death. This course will cover a wide variety of money management topics including budgeting, expenses, debt, saving, retirement, and insurance, among others.

FIN 04358: Bank Management 3 s.h.
Prerequisites: FIN 04300
This course discusses the regulations, structure, and operations of commercial banks, which are the largest of all financial institutions. This course also teaches how these economically vital firms manage different kinds of risks such as credit, market, liquidity, solvency, currency, operational and legal. This course also studies the international and global developments in the banking industry.

FIN 04422: Financial Management I 3 s.h.
Prerequisites: FIN 04300 minimum grade of C and STAT 02261
An in-depth study of the selected financial management topics using a case and problem-solving approach. The emphasis is on corporate asset management and investment decisions. Topics include risk and return analysis, cost of capital, capital budgeting decision methods, leasing, financial analysis and forecasting, and working capital management.

FIN 04423: Financial Management II 3 s.h.
Prerequisites: FIN 04422
An in-depth study of selected financial management topics using a case and problem-solving approach. The emphasis is on corporate financing decisions. Topics include capital structure decisions, dividend policy, long-term financing, bankruptcy, reorganization, liquidation, mergers, leveraged buyouts, divestitures, holding companies, and pension plan management.

FIN 04424: Seminar in Finance 3 s.h.
Prerequisites: FIN 04300 and STAT 02261
Having learned financial markets, financial management, and investment/portfolio analysis in previous finance courses, in this course, students will undertake integrative research on these subjects. This course will teach students the skills required to undertake independent research. They will select a topic, conduct a literature review, and collect and analyze data.

FIN 04425: Financial Derivatives 3 s.h.
Prerequisites: FIN 04430 minimum grade of C
This course covers a comprehensive survey of the various financial instruments available in the financial markets followed by an in-depth study of practical use of the financial instruments in hedging financial risk. Hedging will be performed from the perspectives of a financial manager and an investor or an investor consultant. Topics include options, futures, swaps, and other hybrid securities and how these securities are used to hedge the risk in a firm or specific financial transaction.

FIN 04431: Investments 3 s.h.
Prerequisites: FIN 04300 minimum grade of C and STAT 02261
The basic decision-making processes for investment decisions are outlined in this course in terms of investors' needs and market opportunities, security market operations, security valuation, investment time, government and corporate securities company analysis and portfolio management.

FIN 04433: Financial Institutions and Markets 3 s.h.
Prerequisites: FIN 04300 minimum grade of C
This course provides an overview of financial markets and institutions in the U.S. economy. It intends to equip students with a balanced introduction to the operations, mechanics, and structure of the U.S. financial system, emphasizing its institutions, markets, regulators and financial instruments. Another focus of the course is to analyze the major risks faced by financial institutions and the strategies for controlling and managing these risks.

FIN 04435: International Financial Management 3 s.h.
Prerequisites: FIN 04300 minimum grade of C
This course studies financial management in the international environment. Topics include foreign exchange risk management, multinational working capital management, international portfolio investment, foreign direct investment, capital budgeting for the multinational corporation, political risk, international financing and international financial markets.

FIN 04436: Insurance And Risk Management 3 s.h.
Prerequisites: FIN 04300 and STAT 02261
This course is an advanced and elective course for finance majors, and recommended for students who want to pursue careers in insurance and financial planning industries. The course combines the theoretical underpinnings of risk financing with practical applications and examples from business and individual perspectives. Topics include risk in our society, insurance and risk, types of insurers and marketing systems, insurance company operations, financial operations of insurers, government regulation of insurance, fundamental legal principles, analysis of insurance contracts, life insurance, annuity and individual retirement accounts, health insurance, employee benefits, home insurance, auto insurance, commercial property insurance, enterprise risk management, and use of capital market products for risk financing.

FIN 04438: Portfolio Management 3 s.h.
Prerequisites: FIN 04431
This course is an advanced and elective course for finance majors and recommended for students who want to pursue careers in financial planning, asset management or the investment banking industry. The course combines theory of portfolio management with the practical process and issues encountered when managing money in the real world. Topics include formulating investment policy, recognizing risk and return characteristics of investment vehicles, developing asset allocation and security selection strategies using top down fundamental analysis, and evaluating portfolio and manager performance relative to investment objectives and appropriate benchmarks. Investment tools, such as economic indicators, statistical analysis, and ratio comparison will be introduced in computer labs.

FIN 04439: Foundations of Fintech 3 s.h.
Prerequisite(s): FIN 04300 with a minimum grade of Cor better
The objective of this course is to introduce students to the multiple areas of application of technology in finance. Topics include electronic markets, digital cash, disruptive innovation/disintermediation, automated investing, blockchain/DeFi/smart contracts, crowdfunding, payments, money transfers, InsurTech, borrowing/lending/capital allocation, political/regulatory frameworks, privacy, risks, societal implications, pitfalls in autonomous finance, choices under uncertainty, behavioral biases, manipulation, and surveillance.

FIN 04444: Bitcoin, Cryptocurrency, and Blockchain Applications 3 s.h.
Prerequisites: FIN 04300 minimum grade of C
The objective of this course is to introduce students to the functionality and applications of bitcoin and other cryptocurrencies. Topics include basics of cryptography and cryptographic primitives used in distributed cryptocurrency systems, history of digital money, the design and function of the bitcoin system, anonymity, politics and regulation related to cryptocurrencies, extensions of the bitcoin system for non-monetary uses, altcoins. In addition, since the cryptocurrency markets provide free market data feeds, the course will include discussion and practice on building algorithmic trading systems.

FIN 04500: Financial Decision Making 3 s.h.
Pre-requisites: (ACC 03500 or ACC 03510) and MBA Foundation Courses
Students in this course will learn valuation techniques including adjusted present value, equity cash flows, and real-option valuation. In addition to comparing alternative valuation techniques and the assumptions and limitations underlying each, students will explore the technical difficulties and incentive effects caused by high leverage, the relation between capital structure and capital costs, the interaction between a firm's financial structure and its business strategies, the conditions contributing to potential under or over-valuation of a firm's prospects by the market, and the managerial consequences of such misvaluation.

FIN 04512: Capital Budgeting 3 s.h.
Prerequisites: MBA Foundation Course requirements, contact MBA Office for details
This course includes the following topics: estimation of project cash flows, interest, annuity, and present value calculations, evaluation of projects under conditions of certainty and risk, strategic planning in capital budgeting, and leasing.

FIN 04516: Issues in Finance 3 s.h.
Prerequisites: FIN 04500
This course includes the following topics: mergers and acquisitions, financial structure analysis, cost of capital analysis, capital budgeting, portfolio management, financial institutions, money and capital markets, and international finance.

FIN 04518: Derivative Securities and Financial Risk Management 3 s.h.
Prerequisites: FIN 04600
In this course students will learn forward, future, option and swap contracts, and hedging, arbitrage, and derivatives-pricing models. In addition, securitization and risk management concepts will be covered. Students will learn how to model and evaluate derivative instruments and their applications to corporate strategy and risk management.

FIN 04600: Investment Analysis and Portfolio Management 3 s.h.
Prerequisites: MSF Foundation Courses
In this course students will analyze and develop an ability to deal with the following topics: investment values and market price with regard to risk, return, portfolio diversification, taxes and inflation. Students will also examine the role of fixed income securities versus common stock prices, yields, returns and valuations, warrants, options and future contracts, U.S. and foreign securities markets, and the rapidly developing science of portfolio management as it applies to both the firm and the individual.

AFST 11104: Introduction To Africana Studies 3 s.h.
This course will introduce students to the interdisciplinary, multicultural and international field of Africana Studies, from the perspective of the experiences and scholarly and creative contributions of Africans and African descendants to the making of the modern world. The primary focus in the course will be to explore how the experiences and contributions of African peoples have influenced historical and contemporary developments, addressed urgent societal issues, and helped to shape social consciousness, social activism and social change, within the African Diaspora and the global community.

AFST 11304: Africana Social Thought 3 s.h.
Prerequisites: AFST 11104
This course engages students in an introductory overview of major ideas, theories, ideological debates, and social/political movements that have emerged in the African Diaspora to challenge national and global social, political, economic and other realities, and to produce a dynamic framework of historical and contemporary thought that have helped to shape social consciousness, social activism, and public policy.

AFST 11305: Research Methods In Africana Studies .5 to 3 s.h.
Prerequisites: AFST 11104 and COMP 01112
This course is designed to develop students skills in applying and critically reviewomg basic quantitative research methods. Topics will include analysis of descriptive, correlational and experimental studies, followed by an extensive presentation of the main qualitative research methods, including case studies, ethnographic studies, grounded theory research, life history studies, phenomenological studies, and participatory action research. Students will also learn data gathering methods such as observation, interviewing, and analysis of archival materials.

AFST 11310: Service Learning Seminar In Africana Studies 3 s.h.
Prerequisites: AFST 11104 and Permission of Instructor is also required
The proposed model for the Africana Studies Major at Rowan University requires that students participate in a three-credit service learning experience, accumulating 70-75 hours with an educational, social sevice, mental health, business, or cultural/civic group, institution or organization to explore community or institutional development initiatives which address issues that are local, regional, national and/or international in scope. The seminar will integrate classroom learning and community service through a collaborative partnership involving each student, the seminar leader, and a leader within the community organization. Students will spend approximately one day a week at their internship site, and will return to the classroom to share their experiences. Students interested in enrolling in the Service Learning Internship must interview with the course instructor one semester prior to the semester in which they will enroll in the course.

AFST 11350: Topics in Africana Studies 3 s.h.
This course introduces students to in-depth historical analysis of a selected theme, including work with scholarly sources, intensive writing and class discussion.

AFST 11450: Senior Seminar In Africana Studies 3 s.h.
Prerequisites: AFST 11104, AFST 11304, and AFST 11305 or an equivilant methods course
The senior seminar in Africana Studies is designed as teh culmination of students' experiences in the various aspects of the Africana Studies major. The course emphasizes and reinforces elements of the research and service components of the Africana Studies major, while exploring original themes or focusing on more extensive and intensive study of themes covered in survey courses. It will also provide for faculty and students an intellectual discussion community in which to posit, examine, and disseminate cutting-edge scholarship and creative work, including interdisciplinary approaches to topics in the study of peoples of African descent. Students will use critical thinking and analytical skills in understanding and interpreting relevant literature, to develop a proposal for research, and to produce a substantial written research project report, using either qualitative or quantitative research methods or an integration of both.

RESP 09300: Fundamentals of Respiratory Care Lecture 3 s.h.
Co-requisite(s): RESP 09301
This course is designed to introduce the respiratory therapy student to the foundational principles of respiratory care and will provide a basic understanding of the diagnostic and therapeutic modalities utilized in the current evidence-based practice of respiratory care. This lecture course is designed to integrate with the Fundamentals of Respiratory Care Lab course and create a foundation of basic knowledge and skills that can be reinforced in the Clinical Practice I course.

RESP 09301: Fundamentals of Respiratory Care Lab 2 s.h.
Prerequisite(s): Enrollment in the Program or Instructor PermissionCo-requisite(s): RESP 09300
This course is the laboratory course students will take concurrently with the RESP 09.300 Fundamentals of Respiratory Care lecture course and will consist of demonstration, supervised practice and basic simulation of diagnostic and therapeutic procedures associated with basic Respiratory Care.

RESP 09303: Respiratory Care Pharmacology 2 s.h.
Prerequisite(s): Program admission
This course is designed to introduce the respiratory therapy student to the basic principles of the pharmacology associated with Respiratory Care. A special emphasis will be placed on drugs used to diagnose and treat diseases affecting the cardiovascular and pulmonary systems.

RESP 09304: Critical Care 3 s.h.
Prerequisite(s): Program Admission
This course is designed to introduce the respiratory student to the critical care setting and will provide an overview of various aspects of the respiratory and inter-professional care required to manage the critical care patient in this setting.

RESP 09305: Clinical Practice I 2 s.h.
Prerequisite(s): RESP 09301
This course is designed to orient the respiratory therapy student to the hospital clinical setting. Clinical instruction and supervision are provided to help the student practice and hone the basic diagnostic, assessment and therapeutic skills associated with respiratory care in the clinical setting.

RESP 09306: Cardiopulmonary Evaluation 3 s.h.
Prerequisite(s): Program admission and RESP 09300
This course is designed to build upon previously learned respiratory care theory and skills by introducing the respiratory therapy student to advanced techniques associated with the progressive assessment and care of cardiopulmonary patients. Basic and advanced pulmonary function testing, basic electrocardiogram interpretation, arterial blood gas interpretation and basic hemodynamic assessments will be discussed as some of the various diagnostic and monitoring techniques used to evaluate and treat patients with cardiopulmonary disease or conditions affecting the cardiopulmonary system.

RESP 09307: Cardiopulmonary Pathophysiology 3 s.h.
Prerequisite(s): Program admission and RESP 09300
This course is an exploration and analysis of the etiologies, pathophysiology, diagnosis and treatment of diseases and disorders affecting the cardiopulmonary system. An emphasis is placed on the selection and development of appropriate respiratory care plans.

RESP 09310: Principles of Ventilatory Support I Lecture 3 s.h.
Prerequisite(s): Program admission and RESP 09300 and RESP 09301
This course is designed to introduce the respiratory therapy student to the physics of gas flow, the physiological principles of spontaneous ventilation and the rationale for and use of various devices and techniques used in the provision of mechanical ventilation to all patients requiring artificial airways and or ventilatory support.

RESP 09311: Principles of Ventilatory Support I Lab 2 s.h.
Prerequisite(s): Program admission and RESP 09300 RESP 09301
This course is the laboratory component of the Principles of Ventilatory Support I course. In this course, instruction and guided practice will focus on the insertion of artificial airways, the maintenance of artificial airways and the application of both invasive and non-invasive mechanical ventilatory support devices. The proper use of devices used to measure and assess the adequacy of ventilation will also be covered. The Monitoring and maintenance of the mechanically ventilated patient, and weaning and liberation from ventilatory support devices and the discontinuation of life support will also be demonstrated and practiced.

RESP 09315: Clinical Practice II 2 s.h.
Prerequisite(s): Program admission and RESP 09300 and RESP 09301 and RESP 09305
This course is a continuation of Clinical Practicum I and is designed to orient the student to the critical care environment. Clinical instruction and supervision are provided to help the student refine the core objectives of Clinical Practicum I and to allow the student to acquire the skills necessary for advanced patient assessment, initiation of non-invasive and invasive ventilation, monitoring and management of the mechanically ventilated patient, weaning the ventilated patient, ventilator liberation and assisting patients with the successful transition to spontaneous ventilation.

RESP 09400: Introduction to Clinical Research 3 s.h.
Prerequisite(s): Program admission
This course is an introduction to the fundamentals of clinical research, especially as related to the profession of respiratory care. This course is designed to enhance the communication skills of respiratory therapy students in finding, evaluating and incorporating research into discussions regarding respiratory care and clinical practice.

RESP 09401: Evidence-based Practice 3 s.h.
Prerequisite(s): Program admission and RESP 09400
This course focuses on the skills needed to critically examine research as evidence for current respiratory clinical practice. In this course, respiratory therapy students will evaluate one or more current respiratory therapy clinical practice modalities and find research evidence that either supports current practice or that indicates the need for change or revision. Discussions will include quality and abundance of evidence and methods for communicating evidence in a way that supports changes in practice or adaptation if support exists.

RESP 09402: Pediatric and Neonatal Respiratory Care Lecture 3 s.h.
Prerequisite(s): Program admission and RESP 09300 and RESP 09301
This course is designed to introduce the respiratory therapy student to the basic principles of the specialized respiratory care provided for neonatal and pediatric patients. This course will focus on anatomical and physiological differences between this group of patients and adults, as well as the various pathologies related to both neonatal and pediatric patient populations.

RESP 09403: Pediatric and Neonatal Respiratory Care Lab 1 s.h.
Prerequisite(s): Program admission and RESP 09300 and RESP 09301
In this laboratory component of the Pediatric & Neonatal Respiratory Care course, instruction and guided practice will focus on various types of therapeutic and ventilatory assistance devices used to care for neonatal and pediatric patients.

RESP 09404: Respiratory Care in the Long Term, Home Care & Pulmonary Rehab Setting 3 s.h.
Prerequisite(s): Program admission and RESP 09300
This course introduces the respiratory student to the many extra-hospital environments in which respiratory care is provided. Students will be introduced to Long Term Acute Care, (LTAC) Sub-Acute Care Facilities, Skilled Nursing Facilities, Pulmonary Rehabilitation facilities and the Home Care setting.

RESP 09410: Principles of Ventilatory Support II 3 s.h.
Prerequisite(s): Program admission and RESP 09310 and RESP 09311
This course is designed to expand upon the theories learned in RESP 09410 Principles of Ventilatory Support I by introducing the respiratory student to airway pressure release ventilation, high frequency oscillatory ventilation, volumetric CO_2 monitoring, advanced ventilator graphics analysis, esophageal pressure measurement/monitoring and other advanced diagnostic and therapeutic techniques used to care for critically ill or injured patients requiring mechanical ventilatory assistance.

RESP 09411: Principles of Ventilatory Support II Lab 2 s.h.
Prerequisite(s): Program admission and RESP 09310 and RESP 09311
In this laboratory component of the Principles of Ventilatory Support II course, instruction and guided practice will focus on advanced modes of mechanical ventilation and specialized devices used to monitor and support the critically ill patient with severe disease affecting the cardiopulmonary system.

RESP 09425: Clinical Practice III 3 s.h.
Prerequisite(s): Program admission and RESP 09310 and RESP 09311 and RESP 09315
This course is a continuation of Clinical Practicum II and is designed to allow the respiratory student to hone and master the skills required to practice in the critical care setting. Students will be required to complete 180 clinical hours in 12-hour rotations and will work closely with and be supervised by a designated preceptor in each of several mandatory clinical rotations including cardiovascular intensive care, trauma intensive care, emergency care and neonatal intensive care.

RESP 09435: Clinical Practice IV 3 s.h.
Prerequisite(s): Program admission and RESP 09310 and RESP 09311 and RESP 09425
This final clinical practicum course will further enhance the clinical education of the respiratory student through a series of specialty rotations. Students will gain clinical experience in long-term acute care hospital facilities, pulmonary physician's offices, pulmonary rehabilitation facilities, homecare settings, and sleep labs.

RESP 09450: Senior Seminar 3 s.h.
Prerequisite(s): Program admission and RESP 09300
This is the capstone course of the BSRT program. This course is designed to complement learning after the completion of all core respiratory courses. By applying the concepts learned in required BSRT courses, students are encouraged to analyze current respiratory care practice and the current status of the respiratory therapists as members of the inter-professional healthcare team and evaluate the need for change or improvement.

RESP 09460: Advanced Concepts in Respiratory and Critical Care 3 s.h.
This course is designed to introduce and discuss topics related to the state of the science of respiratory care. Discussions will revolve around current best practices in respiratory assessment, diagnostics, and therapeutics in Respiratory Care, especially in the critical care and emergency room settings.

RESP 09462: Ethics and End of Life Issues 3 s.h.
Prerequisite(s): Admission to the program or instructor permission
This course will revolve around various topics related to the ethical practice of respiratory care. The roles of respiratory therapists and other members of the inter-professional team in caring for patients with terminal disease and their family members will be discussed as well as the futility of medical intervention in End-Stage terminal disease.

RESP 09463: Polysomnography and Topics in Sleep Medicine 3 s.h.
Prerequisite(s): Program admission or permission of the instructor
This course will introduce respiratory students to the topic of polysomnography and other diagnostic measures utilized to assess sleep disturbance and its effects on the cardiopulmonary system. CPAP and other treatment modalities are also discussed.

RESP 09464: Leadership in Respiratory Care 3 s.h.
Prerequisite(s): Program admission or permission of the instructor
This course is an introduction to the various management and leadership roles in Respiratory Care. Discussions will include decision making, cost reduction, the importance of inter-departmental collaboration, healthcare and academic administration organizational structure, student retention, as well as other topics related to management/ leadership roles, in both clinical and academic settings.

RESP 09465: Capstone 3 s.h.
Prerequisite(s): Program admission or instructor permission
This is the capstone course of the BSRT degree advancement program. Students will complete projects revolving around topics related to cost reduction and quality improvement, evidence-based improvement of respiratory care, or advocacy and improvement of public awareness of the Respiratory Therapy profession.

AMST 13101: Introduction to American Studies 3 s.h.
Prerequisite: COMP 01112
This is an interdisciplinary course intended to introduce the methods and themes central to American Studies. The course describes the typical methods of text, social, historical, and cultural analyses as they apply to the study of American society and culture.

AMST 13301: Interdisciplinary Research and Writing 3 s.h.
Prerequisite: COMP 01112 and AMST 13101 orCorequisite:AMST 13101
Interdisciplinary Research and Writing provides a disciplinary and interdisciplinary approach to research and writing. The students will gain a basic knowledge of the research methods and writing of three different disciplinary areas: Literary Studies, History, and Social Sciences. These units will approach four questions in a parallel form for each field: What counts as knowledge in this discipline? What counts as evidence in this discipline? How do we collect evidence? and, How do we write up and write about our original research?

AMST 13320: American Studies in the Classroom-WI 3 s.h.
Prerequisite: COMP 01112
This course provides students Social Studies skills for aspiring school teachers in all grade levels. Focusing on historical periodization, primary sources, and map reading, this course focuses upon pedagogy and disciplinary methodology to provide tools for effective social studies teaching at all grade levels.

AMST 13400: Independent Study In American Studies 3 to 9 s.h.
Students will engage in an independent study project under the supervision of a faculty member. Topics will vary.

AMST 13402: Senior Seminar in American Studies - WI 3 s.h.
Prerequisite(s): AMST 13301 and COMP 01112
This seminar provides the opportunity for students to engage in their own research into American Studies and to significantly advance their own scholarly development in the field. Students interact with their instructor and the other students in the seminar in the development and completion of individual projects. The central theme will vary by semester. Topics may include: ethnicity, popular religion, slavery in North America, World War II at home and abroad.

ARHS 03103: Art History Survey I: Prehistory to Medieval 3 s.h.
This course traces the history of painting, sculpture, architecture, and crafts in various global cultures from the Old Stone Age through the Middle Ages. Museum resources in the greater Philadelphia region extend the classroom experience.

ARHS 03104: Art History Survey II: Renaissance to Modern 3 s.h.
This course traces the history of Western visual arts from the Renaissance into the twentieth century. Museum resources in the greater Philadelphia region extend the classroom experience.

ARHS 03130: Art Appreciation 3 s.h.
This general art appreciation course deals specifically with outstanding examples drawn from such diverse areas as product design, architecture, interior design, drawing, painting, sculpture, printmaking and the creative crafts, taken from various time periods in the history of the human family and from different places the world over.

ARHS 03205: Art History Survey III 3 s.h.
This course presents the history of the visual arts in the West from the mid-eighteenth century to modern times. There are no prerequisites but students are urged to take Art History Survey I and II prior to taking Art History Survey III.

ARHS 03220: Modern Art 3 s.h.
This course introduces significant creative visual art achievements of the nineteenth and twentieth centuries. Specific areas of coverage include impressionism, post-impressionism, fauvism, expressionism, cubism, non-representational directions, surrealism, regionalism, abstraction, pop art and hyperrealism.

ARHS 03230: Survey: Women Artists 3 s.h.
An introduction to the work of many female artists who form an important part of the history of art. In order to break down stereotypes, each artist is discussed within the context of her society and with respect to her role in the art world. Rather than canonizing a group of "great women artists," the course is intended to return female artists to their rightful place in history through the study of individuals whose accomplishments demonstrate the tremendous effect women have had on the visual arts. Since a single semester is too brief for an exhaustive study of women's contributions, this course focuses on a selection of European and Americn artists from the sixteenth through twenty-first centuries.

ARHS 03231: Survey of Asian Art 3 s.h.
This course provides an introduction to the artistic traditions of China, Japan, India, Korea, and Southeast Asia with an emphasis on historical, religious and social context. Focus on the arts of Buddhism, Hinduism, and other religious and cultural influences on the visual arts.

ARHS 03241: History of Photography 3 s.h.
This course will present the 175 year history of photography in a comprehensive and detailed manner. Students will gain an overview of the history of photography from its inception to present day. Emphasis will be placed on significant movements, concepts and individuals relevant to the evolution of photography. Field trips to galleries and museums where photography can be viewed will be an integral part of the course. Class sessions will consist of digital presentations of images and concepts from the history of photography and will be supported by the required text. Classes will be augmented by readings and field trips to galleries and museums.

ARHS 03252: Concepts In Art Criticism - WI 3 s.h.
Prerequisite(s): ARHS 03104 or ARHS 03220
This course is designed to help the students identify and employ methods of examining art works which allow them to speak and write thoughtful judgments about the art in their world.

ARHS 03310: History of American Art 3 s.h.
A minimum of at least 30 s.h. completed.
This course provides students with an overview of the development of painting, sculpture and architecture in America from colonial times to the 20th century.

ARHS 03340: Survey of Women Artists 3 s.h.
An introduction to the work of many female artists who form an important part of the history of art. In order to break down stereotypes, each artist is discussed within the context of her society and with respect to her role in the art world. Rather than canonizing a group of "great women artists," the course is intended to return female artists to their rightful place in history through the study of individuals whose accomplishments demonstrate the tremendous effect women have had on the visual arts. Since a single semester is too brief for an exhaustive study of women's contributions, this course focuses on a selection of European and American artists from the sixteenth through twenty-first centuries.

ARHS 03350: History of Graphic Design 3 s.h.
Prerequisites: ART 09343 or ADV 04370
Graphic design from the 19th century to the present, with emphasis on European and American sources and some examination of world design issues relevant to contemporary design practice. Discussion of events, ideas, movements, designers and other individuals with historical significance and influence. Content topics will consider typography, graphic translation, publication, identity and design systems, visual propaganda, and the effect of technology on design production and creative output. Students without the prerequisite may enroll with instructor's permission.

ARHS 03420: Contemporary Art 3 s.h.
Prerequisite(s): ARHS 03205 or ARHS 03220
This course explores the visual arts over the last thirty years, with particular emphasis on theory, criticism, political and cultural influences, expanded media, and the art market.

ARHS 03425: Special Problems in Art History 3 s.h.
Prerequisite(s): ARHS 03103 or ARHS 03104
Special Problems in Art History is an intensive investigation of a specific movement, style, medium, or major artist. Content changes each time the course is offered. Check the Schedule of Classes to determine specific area of study.

ARHS 03520: Art Since 1945 3 s.h.

ART 02100: Drawing I: Representational Drawing 3 s.h.
This course presents the basic representational skills and knowledge for effective drawing. It covers the elements and fundamentals of perspective, composition, anatomy, light and shade and rendering.

ART 02105: Color and Design: Two Dimensional 3 s.h.
An introductory lecture/studio course dealing with compositional strategies, to teach students to manipulate elements in dealing with solutions to the problems of aesthetics, function, and balance and the relationship between form and content. In the studio student's work on selected conceptual problems in both black and white and color in various materials.

ART 02110: Figure Drawing 3 s.h.
Prerequisite: ART 02100 OR ART 02200 allows concurrency
This course consists of experimenting, exploring and improvising with techniques suitable for drawing representation of such visual forms as figure and still-life. It also covers nonrepresentational approaches. For art majors only.

ART 02200: Expressive Drawing 3 s.h.
Prerequisites: ART 02100
This course will consist of experimentation, exploring, and improvisation with techniques suitable for representation of visual forms such as still-life, landscape, and figures as well as non-representational approaches.

ART 02207: Color and Design: Three Dimensional 3 s.h.
Drawing on the experiences gained in the 2D design and color problems, this course teaches students to establish visual excitement in a 3D format. Students deal with relationships of organic and natural structures and mechanical and geometric forms, as well as methods for relating them to one another.

ART 02211: Intermediate Drawing IV 3 s.h.
Prerequisites: ART 02200
These studios are a continuation of fundamental drawing. They will include figure/life drawing, composition, technique, and the analysis of human form, as well as other drawing problems.

ART 02220: Introduction to Painting 3 s.h.
This course introduces students to basic concepts, techniques, materials and procedures of oil painting. Students are encouraged strongly to take ART 02100: Representational Drawing before enrolling in this course.

ART 02222: Studio Core Portfolio Review 0 s.h.
After completing the Foundation Studio Core, each student will present a portfolio of 15 works executed in design and drawing. This portfolio will include at least 8 drawings and at least 5 designs including no less than two three-dimensional projects. Students will receive an evaluation of their portfolios, which is required before progressing on to the studio specialization. Students sign up for this review the semester they are enrolling in their final studio courses of the Foundation Core.

ART 02239: Introduction to Glass Working 3 s.h.
Prerequisite: ART 02240 OR ART 09240 allows concurrency
This introductory studio course is designed to teach students to use glass as an expressive art medium. It includes studio work to develop skills and knowledge, as well as discussions and lectures to develop an understanding of both historical and contemporary approaches to the medium. Students explore both sculptural and utilitarian forms in glass. Techniques covered include slumping, fusing, kiln casting, lampworking and pate-de-verre.

ART 02240: Introduction to Sculpture 3 s.h.
Introduction to basic processes, materials, and concepts of sculpture and three-dimensional problem solving techniques. This course is designed to provide students with safety orientation for their use of equipment and materials.

ART 02245: Intermediate Figure Sculpture 3 s.h.
Prerequisites: ART 02222
This studio emphasizes the analytical and expressive potential of the human figure in sculpture by working in a variety of techniques and methods, including modeling in clay from the live figure. Techniques of moldmaking and casting are an integral part of the course.

ART 02260: Introduction to Printmaking 3 s.h.
The introductory course surveys techniques used in creating intaglio and relief prints. Demonstrated techniques include etching, drypoint, woodcut, lino cut and other press and hand-printing processes.

ART 02300: Workshop in Art 3 s.h.
This course explores various studio experiences and techniques. The area(s) to be covered will be identified prior to registration each semester. For non-art majors only.

ART 02301: Intermediate Sculpture 3 s.h.
Prerequisite: ART 02240
Projected-based assignments are designed to foster a deeper understanding of sculptural form, employing traditional and nontraditional modes, materials and processes. Emphasis is placed upon the development of skills, craft and critical & conceptual thinking. The specific course content & media focus varies over several semesters.

ART 02304: Intermediate Glass Working 3 s.h.
Prerequisites: ART 02239
This intermediate studio course will further explore issues and techniques learned in Glass-Working I. Students will have the opportunity to study in depth methods of forming glass that allow individual artistic expression and personal style to be developed. Projects will be assigned according to the techniques and processes in which students are interested. Repeatable 3 times

ART 02315: Intermediate Painting 3 s.h.
Prerequisite: ART 02222
Intermediate Painting requires the prerequisite of ART 02220 Introduction to Painting. This course continues continue the study of painting, emphasizing the expressive and physical qualities of media, pictorial composition and color theory.

ART 02317: Intermediate Printmaking 3 s.h.
Prerequisite: ART 02260
These studios allow students to pursue further study in relief and intaglio processes both traditional and experimental approaches. Also the possibilities of photography as it relates to printmaking in a variety of multi-block and multi-plate color processes will be investigated.

ART 02318: Special Topics in Printmaking 3 s.h.
Prerequisites: ART 02222 and ART 02260
This course focuses on a particular topic within this studio specialty and offers an in-depth study of the concepts and techniques used by artists who base their work on a particular genre. The topical content may vary each time the course is offered.

ART 02325: Intermediate Figure/Life Painting And Drawing 3 s.h.
Prerequisites: ART 02220 and ART 02222
Students paint from life and costumed figures to strengthen their understanding of figure articulation, action, proportion and anatomical construction.

ART 02327: Introduction to Watercolor 3 s.h.
This course explores the techniques and uses of watercolor and other water-soluble media that serves students' needs and interests in a variety of ways from journaling, sketching, documentation, design, and creating formal fine works of art. The historical uses of this media and present day applications by artists will be introduced.

ART 02370: Selected Topics in Glass-Working 3 s.h.
Prerequisites: ART 02222
Selected topics to be presented may include lamp-working, stained glass, painting and enameling, history of glass-working and, when facilities can be scheduled with Wheaton Village, glassblowing and/or glass casting.

ART 02400: Independent Study .5 to 9 s.h.
Intended primarily for students working at an advanced level in one of the regular studio areas, this course allows students to complete various projects. Students must show sufficient maturity and experience to assure successful completion of the proposed project.

ART 02401: Advanced Sculpture 3 s.h.
Prerequisite: ART 02301
These studios explore advanced problems in sculpture. Students work in consultation with the instructor.

ART 02404: Advanced Glass Working 3 s.h.
Prerequisites: ART 02403
This advanced studio course will utilize the techniques of Pate-de-verre, slumping, fusing, kiln casting and lamp working. Students will work on projects agreed upon in a contract with the instructor. By this level, students are expected to be operating at an advanced level of technique and aesthetic content. Repeatable 3 times

ART 02414: Advanced Painting 3 s.h.
Prerequisite: ART 02315
These studios provide advanced study emphasizing individual conception of the painted image, composition and design in both representational or abstract painting.

ART 02430: Advanced Printmaking 3 s.h.
Prerequisite: ART 02317
In these studios, students continue to explore printmaking, developing problems that emphasize individual development and discovery. These studios will be individualized to meet the requirements of advanced students

ART 09110: Experiencing Art 3 s.h.
This course provides art experiences as processes which, in a workshop environment, are developed by students into expressional plastic forms. This course introduces work with the tools, materials, processes and purposes of art. Materials used may include clay, paint, wood, plastics, metals and fabric. For non-art majors only.

ART 09200: Theory and Analysis of Art Education 3 s.h.
This course provides students with an historical knowledge base of the theories, philosophies and persons that have impacted the teaching of art in public schools. Assignments will actively engage learners in developing their own teaching philosophies as they examine current theoretical and pedagogical research, and the national and state curriculum standards for teachers and students of the visual arts.

ART 09201: Community Art Education for Elementary Through Middle Grades 3 s.h.
Prerequisite: EDUC 20220 Corequisite(s): SMED 01350 and SECD 03330
This course introduces students to community visual arts programming and involves them in the practice of organizing for art instruction and the teaching of elementary and middle school aged children who are enrolled in the Saturday Morning Art program (smART).

ART 09202: Community Art Education for Secondary Grades 3 s.h.
Prerequisite(s): SMED 01350 and SECD 03330 Corequisite(s): SMED 31360 and SECD 03332
This course introduces students to community visual arts programming and involves them in the practice of organizing for art instruction and the teaching of adolescents whose schools are partnering with the Saturday Morning Art (smART) program.

ART 09203: Technology for the Art Classroom 3 s.h.
Prerequisite: None
This course prepares pre-service visual art teachers for media and technology applications in the art classroom. These applications include, but are not limited to, using technology as an instructional tool, classroom management, communication, assessment, professional development, and arts advocacy. The knowledge and skills of technology learned from this course is not for content production purposes, but for helping pre-service teachers improve their teaching performance.

ART 09210: Introduction To Metals And Jewelry 3 s.h.
This course introduces metal fabrication techniques including piercing, cold connecting, forming, texturing, soldering, and finishing of non-ferrous metals in order to create small-scale metalwork and jewelry. Technical skills and craftsmanship will be stressed while the students explore ideas and concepts through this three-dimensional medium.

ART 09212: Jewelry and Metal Casting 3 s.h.
Prerequisites: ART 09210
This course deals with various metal casting processes, using a variety of metals. The course provides an in-depth learning experience through intensive independent work.

ART 09225: Introduction to Puppetry I 3 s.h.
This course provides an overview of the field of puppetry, including history, construction, playwriting and performance. It includes studio work.

ART 09226: Intermediate Puppetry II - Puppetry In Education 3 s.h.
This course is devoted to structuring puppet experiences in the classroom and teaching with puppets.

ART 09228: Introduction to Illustration 3 s.h.
Prerequisites: ART 02100 OR ART 02200 allows concurrency
This course provides students with an introductory experience with illustration. Students will work with basic visual, technical and expressive problems in preparation for further study in illustration.

ART 09240: Introduction to Ceramics 3 s.h.
An introductory studio/lecture course designed to teach students to use clay as an expressive art medium. It includes studio work to develop technical skills and knowledge along with discussions and lectures to develop an understanding of both historical and contemporary approaches. Students explore both utilitarian and sculptural forms in clay.

ART 09251: Introduction to Figure Anatomy for the Artist 3 s.h.
This course is designed to strengthen the students understanding of observational figure drawing and anatomy. Students will develop skills and techniques to accurately recreate the human form by learning the fundamentals of skeletal and muscle anatomy of the human body. The course will serve to improve observational and realistic figure drawing skills, by learning the anatomical relationships and techniques for visualizing form. This course will provide the student the opportunity to interpret anatomy knowledge by working directly from the figure in the drawing studio and the human cadaver at the Cooper Medical School.

ART 09252: Introduction to Natural Science & Zoological Illustration 3 s.h.
This course is designed to develop a strong foundation in concept development and observational drawing skills. As well as integrate traditional and introductory digital media techniques within the subject matter of drawing plants, animals, and natural science content. Both traditional forms of media (graphite, pen/ink, charcoal, color pencil etc.) and digital forms of media production will be used to illustrate subjects through demonstrations and visual problems. The course will focus on the integration of traditional and digital media, as it related to realistic and representational drawing. Students will learn professional production methods and design conventions within the field of natural science and zoological illustration.

ART 09253: Introduction to Digital 3D Modeling 3 s.h.
This is an aesthetics based media course that communicates digital 3D content for both biomedical art (didactic) media and entertainment media (illustration, animation, game design etc.). The course is designed to cover concepts in digital 3D organic and inorganic object modeling, which includes observational modeling, conceptual process modeling, and narrative modeling. Students will learn to develop a broad range of modeled content including but not limited to characters, objects, and environments. The digital models designed are rendered and composited as 2D illustration to solve specific visual communication problems. The software (Autodesk 3D Studio Max and Mudbox) used in the course are industry standards for 3D computer graphics production. The subject matter within the Specialization in Biomedical Art and Visualization reflects the subject matter of science and medicine. Students in broader areas of art (sculpture, illustration, painting, etc.) will be able to focus on specific subje4cts relevant to their artistic goals using the 3D methods and techniques.

ART 09301: Digital Media And Techniques 3 s.h.
This foundation course introduces students to digital media in solving art and design problems. Through demonstrations and hands-on experience, students will explore various computer software applications related to the fine arts and graphic design.

ART 09303: Professional Practices in Art I 3 s.h.
Prerequisite: ART 09390 or Permission by Instructor
This course is designed to provide art majors with an in depth exploration of the professional practices artists undertake in order to establish and foster a professional career in the arts. Students will be explored to a variety of resources, techniques, and methods available to help build their careers after bacculaureate graduation.

ART 09306: Special Topics in Art 1 to 3 s.h.
This course provides extended study in art. The topical content may vary each time the course is offered. Students may enroll in this course multiple times.

ART 09307: Special Topics in Art Studio 1 to 3 s.h.
This studio course provides extended study in art. The topical content may vary each time the course is offered. Students may enroll in this course multiple times.

ART 09308: Color Theory 3 s.h.
This course covers the basic elements of color theory and also provides an opportunity to explore intuitive and practical applications of color in the making of art. Students will consider visual and aesthetic interactions of color, classification, the science of color perception, and psychological and cultural aspects of color in art and design. The course combines lecture, demonstration, and critique with intensive hands-on exploration.

ART 09310: Intermediate Puppetry III 3 s.h.
This course is devoted to structuring puppet experiences in the classroom and teaching with puppets.

ART 09311: Intermediate Metals and Jewelry 3 s.h.
Prerequisites: ART 09210
These courses have a rotating topic of emphasis and build on the techniques and process learned in Introduction to Metals/Jewelry. The semester long topics include forming, vitreous enameling, and small-scale casting. Students will apply these techniques to create unique concept driven jewelry and metalwork. Contact the professor to inquire about the topic of emphasis for the semester.

ART 09313: Intermediate Puppetry IV 3 s.h.
This course is devoted to structuring puppet experiences in the classroom and teaching with puppets.

ART 09314: Special Topics in Metals/Jewelry 3 s.h.
Prerequisites: ART 09210
This course focuses on a particular topic within this studio specialty and offers an in-depth study of the concepts and techniques used by artists who base their work on a particular genre. The topical content may vary each time the course is offered.

ART 09322: Public Art & Social Practice Studio 3 s.h.
This project-based studio course provides art students with applied experience in socially engaged art practice, an interdisciplinary and collaborative approach to investigating social issues through art in the public sphere. Students will develop and apply the values, methodologies, and leadership skills for collaboration with people in local communities and public spaces through art.

ART 09323: Public Art & Social Practice 3 s.h.
This course explores the societal roles and contexts of art in public space. Both art and non-art majors are introduced to socially engaged art practice, an interdisciplinary and collaborative approach to investigating social issues through art in the public sphere. Students develop the values, methodologies, and skills for collaboration with people in local communities and public spaces through art.

ART 09324: Art & Environment Studio 3 s.h.
This project-based studio course explores contemporary artistic responses to the environment. Students will be introduced to art movements, works, and practices addressing social and political issues relating to natural and urban environments. Students will incorporate environmental art questions and methods into their own studio practice and design an artistic response to an environmental and sustainability issue through cross-disciplinary collaboration.

ART 09326: Art & Environment 3 s.h.
This course explores contemporary artistic responses to the environment. Both art and non art majors will be introduced to art movements, works, and practices addressing social and political issues relating to natural and urban environments. Through cross-disciplinary collaboration, students will design an artistic response to an environmental and sustainability issue.

ART 09336: Intermediate Illustration 3 s.h.
Prerequisite: ART 09228
These courses provide in-depth study emphasizing the dynamics of the image and the symbolic and expressive use of visual language. Draftsmanship, and the application of technique and materials are studied and reviewed in periodic critiques of work in progress. Students will also continue work on developing a professional portfolio.

ART 09343: Introduction to Graphic Design I 3 s.h.
Prerequisites: ART 02100 AND ART 02105 AND ART 09301 which allows concurrent enrollment
Introduction and orientation to the design discipline through visual problem-solving, critical analysis, readings and writing. This process-based course is focused on fundamentals of image translation, typographic terminology, visual organization, and concept development. Using digital and traditional media, students will expand their visual vocabulary, problem-solving skills, conceptual thinking, and digital proficiency in creative explorations of theory, history, and practice.

ART 09344: Intermediate Graphic Design II: Typography 3 s.h.
Prerequisite: ART 09343 OR ADV 04370
This course emphasizes typography as the carrier of meaning. It investigates functional and formal properties of type and typographic conventions and standards including scale, weight, style; classification systems and history; spacial relationships and principles of composition. Students gain understanding of grids and hierarchy, legibility and clarity, while exploring the expressive potential of type through readings, research, and exercises with digital and traditional media.

ART 09346: Computer Aided Design (CAD): 3D Modeling for the Artist/Designer 3 s.h.
Prerequisites: ART 02240
This course is concerned with the visualization and creation of 3D computer-generated models and their applications in the art and design world. Students will be instructed in the principles of 3D modeling using computer modeling software and will be introduced to a variety of 3D model applications as they are used in object and concept design. Students will be taught to conceptualize, develop, detail, present, and communicate on content as well as functionality of designs.

ART 09349: Intermediate Graphic Design III: Visual Identity 3 s.h.
Prerequisite: ART 09344, may be taken concurrently
With an emphasis on symbols/logos, this course focuses on developing original imagery and organizing type/image relationships for print and in digital motion. Students will be introduced to visual identity systems and branding, tailoring design communications for defined audiences. They will investigate additional methods and processes for problem-solving in professional practice, expanding proficiency in all aspects of the design process: context and conceptual development, critical thinking, collaboration, design production and presentation.

ART 09350: Intermediate Graphic Design IV: Packaging 3 s.h.
Prerequisite: ART 09349
This course explores three-dimensional form development of theoretical and applied packaging techniques. Content emphasizes structural design and packaging types, surface graphics, and typography. Working from project briefs, students are introduced to genre-specific issues including production methods and materials, branding, retail/wholesale markets, legislative requirements, product launches, and professional guidelines for best practices in contemporary packaging.

ART 09351: Computer Art Techniques I 3 s.h.
This course introduces students to the techniques made possible by the computer with design, drawing and painting programs. The course explores the computer's ability to execute designs as well as copying, rescaling, mirroring, rotating, color permutation, tapering, shadowing filling and animating.

ART 09352: Intermediate Ceramics 3 s.h.
Prerequisite: ART 09240
These studios provide advanced students an opportunity for intensive, self-structured, independent work. Studio work, kiln construction, advanced clay and glaze formulation is covered. There are on-going critical analyses of individual work and its relation to contemporary aesthetic issues.

ART 09354: Special Topics in Graphic Design 1 to 3 s.h.
Prerequisites: ART 09343 OR ADV 04370
Exploration of topical studies in graphic design and typography to address emerging issues or specialized content in skills, knowledge, theory, and/or attitudes and behaviors pertinent to technology or professional practice. Content may vary each time the course is offered. Students may enroll in this course multiple times; students without the prerequisite may enroll with the instructor's permission.

ART 09356: Introduction to Digital Rendering and Illustration Methods 3 s.h.
This course is designed to develop strong observational skills, and integrate digital media rendering and painting techniques within the scope of biomedical content and visual problems solving. This goal will be to convey an aesthetically powerful illustration, which effectively provides a solution for a specific visual communication. The student will learn a vocabulary for expressing pertinent natural science and medical art concepts in relation to technique design, composition, object accuracy/integrity, and context. Students will learn digital rendering techniques and methods to depict concepts in digital continuous tone and color (Adobe Photoshop and Illustrator). The integration of digital techniques will be uses in unique ways to explore the boundaries of medium and convention in modern production. Elective students in the broader areas of Art, Design, Science, and Medicine will be required to apply the concepts and techniques taught in class to specific content pertinent to their major of study.

ART 09358: Web Design: Designing For The World Wide Web 3 s.h.
Prerequisites: ART 094344 OR ADV 04370
This course introduces students to basic concepts and techniques for conceptualizing, planning and designing intelligent, usable, and well-designed web sites. Students will explore principles in communication hierarchy based on contemporary internet standards for use on computer and/or mobile devices. They will learn to manage content and develop relationships of type and image for clarity, distinctiveness and contextual appropriateness. Students without the prerequisite may enroll with instructor's permission.

ART 09359: Design: Interactivity and Motion Graphics 3 s.h.
Prerequisites: ART 09343 OR ADV 04370
This course introduces students to concepts, issues, and techniques related to web design and motion graphics, giving them the tools to create and publish animated web sites, produce e-learning content, edit and author audio, as well as create basic online games. Students will also learn about the theory and practice of artists working in this medium.

ART 09360: Storyboarding & Animation 3 s.h.
This is an aesthetics based course that communicates animated narratives in the areas of art and science. This course serves as an introduction to animation of objects, environments, animals, humans and natural science subjects. Students will learn to create 2D and 3D animations of narratives with goals to communicate a message and/or educate the viewer on their story. The student will learn pre-visualization skills in the form of storyboarding to problem solve their ideals before animation. The student will use pre-visualized concept art to animated short stories of the body, environment, and/or natural science through the medium of 2D and 3D digital animation software (Adobe Flash, After Effects and Autodesk 3D Studio Max.) The principles of 2D and 3D digital space and motion/timing will be used as the foundation of production. The subject matter within the Specialization in Biomedical Art and Visualization reflects the subject matter of science and medicine. Students in broader areas of art (sculpture, illustration, painting, etc.) will be able to focus on specific subjects relevant to their artistic goals using the animation methods and techniques.

ART 09361: Scientific and Medical Sculpture 3 s.h.
This course is designed for students interested in learning the structure, anatomy, and features of the head and its relation to facial reconstruction. This course will strengthen the student's understanding of the muscles in the face, bone, and landmarks of the skull. Students will also understand how these two groups contribute to each individual's appearance. Age, race, and gender will be discussed and considered in the re-creation of the face. Demonstrations of techniques, lectures, and critiques are part of the course work. Projects will include study sheets, in-class assignments and some projects that can be completed at home. However, most assignments will be done in class. The course is needed for the instruction of advanced techniques and concepts in biomedical visualization. The course contains specific projects, which reflect the demands of industry specialization and career training expectations. Specific visualization problems in: medical sculpture, prosthetics, and forensic sculpture are required in the course.

ART 09363: Advanced Graphic Design V: Publication Design 3 s.h.
Prerequisites: ART 09349
An advanced studio course investigating narrative and expressive use of grids, typography, photography and illustration for editorial and information design. Course content includes discussion of editorial vs. advertising design; serial versus monographic visual organization; the roles of graphic designer, art director, and creative director; and contemporary implications and integrations of print and digital presentation.

ART 09364: Advanced Graphic Design VI: Infographics and Professional Practice 3 s.h.
Prerequisites: ART 09350 (allows concurrency) OR ART 09360.BMV 09360 (allows concurrency
This course integrates two key areas: information visualization and critical theory for professional design practice. Working individually and in teams, students will learn to design for clarity and accuracy to visualize factual, abstract, invisible, and sequential data in print and animated formats. Through lectures, readings and case studies, they will consider the practice of design management including issues of pricing, intellectual property, scheduling, and design responsibility and sustainability in a global culture.

ART 09365: Time-Based Media: Animation 3 s.h.
Prerequisites: ART 09301
This course is a hands-on studio workshop that covers concepts, issues, and techniques related to 2-D animation, exploring the growing range of genres and applications from within the arts including stop-motion, computer-generated animation and experimental animation techniques. Students will create their own 2-D animations as well as study the theory and practice of artists working in the medium. This course supports the fine arts experience by cultivating innovation, visual creativity, experimentation, intellectual enquiry and the acquisition of professional animation techniques.

ART 09373: Advanced Problems in Biomedical Art 3 s.h.
Prerequisites: ART 02222 and (ART 09251 or BMV 09251) and (ART 09252 or BMV 09252) and (ART 09356 or BMV 09356)
This course entails developing skills and knowledge necessary for effective visual communication of complex biomedical concepts and subject matter. The focus will be on developing conceptual visual story telling skills. Students will learn to take complex information presented by specific biomedical subject matter and selectively simplify it to solve visual communication problems effectively for the target audience. Students will work exclusively in digital media to develop competence and efficiency in the rendering methodologies and learn the conventions of modern production. The course is needed for the instruction of advanced techniques and concepts in biomedical visualization. The course contains specific projects which reflect the demands of industry specialization and career training expectations. Specific visualization problems in: medical/legal, veterinary, pharmaceutical, molecular, editorial, textbook, journal visualizations and required in the course.

ART 09375: Video Art 3 s.h.
This course is a hands-on studio workshop that covers concepts, issues, and techniques related to video, exploring the growing range of genres and applications from within the arts and industry including video installation, narrative film, documentary film, performance video, and exhibition documentation. Students will create their own video-based projects as well as learn about the theory and practice of artists working in the medium. This course supports the fine arts experience by cultivating innovation, visual creativity, experimentation, intellectual enquiry and the acquisition of professional video production techniques.

ART 09380: Advanced Puppetry V 3 s.h.
Prerequisites: DESN 09225 or ART 09225 and DESN 09226 or ART 09226 and DESN 09310 or ART 09310 and DESN 09313 or ART 09313
These courses study in-depth a specific phase of puppetry. They emphasize hand and rod puppets, shadow puppets and black theatre, marionettes and the history of puppetry.

ART 09381: Advanced Puppetry VI 3 s.h.
These studio courses offer in-depth involvement with sophisticated puppetry techniques. Students will develop individual expertise, style and approaches to the art of puppetry.

ART 09390: Work In Progress Review 0 s.h.
A required review of work-in-progress for all B.F.A. students.

ART 09401: Senior Show or Project 0 s.h.
Each B.A. student will prepare and mount selected works as a senior exhibition or execute an equivalent project. Required for graduation.

ART 09405: Advanced Puppetry VII 3 s.h.
These studio courses offer in-depth involvement with sophisticated puppetry techniques. Students will develop individual expertise, style and approaches to the art of puppetry.

ART 09406: Advanced Puppetry VIII 3 s.h.
These studio courses offer in-depth involvement with sophisticated puppetry techniques. Students will develop individual expertise, style and approaches to the art of puppetry.

ART 09411: Advanced Metals and Jewelry 3 s.h.
Prerequisite: ART 09311
Advanced students will utilize the skills learned in Introduction and Intermediate levels of Metals/Jewelry to independently research ideas and techniques in order to create concept driven jewelry or metalwork. Student and professor will work together to establish direction in creation of individual pieces or a body of work.

ART 09419: Advanced Illustration 3 s.h.
Prerequisite: ART 09336
Students will pursue advanced work concentrating on further development of the illustrator's vocabulary and procedures. Assignments are developed in consultation with the instructor. Periodic critiques are held to help each student develop a complete professional portfolio.

ART 09436: 3D Digital Fabrication 3 s.h.
Prerequisite(s): ART 09346 or ART 09253 or ME 10101
In this course students will design and create tangible three-dimensional art and design objects using a variety of digital processes combined with hands on techniques. Three-dimensional forms will be created using the laser cutter, 3D scanner, 3D printers, vacuum former, and CNC router. In addition to emphasis on technical skills, students will be challenged to create finished objects or prototypes that solve artistic design problems and concepts.

ART 09450: Advanced Ceramics 3 s.h.
Prerequisite: ART 09352
This advanced production course combines extensive research and scriptwriting skills with sophisticated field production techniques. Students select subjects of local interest to feature in high-quality, 20 minute documentaries involving pre-production planning, extensive field shooting, and prost-production editing on Avid editing systems. Field production includes use of single and multiple camera units.

ART 09452: Computer Art Techniques II 3 s.h.
This course allows students to draw, paint, animate, layout and design using computers and software. Students may specialize in fine arts, illustration, drawing, crafts, interior designing, textiles, package design lettering/typography or desktop publishing. Students develop their own professional portfolios of computer art.

ART 09453: Introduction to Game Media Design 3 s.h.
This is an aesthetics based course that communicates and focuses on educational and casual game content through the fundamentals of game media design. The course materials and projects will help students understand how and why games can be used for learning in the fields of health, medicine, science, and social change. Students will also learn how casual games can be a powerful learning tool in social situations. The course exposes students to examples of current work and research in game design mechanics, game art production, game learning mechanics, and assessment mechanics, which are important to designing successful and engaging games. Students will learn use traditional drawings media, the Adobe Creative Cloud, and specific game engines to develop their games. Students will be exposed to industry-specific examples of educational and casual games (social games, learning games, news games, health and science games, and exercise-games etc.) These examples alone with specific lecture topics, demonstrations and material, will allow students to learn how to develop their own educational and casual games projects that deliver content through game media and design.

ART 09454: Surgical Illustration and Media 3 s.h.
Prerequisite(s): ART 02222 and (ART 09251 or BMV 09251) and (ART 09356 or BMV 09356)
This studio course is an introduction to the illustration of surgical procedures and its fundamental application within the discipline of biomedical art. It is based on the belief that understanding the concepts of medical/and or veteinary surgery is essential to creating effective illustrations and other media that visually communicate the information. Students will research surgical procedures and techniques, sketch procedures in the operating room, prepare comprehensive sketches outlining visual narrative of surgical procedures, and render final illustrations/media presentations using a variety of digital media.

ART 09456: Biomedical Art Senior Thesis Exhibition & Portfolio Capstone 3 s.h.
Prerequisites: ART 02222 and (ART 09251 or BMV 09251) and (ART 09252 or BMV 09252) and (ART 09356 or BMV 09356) and (ART 09360 or BMV 09360) and (ART 09453 or BMV 09453) and (ART 09454 or BMV 09454) and (ART 09253 or BMV 09253) and ART 09352 and ART 09353
This course is designed to act as a summative experience for the student. The final BFA Thesis Project will be defined by the student and work with a level of professional collaboration. The requirements for the BFA Thesis will be to solve and effectively visually communicate a medical and scientific problem. Integration of outside resources, research effective collaborator/expert communication, professional practices, presentation (oral and written) and documentation of the process of the semester long project. The project visualization will be student driven; content needs will be determined by the student and the research/collaboration. The emphasis in this course will be on the conceptual development of the content accuracy/relevance and its realization through the design process. The final B.F.A. capstone project will have the following: A two Sentence (Maximum) Thesis Statement, a designed/written proposal, research paper, business oriented documentation, a digital presentation to explain the work, artist statement/project scope statement, and the final project depicting the solution for the BFA Exhibition.

ART 09463: Advanced Graphic Design VII: Internship 0 to 3 s.h.
Prerequisite: Permission of Instructor
Students are encouraged to seek internships in the design industry to further their professional skills and understanding of the design profession. Faculty will assist in preparation and placement but the student is expected to take initiative in seeking this experience. Design industry experience is under the supervision of both university and employer; written and oral critique of activity is required.

ART 09464: Advanced Graphic Design VIII: Identity Systems and Portfolio 3 s.h.
Prerequisite: ART 09363
This capstone course is focused upon conceptual investigation and development of comprehensive identity systems and formulation of design standards. Students will work individually and in teams to resolve client-based problems. There may be direct client contact. Professional development is also addressed: portfolio formats, resumes, interviews skills, actual and virtual presentation approaches, and job-seeking strategies. The course culminates with a formal public presentation of a design portfolio by each student.

ART 09490: B.F.A. Senior Thesis Exhibition 0 s.h.
This experience allows students an opportunity to enhance their portfolio skills. This exit evaluation, in the form of a solo exhibition, will give students an occasion to make note of their work development and to determine their progress as emerging professional artists.

ART 11250: Introduction to Film Photography 3 s.h.
This course provides an introduction to black and white film photography. Topics will include the use of a manual 35mm camera, film processing, darkroom printing, and an overview of the works of influential fine art photographers. Camera and darkroom techniques in black and white still photography are used to explore and discover the visual world. Students will produce original work that will be discussed in regular class critiques. Students will provide their own camera.

ART 11275: Intermediate Film Photography 3 s.h.
Prerequisite: ART 11250
This intermediate studio emphasizes the development of a critical eye and the use of black and white photography as a form of self-expression and an artistic medium. Students are expected to have a working knowledge of the 35 mm photographic process. Students advance their technical skills in photographic printmaking, and further understand photography as fine art. Students advance their technical skills in photographic printmaking, and further understand photography as fine art. Students work on long term individual projects, which will develop technical, aesthetic and conceptual mastery of their medium. Students will provide their own cameras.

ART 11350: Intermediate Digital Photography 3 s.h.
Prerequisite: ART 11380
This intermediate studio course emphasizes the development of a critical eye and the use of digital photography as forms of self-expression in an artistic medium. Students develop ideas and choose approaches to generate an individual project-based portfolio. Topics also include advanced image and color correction in Photoshop and an introduction to studio lighting techniques. Students work on long term individual projects, which will develop technical, aesthetic and conceptual mastery of their medium. Students must provide their own camera.

ART 11375: Non-Silver Imagery 3 s.h.
Prerequisite: ART 11250
This studio course explores historic and experimental image capture and processing techniques in photography, including non-silver processes such as Cyanotype, Gum Print, Liquid Light, Van Dyke Brown, and Toning. Students learn to incorporate bookmaking and other fine arts applications, while perfecting their knowledge of black and white photography. Students provide their own cameras.

ART 11380: Digital Photography 3 s.h.
This course provides an introduction to digital photography. Students are introduced to technical and aesthetic issues that relate specifically to digital photography in the fine arts. Topics include digital camera operation, composition, color correction, image manipulation, as well as a comprehensive knowledge of the tools available for photographers in Photoshop. Students will produce original work that will be discussed in regular class critiques. Students must provide their own cameras.

ART 11385: Large Format Photography 3 s.h.
Prerequisite: ART 11250
This studio course introduces students to the operation of a 4x5 view camera. Students learn about lens selection, the use of camera swings and tilts, and the process procedures for sheet film. Students also learn about the work of many photographers who continue to work with large format cameras. The influence of large format photography on art and society will be examined in addition to the study of the aesthetic nature of the medium. Cameras will be available for students to borrow.

ART 11386: Photographic Lighting 3 s.h.
Prerequisite: ART 11380
This course covers the use of natural and artificial light used in photography, both in the studio and on location. Students will become familiar with key concepts, including understanding and controlling the quality of light and the architecture of multiple light set ups. The course will cover ideal lighting for portraiture, still life, and interior spaces.

ART 11387: Editorial Photography 3 s.h.
Prequisite: ART 11380
Editorial photography tells a story with images. Unlike photojournalism, where the photographer is tasked with objectively documenting an event, editorial photography calls upon the unique artistic vision of the photographer to produce/direct illustrative imagery. This course will explore photography's role in publishing and online media industries, including the photographic practices of reportage and the use of photography to illustrate stories, concepts and ideas. Students will be introduced to various roles within the industry, from photographer to photo editor to art director, and how they work in collaboration to convey a story or an idea.

ART 11388: Contemporary Issues in Photography 3 s.h.
Prerequisite(s): ART 11380 OR ART 11250
Contemporary Issues in Photography is a course covering critical theory, studies in contemporary artistic practices, and current social and ethical topics facing contemporary photographers and artists. In addition, students will research and write about current and historical issues in relationship to their own artistic studio practice, helping to enrich the student's ability to communicate visually. The course is based on contemporary exhibitions in the artworld; recent books, magazines, and catalogs; and individual research. Classes will be augmented by field trips to galleries and museums.

ART 11390: Special Topics in Photography 3 s.h.
Prerequisite: ART 11380
This course provides extended study in photography. The topical content may vary each time the course is offered. Students may enroll in this course multiple times.

ART 11405: Expanded Photography 3 s.h.
Prerequisite: ART 11380
This course will explore the intersection of photography and other media including video, sculpture and performance. Students will use cameras to produce work that moves beyond a traditional photographic "print" and will gain familiarity with modern and contemporary artists and filmmakers working in the fields of experimental film and video, installation, and expanded photography. Students will consistently produce work for the class in response to readings and assignments, culminating in a final portfolio of works.

ART 11406: Advanced Photography 3 s.h.
Prerequisite: ART 11350 or ART 11275
In this course, students will develop a specific project to be worked on throughout the semester and formally presented at a final review. Weekly critiques of student work will be the emphasis of the course with time dedicated to developing artist statements and technical proficiency in the presentation of their final project portfolio. The course culminates in a survey critique of students' work in preparation for their exhibitions of a finished body of work in their Capstone course.

ART 11407: Capstone in Photography 3 s.h.
Prerequisite: ART 11355
This course synthesizes the goals and objectives of both required and elective coursework and introduces students to the rigors of maintaining an active professional photographic practice. Students will learn the practical skills and approaches necessary to comfortably enter the marketplace. The course culminates in public senior thesis exhibitions that include both visual and written components.

ART 39330: General Photography 3 s.h.
This course uses the 35mm camera, black and white film and paper to study the aesthetics and technology of photography. Students expose and develop the film, make prints and participate in critiques and photo displays. It emphasizes photography as an art form as well as a technical endeavor through study of composition, materials and equipement. Students provide their own cameras and supplies.

INAR 39333: ADVANCED PHOTOGRAPHY 3 s.h.

AH 10101: Allied Health Introduction To Health Care Professions I 1 s.h.
This is the first course in a 4 course seminar sequence in the pre-nursing licensure program. This course provides a comprehensive overview of the most current trends and issues occurring in nursing and health care. It is about the exciting evolution of nursing: its very visible public image and its core foundations, which include nursing theory, nursing education, and licensure and certification. This course will serve as a valuable resource for the entry-level nurse.

AH 10102: Allied Health Introduction To Health Care Professions II 1 s.h.
Prerequisite: AH 10101
This is the second course in a 4 course seminar sequence in the pre-nursing licensure program. This course provides a comprehensive overview of the most current trends and issues occurring in nursing and health care including health care economics, the evolution of the health care system, health care policy and politics, and legal and ethical issues. This course will serve as a valuable resource for the entry-level nurse.

AH 10103: Allied Health Introduction To Health Care Professions III 1 s.h.
Prerequisites: AH 10101 and AH 10102
This is the third course in a 4 course seminar sequence in the pre-nursing licensure program. This course provides a comprehensive overview of the most current trends and issues occurring in nursing and health care, with a focus on the basic skills that are necessary for nurses to function effectively in the professional nursing role. Topics include leadership role and management theory, effective communication, nursing care delivery models and the role of nursing research and evidence base practice. This course will serve as a valuable resource for the entry-level nurse.

AH 10104: Allied Health Introduction To Health Care Professions IV 1 s.h.
Prerequisites: AH 10101 and AH 10102 andAH 10103
This course is the fourth and final course of a 4 course seminar sequence in the pre-nursing licensure program. This course provides a comprehensive overview of the most current trends and issues occurring in nursing and health care, preparing the student to embark on a career in the field of nursing. Topics include the transition process from student to professional nurse, contemporary nursing roles and career opportunities, time management and the NCLEX exam. This course will serve as an excellent base for novice students as they build their career into professional nursing.

BIOL 01100: Biology I 4 s.h.
This course studies the chemical properties of protoplasm; cell structure and cell division; metabolic processes in organisms, including photosynthesis and respiration; principles of genetics including Mendelian laws; evolution and ecological relationships of organisms.

BIOL 01101: Biology II 4 s.h.
Prerequisites: BIOL 01100
This course provides a brief survey of the different kinds of plants and animals; the roles of hormones and enzymes; tropisms; growth and development; plant and animal tissues and organ systems.

BIOL 01104: Introduction to Evolution and Scientific Inquiry 4 s.h.
Prerequisite(s): MATH 01100 to 01499 or STAT 02100 to 02499 or MATH 03100 to 03499 with min of grade of D- or S02 min score 550 or S12 min score 570 or A02 min score 24 or ALG min score 77 or CLM/CLMR min score 40
This laboratory course is designed for freshman Biology majors and is the first of a four-course introductory sequence. This course introduces students to organismal diversity and its evolutionary origins, covers the fundamental concepts of evolutionary theory, and surveys many of the ways that organisms have become adapted to their environments. In addition, students in this course will learn some of the basic skills necessary for scientific inquiry, including the scientific method, critical thinking, experimental design, and the gathering, analysis, and presentation of quantitative data. Credit will not be given for both Introduction to Evolution and Scientific Inquiry (BIOL 01104) and Biology I (BIOL 01100). Priority for enrollment will be given to students declared as Biology majors, Biology minors, Bioinformatics majors, Computer Science majors, Biochemistry majors, Environmental Studies majors, Environmental Studies minors, or Pre-Medical concentration.

BIOL 01105: Essentials Of Biology 4 s.h.
Prerequisites: CHEM 05102
This laboratory course provides an introduction to cell and tissue structure, cellular reproduction and metabolism, and mechanisms of evolution. A brief survey of the plant and animal kingdom emphasizes how their systems have changed through evolution.

BIOL 01106: Introduction to Genetics 4 s.h.
Prerequisite(s): BIOL 01104 with C- or better and CHEM 06100 with minimum Grade of D-
This course is designed for first year biology majors and builds on skills and knowledge gained by the students from Introduction to Evolution and Scientific Inquiry. The course focuses on the study of genetic factors in bacteria, viruses, higher plants and animals. The principles of Mendelian, molecular and population genetics will be introduced. Discussion of genetic applications in agriculture, biotechnology, and medicine will be an integral part of the course. The laboratory projects will provide the students with the opportunity to gain hands-on experience with the most common classical and molecular genetics methods. Credit will not be given for both Introduction to Genetics (BIOL 01106) and Biology II (BIOL 01101).

BIOL 01107: Introduction to Biological Skills for Transfer Students 4 s.h.
Prerequisites: BIOL 01.100 or BIOL 01.101.
The laboratory course is designed for students transferring into the Biology major after having completed only one semester of biology ((Biology I (BIOL 01100) or Biology II (BIOL 01101)) at another institution. This course will introduce students to topics covered in Introduction to Evolution and Scientific Inquiry (BIOL 01104) and Introduction to Genetics (BIOL 01106) while introducing a variety of scientific skills covered in those courses including critical thinking, experimental design, data collection, analysis, and interpretation, and oral and written scientific presentation. Credit will not be given for both Introduction to Genetics (BIOL 01106) and Introduction to Biological Skills for Transfer Students (BIOL 01107).

BIOL 01110: Human Biology 3 s.h.
This non-laboratory course acquaints students with the structure and function of man. It stresses the major organ systems of the body.

BIOL 01111: Scientific Process and Biological Discovery 3 s.h.
This course introduces the practice of scientific inquiry through the analysis of current biology research as presented in popular medi a and scientific publications. Students will gain skills in critical reading and scientific analysis as they develop an understanding of the scientific method and how scientific discovery progresses.

BIOL 01112: General Biology: Environmental Focus 4 s.h.
This one-semester laboratory course provides an introduction to the basic concepts of the biological sciences, including, but not limited to, origin of life, evolution of multicellular organisms, population and community ecology, and a survey of the modern kingdoms of living organisms. Emphasis will be placed on ecological and conservation problems. Laboratory exercises enable the student to visualize many of the concepts discussed in class. No credit toward biology major.

BIOL 01113: General Biology: Human Focus 4 s.h.
This one-semester laboratory course provides an introduction to the basic concepts of the biological sciences, including, but not limited to, cell biology, the body plan and organ systems of vertebrate animals, genetics and heredity, and vertebrate evolution. Emphasis will be placed on how these topics relate to the human organism. Laboratory exercises enable the student to visualize many of the concepts discussed in class. No credit toward biology major.

BIOL 01115: General Biology: Plants And People 4 s.h.
This laboratory course considers the diversity of uses of plants in human cultures, and the biological bases for their utility. The course is primarily concerned with the positive impact of plants, including their roles in human nutrition, medicine, clothing, fuels, building materials, and ecosystems. It also considers the negative impact of plants as weeds and health hazards. Students who complete this course will have a comprehensive understanding of the importance of plants in human societies, from a biological perspective. No credit toward biology major.

BIOL 01201: Pharmacognosy 3 s.h.
Prerequisites: BIOL 01204
This is a lecture/demonstration course which studies the science that embraces the history, source, cultivation, collection, preparation, distribution, commerce identification, composition, purity and preservation of drugs of plant origin.

BIOL 01202: Biological Skills for Transfer Students 4 s.h.
Prerequisites: BIOL 01100 and BIOL 01101
This laboratory course is designed for students transferring into the Biology major after having completed Biology I and Biology II at another institution. This course will review key topics covered in Introduction to Evolution and Scientific Inquiry, Introduction to Genetics, and Introduction to Cell Biology (BIOL 01104, BIOL 01106, and BIOL 01203) while introducing students to a variety of scientific skills covered in those courses. Examples of skills include critical thinking, experimental design, reading of primary literature, data collection, analysis, and interpretation, and oral and written scientific presentations. Credit will not be given for both Introduction to Cell Biology (BIOL 01203) and Biological Skills for Transfer Students (BIOL 01202).

BIOL 01203: Introduction to Cell Biology 4 s.h.
Prerequisites: BIOL 01106 with C- or better
This laboratory course introduces students to the fundamentals of cell biology, including the cellular basis of life, cell evolution, cellular organization, cell metabolism, cell diversity, cell-cell communication, intracellular signaling and the cellular basis of disease.

BIOL 01204: Introduction to Ecology 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 01211 or BIOL 01202 with C- or better
This laboratory course serves as the capstone for the biology core curriculum. Students will learn integrative concepts linking topics from earlier introductory courses together in terms of population, community, and ecosystem-level ecological processes. We will explore these concepts through case studies covering diverse topics from biodiversity patterns to anthropogenic effects on individuals to ecosystems. This course will reinforce the skills introduced in earlier core courses, and will build upon these skills with further expectations of writing, primary literature synthesis and review, and critical thinking.

BIOL 01211: Biology for Chemical Engineers 3 s.h.
Prerequisite(s): CHEM 06100 and CHEM 06101
This course develops a basic understanding of the biology of living things. Topics include the organization, function, development and differentiation of cells, the temporal and spatial cooperation of biomolecules and cells under the control of signal transduction, the genetic programming of cells and organisms, and the interconnection of various life forms through evolution. Also covered is application of these concepts and processes to modern bioengineering focus areas, such as bioinformatics, genomics, proteomics, tissue engineering, and systems biology.

BIOL 01300: Phycology 3 s.h.
Prerequisite: BIOL 01204 with C- or better
This laboratory course considers the algae. It studies the relationships of these organisms as they are ordered in taxonomic schemes. Proper identification of specimens will be emphasized. May not be offered annually.

BIOL 01301: Data Science for Biologists 4 s.h.
Prerequisite: minimum of Sophomore standing
This laboratory course will introduce students to the fundamentals of biological data analysis using modern-day "data science" techniques. Students will learn novel statistical methods (i.e. permutation tests) that leverage the power of "big data," data visualization theory and approaches, as well as data modeling approaches for biological data using the "tidyverse" suite of packages in the R programming language. Notably, this course assumes no prior knowledge of programming, in R or otherwise. Additional emphasis will be placed on skills heavily used in data science careers, including data cleaning, management, visualization, and professional communication. Students will have the opportunity to pursue independent scientific questions through a final individual or group project.

BIOL 01310: Advanced Evolution 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This laboratory course considers organic evolution, including its conceptual basis, its historical development, the processes that produce it, and the evolutionary history of life on earth. Laboratory exercises will include simulations of evolutionary processes, demonstrations illustrating patterns of evolution in the past, and opportunities to utilize research techniques of evolutionary biology.

BIOL 01325: Introduction To Mycology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This lecture and laboratory course provides a comprehensive treatment of the morphology, taxonomy, physiology, and ecology of fungi, and their involvement in man's everyday life. This course may not be offered annually.

BIOL 01341: Darwinian Medicine 3 s.h.
Prerequisites: BIOL 01204 OR MCB 01102
The theory of evolution is the foundation of biological sciences but until relatively recently has been underemphasized in medicine. The traits and phenomena that medicine usually examines from the perspective of such fields as genetics, physiology, or development also have an evolutionary basis. Understanding the evolution of these traits can both improve our understanding of disease and change the way it is treated. This course examines evolutionary explanations for such health phenomena as infectious disease, genetic disease, human growth and development, reproduction, and aging.

BIOL 01342: Molecular Evolution 3 s.h.
BIOL 01203 with minimum C- or higher ORMCB 01102 with minimum C- or higher
The course will introduce the field of molecular evolution which examines evolutionary change at the level of DNA and protein sequences. Students will learn mechanisms of genetic evolution within and between species, methods to quantify sequence evolution, and phylogenetic models and inference.

BIOL 01350: Biodiversity and the History of Life 3 s.h.
Prerequisite(s): BIOL 01204 or BIOL 01206 or MCB 01102
This course investigates the evolution of biodiversity over the courses of Earth history. Students will survey the diversity of life and investigate current understanding of the evolutionary relationships among organisms based on a variety of data. Students will also study biodiversity through geologic time, including examining fossil evidence for the origins of major groups and for extinction events and their causes.

BIOL 01351: Climate Change Biology 3 s.h.
Prerequisite: BIOL 01204
One of the most important questions in biology, from both a human perspective and in terms of the biodiversity and ecological function of Earth, is what the consequences of anthropogenic climate change might be. This course reviews modern scientific understanding of the consequences of climate change for organisms past, present and future by drawing integrative perspective from biological sub-disciplines including organismal biology, evolution, ecology, and conservation science.

BIOL 01352: Ornithology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This course covers anatomy, physiology, ethology and ecological parameters of the avian community. Laboratory and field investigations form a significant part of the course. May not be offered annually.

BIOL 01356: Parasitology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This lab course examines the biology of organisms that normally grow only in or on the living body of another, and from which they obtain nourishment.

BIOL 01405: Conservation Biology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This laboratory course for upper-level students majoring in biology is designed to familiarize students with the current crisis in global biodiversity. The objectives of this course are to examine fundamental and applied aspects of genetics, population and community ecology, paleontology and systematics, agriculture and forestry, wildlife biology and zoo management, and sociology and economics. Laboratory and field exercises are designed (1) to introduce students to local, regional and global conservation issues and (2) to emphasize synthesis and creativity in addressing conservation problems.

BIOL 01409: Regenerative Biology 3 s.h.
Prerequisite(s): BIOL 01203 or BIOL 01202 or MCB 01102
Regenerative Biology explores regeneration in diverse species from ecological, evolutionary, and mechanistic perspectives. Using an integrative biology approach, current research utilizing diverse regeneration models will be analyzed and its application to regenerative medicine will be explored.

BIOL 01428: Developmental Biology 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 01211 orBIOL 01202 with C- or better
This course studies the development of multicellular organisms from fertilization, through embryonic and post-embryonic stages. Topics include fertilization, cellular differentiation, regulation of gene expression, pattern formation, morphogenesis, and evolution of developmental mechanisms. Experimental approaches of developmental biology will be emphasized.

BIOL 01430: Advanced Cell Biology 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 01202 with C- or better
This laboratory course addresses the fundamental properties of cells from an experimental perspective by exploring modern and classic experiment approaches to the study of cell biology. Structural, biochemical and molecular aspects of cell function will be considered.

BIOL 01440: Special Topics In Biological Sciences 2 s.h.
Prerequisites: BIOL 01204 with a C- or betterand Senior standing
This seminar course is a literature-driven exploration of a broad range of topics in individual areas of the biological sciences. The particular subjects discussed will examine both fundamental and cutting-edge biological processes and technologies. Students will be required to give oral presentations on the selected topics. They may be also asked to submit written reports. This course is expected to strengthen the skills of students in critical reading and evaluation of the primary scientific literature. This course is required for all Biology majors.

BIOL 01445: Special Topics In Biological Sciences - WI 3 s.h.
Prerequisite(s): BIOL 01204 and at least one 300 or 400 level biology elective and Senior Standing
This writing intensive seminar course is a literature-driven exploration of a broad range of topics in individual areas of the biological sciences. The particular subjects discussed will examine both fundamental and cutting-edge biological processes and technologies. Students will develop skills in writing through writing activities designed to emphasize the process and structure of scientific writing. This course is also expected to strengthen the skills of students in critical reading and evaluation of the primary scientific literature. This course is required for all Biology majors.

BIOL 01450: Independent Study In Biological Sciences 3 s.h.
Students conduct independent work on a project concerned with biological science with the supervision of a selected faculty member. This course requires development and execution of the proposed work, including preparation of an acceptable report of work completed.

BIOL 01454: Herpetology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
Students make an intensive study of the behavior, ecology, evolution and physiology of amphibians and reptiles. Laboratories stress identification, gross anatomy and techniques.

BIOL 01458: Mammalogy 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This course provides a detailed study of the mammals of the world. Its topics include: the anatomy, behavior, ecology and systematics of the class. Laboratory work emphasizes the mammals of New Jersey as well as field work.

BIOL 01459: Genome Sciences 4 s.h.
Prerequisites: BIOL 01204 OR MCB 01102
This laboratory course provides the student with a survey of the highly interdisciplinary field of Genome Sciences. Students will engage critically with the primary literature to master concepts in topics including genome sequencing technology and analysis, comparative and evolutionary genomics, structural genomics, environmental and conservation genomics,and genomics in human health and disease. Students will additionally have the opportunity to directly collect and analyze genomic data using state-of-the-art methods.

BIOL 01460: Animal Behavior 4 s.h.
Prerequisite(s): BIOL 01204 with C- or better orPSY 10380
This laboratory course investigates the proximate and ultimate factors, natural selection, phylogenetic, and cultural bases of animal behavior. In this course, students will develop an appreciation of the interaction of the environment and other organisms on the development, production, and function of animal behaviors in both naturalistic and controlled situations. Conceptual, theoretical, and empirical approaches to behavior will also be discussed. Students will be expected to observe, manipulate, and analyze the behaviors of a wide variety of animals such as insects, birds, and fish through hands-on methods.

BIOL 01465: Animal Histology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This upper level lecture and laboratory course provides an in-depth study of animal tissue. It includes the examination and identification of specific cells, tissues and organs. The students will develop laboratory skills in cytological and histological techniques. The relationship of histology to cell biology, physiology and pathology will be emphasized.

BIOL 01470: Ichthyology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This course is a senior-level zoology course designed to introduce students to the fundamental aspects of the biology of the major groups of fishes. Topics to be discussed in class include taxonomy and systematics of the major groups of fishes, a survey of modern fishes, their basic structure and function, behavior, and ecology. Laboratory exercises are designed to introduce students to current methods, approaches, and topics; field exercises are designed to survey the diversity of fishes and their habitats in New Jersey and nearby states.

BIOL 01475: Biology Lab/Field Research 3 s.h.
This course introduces and/or develops research techniques used in biological research. Research is performed in collaboration with one or more faculty in an area of specialization of the faculty. Emphasis will be placed on developing research skills, developing technical writing skills, and the development of skills needed for scientific presentations. Up to three credits from this course may be counted towards the major; additional credits may count as free electives.

BIOL 02300: Introductory Botany 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This laboratory course considers the biology of plants. It is a broad survey of plant nutrition, physiology, development, anatomy, morphology, reproduction, evolution and ecology. An emphasis is placed on the structure and function of plants and the relevance of plants to humanity and the global environment.

BIOL 02301: Plant Diversity 4 s.h.
Prerequisite: BIOL 01204 with C- or better
This laboratory course considers the patterns of plant diversity and the processes that generate and maintain plant diversity. Several types of diversity are assessed for each of the major groups of plants, including diversity in morphology, physiology, evolution, ecology and human economy. Students who complete this course will have a better understanding of the types and sources of plant diversity, and the role of human and nonhuman factors in affecting plant diversity.

BIOL 02350: Flora of New Jersey 4 s.h.
Prerequisite: BIOL 01204 with C- or better
This laboratory course is an exploration of the local flora in terrestrial communities, from the shore to the Pine Barrens. The emphases of this course are plant communities and the identification of plants. It also provides an overview of plant conservation and the features of plants that determine their population dynamics. The focus of the laboratories is several all-day field trips. Offered during summer sessions.

BIOL 02405: Plant Physiology 3 s.h.
Prerequisite(s): BIOL 01204 with C- or better and CHEM 07200
This course will cover the principles and factors concerned with development of plants, including nutrition, water relationships, photosynthesis, chemosynthesis, reproduction, and growth.

BIOL 02410: Stream Ecology 4 s.h.
Prerequisite: BIOL 01204 with C- or better
This course covers topics in the area of study concerned with the physical, chemical, biological and ecosystems processes in creeks, streams and rivers (so-called lotic environments or related running waters). The course has a strong laboratory component with hands-on research in an effort to understand local stream ecology.

BIOL 07300: Invertebrate Zoology 4 s.h.
Prerequisite: BIOL 01204 with C- or better
This laboratory course will focus on the diversity and adaptations of single-celled and multicellular invertebrates. We will explore the current understanding of the evolutionary relationships among taxa, using both traditional morphological and contemporary genetic approaches.

BIOL 07301: Comparative Vertebrate Anatomy 4 s.h.
Prerequisite: BIOL 01204 with C- or better
This laboratory course provides an intensive comparative study of the gross and microscopic anatomy of vertebrate animals, including dissection of representative chordates.

BIOL 07400: Comparative Biomechanics 4 s.h.
Prerequisite(s): BIOL 01204 with C- or better orMCB 01102 with C- or better and PHYS 00211or PHYS 00221
This upper-level Biology elective with lab examines the function of organisms in terms of mechanics. Focusing mainly on animals, the course covers topics such as locomotion and feeding in both aquatic and terrestrial environments, as well as looking at systems such as circulation and respiration in terms of fluid mechanics.

BIOL 10210: Human Anatomy and Physiology I 4 s.h.
This course offers a molecular, cellular and systematic approach to the structure and function of the component units and organizational systems of humans. Emphasis is placed on cells, tissues, membrane physiology and the skeletal, muscular and nervous systems.

BIOL 10212: Human Anatomy and Physiology II 4 s.h.
This laboratory course focuses on the gross and microscopic structure of the body. The course is the second semester of a two-semester sequence that covers all of the functional systems of the human organism. In this course, the systems of the body to be studied in detail include the endocrine, cardiovascular, respiratory, excretory, digestive, and reproductive systems. Whole body metabolism and fluid balance will also be studied.

BIOL 10350: Work Physiology 3 s.h.
Prerequisites: BIOL 01204 with C- or better
This course studies the effect of short term and long term work stress on the human organism. This course may not be offered annually.

BIOL 10401: Animal Physiology 4 s.h.
Prerequisite(s): BIOL 01204 with C- or better
This laboratory course provides the student with in-depth knowledge of the various systems of the animal body. Students will understand and predict the structure-function relationships across various animal groups from the molecular to the organismal level. Specific adaptations to environmental conditions, whether naturally occurring or as a result of acclimation to new areas, will be discussed. Students will also investigate the various processes of homeostasis and system regulation that exist in animals. Physiological simulation and dissection preparations will be used to provide the student with hands-on skills on physiological research methodology and techniques.

BIOL 11330: Microbiology 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 01211 with C- or better
This course deals with the morphology and physiology of unicellular organisms, with emphasis upon bacteria. It studies culture methods, growth parameters, isolation, identification and characterization, and metabolism of microorganisms in the laboratory.

BIOL 11405: Environmental Microbiology 4 s.h.
Prerequisites: BIOL 01204 with C- or better and BIOL 11330with C- or better
This course covers topics related to microorganisms in the environment. It deals with the actions of microbes in the terrestrial, aquatic, air and plant/animal environment and places focus on microbial control and microbial applications.

BIOL 14440: Introduction to Biochemistry - Lecture Only 3 s.h.
Prerequisite(s): (BIOL 01203 or MCB 01102 or BIOL 01211 or BIOL 01202 with C- or better) and CHEM 07201 with D- or better
This course investigates chemical compounds and chemical reactions which are of paramount importance to the functioning of biological systems. It also examines the major metabolic pathways for energy production and biosynthesis.

BIOL 18304: Pine Barrens Ecology 4 s.h.
Pre-requisite(s): BIOL 01204
The Pine Barrens are a landscape mosaic of related ecosystems (including streams, lakes, wetlands, and forests) that feature sandy soil, low nutrient availability, high acidity, and regular disturbance via fire. This course considers the complex ecological interactions between species (including humans) and the abiotic environment in Pine Barren ecosystems such as those found in New Jersey. Special emphasis will be given to species that are endemic to the Pine Barrens of New Jersey. This is a lab-based course and will include field trips to local Pine Barren Ecosystems.

BIOL 18360: Marine Biology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
Field and laboratory oriented, this course studies the interrelationships of marine animals and plants and provides instruction and experience in collecting and identifying examples of local marine flora and fauna.

BIOL 18400: Limnology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This course intoduces basic and applied concepts in limnology, or the study of fresh waters. It analyzes the physical, chemical, biological and ecosystems processes in lakes (so called lentic environments). The course has a strong laboratory component with hands-on research in an effort to understand regional lake ecology.

BIOL 19300: Introduction To Oceanography 3 s.h.
This course introduces the varied techniques of the oceanographer; it emphasizes recent developments in the field of Marine Sciences as well as physical, chemical, geological and biological aspects of the world's oceans. Field work required; a trip on a research vessel recommended. Offered only in the summer at the New Jersey Marine Sciences Consortium facilities.

BIOL 19425: Coastal Marine Geology 4 s.h.
This course includes a field study of the geological processes of the beach, bay, lagoon, estuary and salt marsh; it also covers erosional and depositional features and sediment analysis. Field experience is supplemented by laboratory work and individual projects. Offered in the summer at New Jersey Marine Sciences Consortium facilities.

BIOL 20100: Introduction To Natural Resources 3 s.h.
This introductory course considers natural resources and their relationship to man and society. For science and non-science majors.

BIOL 20150: Human Ecology: An Evolutionary Approach 3 s.h.
This course will take an evolutionary approach to understand how the environment has shaped biological and cultural changes in humans, and how humans have and are continuously impacting the environment. The emphasis of this course will be to understand the biological, cultural and environmental diversity that has emerged through human history and its impact in the intricate interactions among humans and between humans and their environment.

BIOL 20310: Advanced Ecology 4 s.h.
Prerequisites: BIOL 01204 with C- or better and STAT 02280
This course emphasizes population, communities and ecosystems. It studies aspects of energy flow, species diversity and population dynamics in a variety of ecosystems. The course requires laboratory and field work.

BIOL 20321: Physiological Ecology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This course studies the physiological aspects of basic ecological principles and concepts, and the adjustments which organisms make in response to changing environmental factors. May not be offered annually.

BIOL 20330: Environmental Science 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This course covers topics related to general environmental issues, the flow of energy and matter through the environment, the natural resources to sustain life, their use and abuse, and the governmental laws and regulations concerning the environment. The course deals with the environmental ethics faced in today's society, the impact of pollution both to the environment and to humans, and the factors involved in urban ecology.

BIOL 20401: Principles Of Ecology 4 s.h.
Prerequisites: STAT 02260, CHEM 05102, MATH 03315 and BIOL 01100 or STAT 02260, CHEM 05102, MATH 03315 and BIOL 01105
This course covers basic topics related to the ecological understanding of the environment from a point of view of population dynamics and community structure as well as individual organism's ecology. It includes case studies of applied ecology.

BIOL 20425: Environmental Toxicology 4 s.h.
Prerequisites: BIOL 01204 with C- or betterand CHEM 07200
This course covers topics related to the fate and impact of pollutants in the environment. This course deals with the laws and regulations of pollutant discharge, the kinds of chemical pollutants, the transport and distribution of such chemicals into the environment, and their effect in populations and communities as well as individual organisms. The acute and chronic effect of these pollutants, the principles of environmental monitoring and assessment, and special examples and case studies will be analyzed.

BIOL 20474: Tidal Marsh Ecology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This course studies salt marsh development and physiography, community structure, energetics and interrelationships.

BIOL 21401: Entomology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This course studies the insect anatomy; physiology and insect control; historical and economic significance of insects in man's society; methods of collecting, preserving, rearing and mounting of insects; insect classification. This course may not be offered annually.

BIOL 22335: Advanced Genetics 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 01211 or BIOL 01202 with C- or better
The course will provide an in-depth background in all areas of Mendelian, molecular, population and evolutionary genetics. The students will learn how to use genetic tools in dissecting complex biological pathways, developmental processes and regulatory systems. Discussion of landmark genetic experiments will constitute the basis of an inquiry-based approach that will delineate the dynamic nature of modern genetics. The laboratory exercises are designed to put special emphasis on molecular biology techniques and the use of bioinformatics.

BIOL 27403: Comparative Embryology 4 s.h.
Prerequisites: BIOL 01204 with C- or better
This laboratory course focuses on the morphological and physiologic processes involved in embryogenesis of animals. The course includes the development of echinoderms, amphibians, birds, and mammals. Considerable emphasis will be placed on organogenesis and the development of organ systems.

BME 00390: Special Topics in Biomedical Engineering 1 to 6 s.h.
Prerequisites: Determined by the topic associated with the selected topic.
This course is designed to introduce students to emerging topics in biomedical engineering. Prerequisites are determined by the nature of the topic.

BME 11100: Biomedical Engineering Seminar 0 s.h.
This course introduces students to emerging areas of biomedical engineering research and industry through a series of seminars. The course may be taken multiple times; the content will change with each offering to represent cutting-edge work in biomedical engineering.

BME 11101: BME First Year Seminar 0 s.h.
This introductory seminar will introduce first year students to the field of Biomedical Engineering, provide strategies for academic success, and begin preparing students for careers in BME.

BME 11201: Chemical Foundations in Biomedical Engineering 4 s.h.
Prerequisite(s): PHYS 02220 Minimum Grade of C-and MATH 01131 Minimum Grade of C-
This course is an introduction to conservation principles and the chemical foundations of biomedical engineering. It will cover the basics of conservation principles, specifically those of mass, energy, and momentum. The course will also include an introduction to chemical processes in these areas, particularly those that are important in physiological systems such as diffusion and heat transfer.

BME 11290: Special Topics in Biomedical Engineering 1 to 4 s.h.
This course provides timely coverage of specific topics in Biomedical Engineering, and it is intended for sophomore-level Biomedical Engineering students. Special topics courses may be traditional classroom-based courses as well as research-related courses supervised by specific advisors. This class may be taken multiple times when offered with a different special topics content.

BME 11301: Physiological Foundations in Biomedical Engineering 4 s.h.
Prerequisites: MCB 01102, MATH 01235 both C- or better
This course is an introduction to human physiology from an engineering perspective. Topics covered are related to physiological systems, including the cardiovascular and nervous systems, computational models of these systems, and engineered solutions to damage and disease. The laboratory component will include hands-on training in physiological measurements and interpretation.

BME 11302: Electrical Foundations in Biomedical Engineering 4 s.h.
Prerequisites: PHYS 02222, MATH 01235 both C- or better
This course is an introduction to the electrical foundations of biomedical engineering. Topics will include the identification and connection of basic circuit elements, and the prediction of dynamic responses of circuits. Identification and analysis of physiological and biological analogs of electrical systems using these foundational principles will also be covered.

BME 11303: Mechanical Foundations in Biomedical Engineering 4 s.h.
Prerequisites: PHYS 02220, MATH 01235 both C- or better
This course is an introduction to the mechanical foundations of biomedical engineering. It will cover the basics of statics and kinematics in the context of solid and fluid mechanics, particularly those that are important in physiological systems.

BME 11390: Advanced Topics in Biomedical Engineering 1 to 4 s.h.
This course provides timely coverage of specific advanced topics in Biomedical Engineering, and it is intended for junior-level Biomedical Engineering students. Special topics courses may be traditional classroom-based courses as well as research-related courses supervised by specific advisors. This class may be taken multiple times when offered with a different special topics content.

BME 11411: Simulation, Modeling, and Control in Biomedical Systems 2 s.h.
Prerequisite(s): BME 11301 and (CS 01104 or CS 04103)
This course provides an introduction to simulation, modeling, and control in biomedical systems. Topics include: kinetic modeling of molecular systems, PBPK modeling, LABVIEW-based simulations, MATLAB modeling, control system architecture and analysis, and an introduction to current models in the literature.

BME 11450: Biocompatibility and Immunoengineering 3 s.h.
Prerequisite: BME 11301 with minimum grade of C-
This course covers topics in biocompatibility and the body's response to foreign materials, with an emphasis on material properties and the cell and molecular biology of the immune system. The course introduces the various signaling mechanisms used by cells when presented with foreign and engineered antigens, and then applies engineering principles to the discovery and design of novel biomaterials and therapeutics that are biocompatible.

BME 11451: Mechanobiology 3 s.h.
Prerequisites: MCB 01102 with minimum grade of C- AND BME 11303 with minimum grade of C-
This course will provide students with a thorough understanding of how mechanics dictate cell function and how this knowledge can be applied to the prevention and treatment of disease. Students will learn how mammalian cells interact with the complex 3D environment that surrounds them in tissues including how cellular behavior is affected by the extracellular matrix. The course also addresses the specific cell response to mechanical stimuli and how this can be used in tissue engineering and regenerative medicine applications. Additional topics include: extracellular matrix structure and function, cell-matrix interactions and cell signaling, mechanics of the extracellular matrix, and mechanotransduction.

BME 11452: Cell Bioelectricity 3 s.h.
Prerequisite: BME 11302 with minimum grade of C-
The objective of this course is to develop quantitative and qualitative understanding of the generation and transmission of bioelectricity in and between excitable cells. Topics include: circuit analysis and modeling of potentials and currents across the cellular membrane, action potentials, propagation of potentials along the cellular membrane, and electrical stimulation of excitable tissue.

BME 11453: Regulatory Practices in Biomedical Engineering 3 s.h.
Prerequisites: BME 11302 with minimum grade of C- AND ENGR 01303
This course is an introduction to domestic and foreign regulatory practices associated with biomedical devices and/or products. It will cover the basics of the processes and protocols used by the FDA in order to better prepare students to be significant contributors to the development of a biomedical product that meets or exceeds all the applicable standards, regulations, and laws that apply to its applicable technology.

BME 11454: Introduction to Stem Cell Engineering 3 s.h.
Prerequisite(s): Senior-level standing in majors 0911, 0915, or 0916 (Biomedical Engineering), or by instructor permission from instructor.
Although stem cells can differentiate into numerous cell types, their therapeutic potential is limited by the inability to reliably control stem cell behavior outside of the body. To increase the clinical use of stem cells, it is important to understand how stem cells interpret extracellular signals and to use this information to design materials that control stem cell behavior in vitro and in vivo. This course will cover stem cell biology, mechanobiology, and techniques to engineer materials with biochemical and biophysical signals that regulate stem cell growth and differentiation.

BME 11455: Introduction to Synthetic Biology 3 s.h.
Prerequisites: Senior Standing and Enrolled in BS Biomedical Engineering or Instructor's permission
Synthetic biology integrates many scientific disciplines with the goal to rapidly and reliably reprogram or design new biological systems. It has applications in a wide range of areas including manufacturing, biosensors, therapeutics, and even synthetic life. This course provides an introduction into techniques and real-world applications of synthetic biology by primarily focusing on current research in the field. Topics include: cell free systems, biomanufacturing, CRISPR, plant syn bio, mammalian syn bio, therapeutic applications, safety mechanisms, and ethics.

BME 11456: Principles of Nanoparticle Design and Engineering 3 s.h.
Prerequisite: Senior standing and enrollment in BS Biomedical Engineering or Instructor's permission
This course will provide students with an introduction to the need for nanoparticle technologies for drug delivery to treat diseases and their benefits over freely delivered therapeutics. Students will learn how to apply engineering principles to the development and design of nanotechnology for drug delivery. This course also addresses how nanoparticle technologies interact with biological systems and how they can be targeted to specific tissues to maximize delivery and therapeutic efficiency. Additional topics include: disease applications, bioconjugation strategies, in vitro and in vivo experimental techniques to study drug delivery, nanoparticle characterization, nanoparticle synthesis, and the clinical implementation of nanoparticle technologies.

BME 11468: Biophysics Phenomena in Biomaterials Science 3 s.h.
Prerequisite: BME 11303
This course is aimed at applying material physics and technology to regulate and support biological systems and functions. A goal of the course is to fundamentally understand variable biomaterials and their interactions with biological systems (cells, tissues, organs). A second goal is to use material physics and technology as a tool to understand biomaterials for artificial tissues and organs, or biophysical devices and sensors. Finally, students will learn and understand public healthcare policies, needs, and resources.

BME 11470: Introduction to Biomechanics 3 s.h.
Prerequisite: BME 11303
This course presents an introduction to biomechanics of human motion. The course will encompass the use of engineering principles to describe, analyze and assess human movement. Topics will include kinematics, kinetics, anthropometry applied to the synthesis of human movement and muscle mechanics.

BME 11471: Principles of Biomedical Control Systems 3 s.h.
Prerequisite(s): BME 11411 or CHE 06405
This course focuses on the identification and study of biomedical control systems. Students will learn to identify components of physiological control systems and examine the origin of diseases at a systems level. Additional topics include the incorporation of artificial organs into existing physiological control systems, mathematical modeling of biological processes, and designing therapeutic strategies.

BME 11472: Principles of Biomedical Processes 3 s.h.
Prerequisite(s): CHEM 06101 and MCB 01102
This course introduces students to engineering fundamentals applied to biomedical systems, particularly chemical engineering fundamentals. Students analyze and design biomedical processes. The basic biochemistry and physiology required for understanding of biomedical systems is presented. Basic principles of mass transfer, heat transfer, fluid flow, and chemical reaction are used to analyze or design drug delivery systems, pharmacokinetic models, the circulatory system, transport across cell membranes, and human and artificial organs. Laboratory experiments and demonstrations will be integrated throughout the course.

BME 11473: Principles of Biomaterials Engineering 3 s.h.
Prerequisite: CHEM 06100
The goal of studying biomaterials is to understand how the body's natural tissues are organized on a compositional, structural, and properties basis. We also seek to understand how the body recognizes and responds to foreign materials, and to combine this knowledge in order to successfully design implants that can be used to treat debilitating diseases.

BME 11474: Fundamentals of Controlled Release 3 s.h.
Prerequisite(s): MATH 01235 and CHEM 06100
Controlled systems are designed to provide delivery of an agent at a pre-determined rate for an extended period of time. Controlled release offers several advantages over traditional methods of formulation and administration: maintenance of effective concentrations for a sustained period, less total agent required, cost effectiveness, convenience and compliance. This course introduces students to engineering fundamentals applied to controlled release systems. Basic principles of materials, mass transfer, heat transfer, fluid flow and chemical reactions are used to analyze and design controlled release systems. Applications to pharmaceutical, agricultural, and food industries will be explored. Laboratory experiments and demonstrations will be integrated throughout the course.

BME 11475: Principles of Engineering Exercise Physiology 3 s.h.
Prerequisite(s): MATH 01235 and CHEM 06100
This course introduces students to engineering fundamentals applied to physiologic systems, primarily during exercise. The basic biochemistry and physiology required for understanding these systems is presented. Basic principles of mass transfer, heat transfer, fluid flow, thermodynamics, and chemical reaction are used to analyze the human metabolic system, respiratory system, cardiovascular system, and thermal system. The interrelationships of these systems will be investigated, and their dynamic response to exercise will be studied. Laboratory experiments will be conducted throughout the course.

BME 11476: Introduction to Biotransport 3 s.h.
Prerequisite(s): MATH 01235 and BME 11303
This course introduces biotransport in terms of heat transfer, mass transfer, and fluid mechanics related to the human body. Beginning with biotransport problem formulation, the course explores software tools that enable mathematical modeling. Fundamental principles of model validation, mesh convergence, sensitivity analysis, and objective functions are presented. Several modeling labs are used to build software skill and explore various heat and mass transfer processes inside and around the human body. Medical device development concepts are presented, making a connection between modeling activities and product development. The final weeks of this class are dedicated to a final project on a student-selected topic.

BME 11477: Introduction to Biomaterial Mechanics 3 s.h.
Prerequisite: BME 11303
The goal of this course is to present an introduction to the numerous issues that factor into the choice of material selection for biomedical devices. Issues to be examined include mechanical properties, biocompatibility, production costs, and ease of manufacture. This course will familiarize students with relevant material issues and highlight the process for matching material performance with the desired design characteristics and functionality.

BME 11478: Tissue Engineering Fundamentals 3 s.h.
Prerequisite(s): MCB 01102 or BIOL 01203
Tissue engineering is an expanding field that integrates principles of biology and engineering for the development of tissue substitutes and artificial organs. This course, which utilizes a combined lecture-laboratory approach, will review embryology, cell culture techniques, stem cell biology, cell signaling, cell development and differentiation, biocompatibility, tissue organization and function, biomaterial synthesis/characterization, and structure-function relationships in tissue engineering scaffolds.

BME 11479: Instrumentation for Biomedical Sciences 3 s.h.
Prerequisite: BME 11302
The design and use of advanced instrumentation are critical in all areas of the biomedical sciences for analysis of biomedical systems and for synthesis of new biomedical technologies. This course will familiarize students with a wide range of the instrumentation they are likely to encounter in a biomedical career. Various instruments will be examined with respect to: (1) Theoretical basis of the measurement or synthesis and relation to instrumentational architecture, (2) Implementation of the method and experimental design, and (3) Data interpretation and analysis. The course will integrate

primary scientific literature and discuss the evolution of instrumentation with new technologies and/or applications. The course will include inspection of instruments and observation of experimental execution, providing students with experience over a broad range of modern biomedical instrumentation.

BME 11480: Topics in Biomedical Engineering 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Biomedical Engineering. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11481: Emerging Topics in Stem Cell Engineering 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Stem Cell Engineering. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11482: Emerging Topics in Tissue Engineering 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Tissue Engineering. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11483: Emerging Topics in Regenerative Medicine 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Regenerative Medicine. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11484: Emerging Topics in Cellular Engineering 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Cellular Engineering. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11485: Emerging Topics in Biomaterials Engineering 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Biomaterials Engineering. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11486: Emerging Topics in Biomechanics 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Biomechanics. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11487: Emerging Topics in Orthopedic Engineering 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Orthopedic Engineering. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11488: Emerging Topics in Pharmaceutical Engineering 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Pharmaceutical Engineering. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11489: Emerging Topics in Therapeutic Delivery 1 to 4 s.h.
Prerequisite: Permission of Instructor
This course covers topics in Therapeutic Delivery. Specific topics and prerequisites are determined by the nature of the course when it is announced.

BME 11490: Emerging Topics in Biomedical Engineering 1 to 4 s.h.
Prerequisite(s): Senior Status and admissions to Biomedical Engineering or Permission from Instructor
This course provides timely coverage of specific emerging topics in Biomedical Engineering, and it is intended for advanced undergraduate students. Special topics courses may be traditional classroom-based courses as well as research-related courses supervised by specific advisors. This class may be taken multiple times when offered with a different special topics content.

BME 11554: Advanced Stem Cell Engineering 3 s.h.
Prerequisite(s): Must have Graduate standing or fully executed Senior Privilege Paperwork
Although stem cells can differentiate into numerous cell types, their therapeutic potential is limited by the inability to reliably control stem cell behavior outside of the body. To increase the clinical use of stem cells, it is important to understand how stem cells interpret extracellular signals and to use this information to design materials that control stem cell behavior in vitro and in vivo. This course will cover stem cell biology, mechanobiology, and techniques to engineer materials with biochemical and biophysical signals that regulate stem cell growth and differentiation.

BME 11555: Fundamentals of Synthetic Biology 3 s.h.
Prerequisite(s): Must have Graduate standing or fully executed Senior Privilege Paperwork
Synthetic biology integrates many scientific disciplines with the goal to rapidly and reliably reprogram or design new biological systems. It has applications in a wide range of areas including manufacturing, biosensors, therapeutics, and even synthetic life. This course provides in-depth coverage of techniques and real-world applications of synthetic biology through analysis of current primary literature in the field. Topics include: cell free systems, biomanufacturing, CRISPR, plant syn bio, mammalian syn bio, therapeutic applications, safety mechanisms, and ethics.

BME 11556: Advanced Nanoparticle Design and Engineering 3 s.h.
Prerequisite(s): Must have Graduate standing or fully executed Senior Privilege Paperwork
This course will provide students with an introduction to the need for nanoparticle technologies for drug delivery to treat diseases and their benefits over freely delivered therapeutics. Students will learn how to apply engineering principles to the development and design of nanotechnology for drug delivery. This course also addresses how nanoparticle technologies interact with biological systems and how they can be targeted to specific tissues to maximize delivery and therapeutic efficiency. Additional topics include: disease applications, bioconjugation strategies, in vitro and in vivo experimental techniques to study drug delivery, nanoparticle characterization, nanoparticle synthesis, and the clinical implementation of nanoparticle technologies. The graduate level course will also include implementation of the course material via projects and presentations spanning project development thorough clinical translation.

BME 11561: Advanced Topics in Biomedical Instrumentation 3 s.h.
Prerequisite(s): Graduate student status or Instructor permission
This course provides an in-depth examination of the types of instruments that students may encounter when conducting research in a pre-clinical or hospital setting. The class primarily focuses on instruments that are used in diagnostic and therapeutic applications of biomedical research ranging from small animals (e.g., mice) to humans. Some examples include ultrasound, x-ray, nuclear, and magnetic resonance imaging methods, as well as combined platforms and therapeutic approaches. Students will learn about the theory behind the instruments, their principle components and operations, and how they are used to positively affect human lives. The course utilizes primary scientific literature, and students will be expected to contribute towards a publishable review article on a given instrument or technique. The goal of the course is for students to develop a proficient knowledge of the diverse types of instrumentation that they will likely utilize in a career in translational biomedical engineering and science research.

BME 11574: Advanced Topics in Controlled Release 3 s.h.
Prerequisite(s): Must have Graduate standing or fully executed Senior Privilege Paperwork
Controlled release systems are designed to provide delivery of an agent at a pre-determined rate for an extended period of item. Controlled release offers several advantages over traditional methods of formulation and administration: maintenance of effective concentrations for a sustained period, less total agent required, cost effectiveness, convenience and compliance. This course introduces students to engineering fundamentals applied to controlled release systems. Basic principles of materials, mass transfer, heat transfer, fluid flow and chemical reactions are used to analyze and design controlled release systems. Applications to pharmaceutical, agricultural, and food industries will be explored. Laboratory experiments and demonstrations will be integrated throughout the course.

CMB 00801: Bioethics in Science and Medicine 2 s.h.
Prerequisite(s): This section is restricted to CMB students
This course will explore the major ethical issues confronting the practices of medicine and biomedical science. Students are expected to gain an understanding of the bioethical issues that we are faced with today in both science and medicine. The course covers a diverse range of topics and is taught by many "outside" lecturers who are experts their respective fields. Issues to be addressed include, research on humans and animals, organ transplants, stem cell research and cloning, vaccination policies and research misconduct. Students will examine the controversies around these and other cutting edge bioethical issues by participating in open discussions during class and presenting oral and written graded assignments. The course is a requirement for all Ph.D. students and master's students who are research track and is also open to all non-research track masters students. It is a letter-graded course. Cross-listed in the MBS program as MBS 00660 and in the MPI program as MPI 00660.

CHE 06201: Principles Of Chemical Processes I 2 s.h.
Prerequisite(s): (MATH 01131 minimum grade of C- and PHYS002200 minimum Grade of C- and CHEM 06101 minimumgrade of C-Restrictions: Must be enrolled in one of the following Field of Study (Major, Minor, Concentration, Sequence, orSpecialization): Chem Engr: Biological Engineering 0905 orChemical Engr 0906 or Chemical Engr: Materials Engr 0904
This course presents an introduction to chemical engineering calculations; processes, process variables, and design. Material balances for chemically non-reacting and reacting systems are described. Single-phase and multi-phase systems; property tables and diagrams are reviewed. Demonstrations may be integrated throughout the course.

CHE 06202: Principles Of Chemical Processes II 2 s.h.
Prerequisite(s): CHE 06201 minimum grade of C- and CHEM 06101
This course is a continuation of Principles of Chemical Processes I. It will describe energy concepts for chemical processes. This course presents energy balances for chemically non-reacting and reacting systems and will show students how to use property tables and diagrams. Computer-aided material and energy balance calculations will be performed. Transient material and energy balances will be introduced. Demonstrations may be integrated throughout the course.

CHE 06203: Principles of Chemical Processes 4 s.h.
Prerequisite(s): MATH 01131 minimum grade of C- and PHYS00220 minimum grade of C- and CHEM 06101 minimum gradeof C-Restriction: Must be enrolled in one of the followingFields of Study (Major, Minor, Concentration, Sequence, orSpecialization): Chem Engr: Biological Engr 0905 orChemical Engr 0906 or Chem Engr: Materials Engr 0904
This course presents an introduction to chemical engineering calculations; processes, process variables, and design. Material balances for chemically non-reacting and reacting systems are described. Single-phase and multi-phase systems; property tables and diagrams are reviewed. The course also includes energy concepts for chemical processes. It presents energy balances for chemically non-reacting and reacting systems and shows students how to use property tables and diagrams. Computer-aided material and energy balance calculations are performed. Demonstrations may be integrated throughout the course.

CHE 06241: Chemical Engineering Fluid Mechanics 2 s.h.
Prerequesited: MATH 01230, Minimum Grade of C- ANDPHYS 00220, Minimum Grade of C- AND (CHE 0620,Minimum Grade of C- OR CHE 06203, Minimum Grade of C-).
The subject of this course is in the area of general fluid flow with an emphasis on fluid flow in pipe systems. Topics covered in the area of general fluid flow include hydrostatics, mechanical energy balances, macroscopic momentum balances, and dimensionless groups. Topics covered in the area of pipe flow include incompressible flow, turbulence, viscous flows with an emphasis on quantifying frictional losses. The course includes appropriate laboratory experiments and computer applications.

CHE 06302: Principles Of Chemical Processes II 2 s.h.
Prerequisites: CHE 06106 AND Grade of C- or better in CHE 06201
This course is a continuation of Principles of Chemical Processes I. It will describe energy concepts for chemical processes. This course presents energy balances for chemically non-reacting and reacting systems and will show students how to use property tables and diagrams. Computer-aided material and energy balance calculations will be performed. Transient material and energy balances will be introduced. Demonstrations may be integrated throughout course.

CHE 06309: Process Fluid Transport 2 s.h.
Prerequisite(s): MATH 01235 and (ENGR 01341 minimum grade of C- or ENGR 01342 minimum grade of C- or CHE06241 minimum grade of C-) and (CHE 06202 miminum gradeof C- OR CHE 06203 minimum grade of C-).
The course will introduce students to topics in fluid and momentum transport related to chemical processes. Students will investigate the fundamental and design topics of momentum and fluid transport beyond those covered in Fluid Mechanics I. The topics area will be applied to various chemical processing applications. Topics will include Newtonian and non-Newtonian fluid behavior, two-phase flow, flow through beds of solids, pumping of liquids and gases, and mixing.

CHE 06310: Chemical Engineering Thermodynamics I 3 s.h.
Prerequisite(s): CHE 06202 minimum grade of C- orCHE 06203 minimum grade of C- and MATH 01235 minimum grade of C-
This course provides a foundation in engineering thermodynamic principles. The course includes an overview of basic thermodynamic principles, heat effects, the Second Law of Thermodynamics., and thermodynamic properties of fluids and flow processes. The course will also include solution thermodynamics theory and application, phase equilibria, chemical reaction equilibria, power and refrigeration cycles, liquefaction and thermodynamic analysis of processes. The course will focus on the synthesis and solution of complex problems in a team project-oriented environment.

CHE 06311: Heat Transfer Processes 3 s.h.
Prerequisites: (ENGR 01341 minimum grade of C- orENGR 01342 minimum grade of C- or CHE 06241 minimumgrade of C-) and (CHE 06202 minimum grade of C- orCHE 06203 minimum grade of C-)
This course introduces the fundamental modes of heat transfer that include conduction, convection (forced and natural) and radiation. It presents the mathematical analysis and computation of steady and unsteady state heat transfer for microscopic and macroscopic systems such as the design of heat exchangers. Demonstrations and laboratories will be integrated throughout the course.

CHE 06312: Separation Processes I 2 s.h.
Prerequisites: MATH 01230 minimum grade of C- and (ENGR 01341 minimum grade of C- or ENGR 01342 minimum grade of C-) or CHE 06241 minimum grade of C-)and (CHE 06202 minimum grade of C- or CHE 06203minimum grade of C-).
This course describes modes of diffusion of mass and chemical composition. This course includes mass transfer analysis; molecular diffusion in gases, liquids, and solids and convective mass transfer. It will have an introduction to equilibrium-staged mass transfer operations such as: absorption/stripping, extraction/leaching operations. Deomonstrations, laboratories and computer simulations may be integrated trhoughout this course.

CHE 06314: Separation Processes II 3 s.h.
Prerequisites: CHE 06309 and CHE 06312, (minimum grade of C-), and CHE 06310
This course is the second course of a two semester sequence in mass transfer and separation processes. The course presents several separation processes and their relevant theory, design and applications for gas, liquid and solid separation in both traditional and emerging industries. These processes include distillation; adsorption and chromatography; membrane separations, reverse osmosis and gas permeation; and solid liquid separations; centrifugation, particle filtration, crystallization. Demonstrations, laboratories and computer simulations may be integrated throughout this course.

CHE 06315: Chemical Engineering Thermodynamics II 3 s.h.
Prerequisites: CHE 06310 minimum grade of C-
This course is a direct continuation of Chemical Engineering Thermodynamics I. This course includes an in-depth view of mulitcomponent systems, phase equilibria such as liquid-liquid and solid-liquid equilibria, simultaneous chemical reactions equilibria, and electrolyte equilibria. The course will also cover chemical engineering thermodynamics applications in emerging technologies such as the biochemical and biomedical fields.

CHE 06316: Chemical Reaction Engineering 4 s.h.
Prerequisites: CHE 06309 and CHE 06310 and CHE 06311 and CHE 06312 and CHEM 07200
This course describes various topics related to homogeneous and heterogeneous reaction kinetics, idealized reactor models for batch and flow systems, corrections for non-ideal residence times, and heat and mass transfer effects. An introduction will be made to homogeneous and heterogeneous catalytic processes and industrial catalytic reactors. Demonstrations and laboratory exercises will be integrated into the course.

CHE 06381: CHEMICAL ENGINEERING MATERIALS 2 s.h.
Prerequisites: CHEM 06101CHEMISTRY II.
This course develops the material structure and property relations. Atomic bonding, lattice structures, crystalline and polymeric structures and properties, imperfections, dislocations, phase diagrams, and quantitative analysis are presented. Properties of metals and alloys, ceramics, polymers, composited, and electrical materials are discussed.

CHE 06385: Chemical Engineering Modeling 2 s.h.
Prerequisite(s): CHE 06241 AND CHE 06202
This course will introduce students to the modeling of chemical processes using practical simulation tools; the same ones used in industry. Students will learn to build models of complex chemical processes, evaluate the accuracy of models, and use models for process optimization and design decisions.

CHE 06401: Chemical Process Component Design 3 s.h.
Prerequisites: CHE 06315 and CHE 06314 and (CHE 06316 with minimum grade of C-)
This course addresses the problems in economic design of chemical process components used in the synthesis of overall chemical processes. Economic aspects of engineering, including evaluating alternative course of action, cost factors, and process optimization are presented. Safety and environmental considerations in process selection will be discussed.

CHE 06402: Transport Phenomena 3 s.h.
Prerequisites: CHE 06314 and CHE 06316
This course describes analogies among heat, mass, and momentum transfer. Governing differential equations are presented and their uses in steady-state and unsteady-state systems. This course reviews applications to mass transfer coupled with heat transfer and/or chemical reaction. Numerical methods and computer applications are included.

CHE 06403: Unit Operations Experimental Design And Analysis 3 s.h.
Prerequisites: CHE 06315 and CHE 06314 and CHE 06316
This course addresses the fundamental operation and applications of chemical engineering unit processes, generally referred to as unit operations. Students will learn and develop experimental designs and engage in the data analysis required to characterize the operations and relate theory to industrial practice. Students will engege in pilot-scale process experimentation based on appropriate experimental designs and analysis. Typical processes covered include process filtration, tubular flow reactors, liquid-liquid extraction, fluidized beds, continuous crystallization, leaching, reverse osmosis, gas permeation, absorption and stripping, and bioprocesses.

CHE 06404: Unit Operations Laboratory II 2 s.h.
Prerequisite: CHE 06.403
This course is a direct continuation of Unit Operations Laboratory I, examining a different series of unit operations but with similar goals and expectations. Students will again engage in pilot-scale process experimentation on various systems and relate theory and phenomenological principles to performance of a realistic industrial operation.

CHE 06405: Process Dynamics And Control 3 s.h.
Prerequisites: CHE 06314 and CHE 06315and CHE 06316
This course provides an introduction to the dynamics, modeling and control of process systems. Topics studied will include: modeling analysis and application to control systems, dynamic behavior of processes, control objectives and benefits. Various aspects of feedback control will be emphasized: feedback loop, PID algorithm, tuning, performance, and applications. Enhancements to single-loop PID control; cascade control, and feed-forward control will be discussed along with special topics. Process control design case studies will be included.

CHE 06406: Chemical Plant Design 3 s.h.
Prerequisites: CHE 06405 and (CHE 06401 with a minimum grade of C-)
This course will focus in design strategy for process synthesis and analysis and economic decision making in the process design. The course explores the development of reactors, compressors, separators and heat exchangers. Cost diagrams and quick screening of process alternatives are utilized. The course will use computer-aided process design software for industrial cases.

CHE 06407: Chemical Process Safety 2 s.h.
Prerequisite(s): CHE 06241 AND CHE 06315 AND CHE 06316
This course presents the basic principles, guidelines, and calculations necessary for the safe design and operation of chemical plants and related manufacturing facilities. Topics include: Safety and Environmental Laws and regulation, Toxicology, Chemical Hygiene, Chemical Releases, Dispersion of Chemical Releases, Fires and Explosion and their Prevention, Reactive Hazards, Hazard Identification, and Risk Assessment. Case histories of safety and environmental incidents are analyzed.

CHE 06430: Applications of Experimental Methods in Chemical Engineering 3 s.h.
Prerequisite(s): (CHE 06315 and CHE 06316) or (BME 11201 and BME 11303) or ME 10322 or CEE 08305
Hands-on experience with experimental techniques and computer aided methods for materials characterization and solutions to contemporary research problems in Chemical Engineering as well as in a variety of other engineering disciplines. Modular course including experimentations such as, but not limited to, TGA, DSC, DMA, and Rheology and Rheology computer-aided software packages such as ASPEN, GAMS, COMSOL, MATLAB and ImageJ.

CHE 06441: Process Safety 3 s.h.
Prerequisites: CHE 06241 and CHE 06315 and CHEM 06316
This course presents the basic principles, guidelines, and calculations necessary for the safe design and operation of chemical plants and related manufacturing facilities. Topics include: toxics and human exposure, fires and explosions, vessel relief systems, hazard identification and risk assessment, source and dispersion models. Accident investigation is discussed along with a review of actual case histories.

CHE 06442: Fluid Flow In Processing And Manufacturing 3 s.h.
This course surveys fluid flow applications in the processing and manufacturing industries. It presents advanced flow concepts; multiphase flow, complex flow, and turbulence. Gas-solid fluidized bed technology and design. This course will analyze liquid-liquid and liquid-solid mixing systems.

CHE 06445: Process Control Design and Practice 3 s.h.
Prerequisite(s): CHE 06314 AND CHE 06315 AND CHE 06316
Manufacturing facilities in the Process Industries are highly automated to meet modern efficiency, quality, safety, and environmental goals. This course teaches how sensors, valves, pumps, and computing devices are combined to control the unit operations studied in prerequisite courses. Students will learn to design batch and continuous processes capable of automated startup, operation and shutdown. Quality, safety, and environmental goals will translate to discrete and continuous constraints in automated process design. Students will learn to document process control and automation in

Piping and Instrumentation Diagrams and Functional Specifications. The challenges of operator interaction with automated systems will be featured.

CHE 06450: Principles of Pharmaceutical & Personal Care Product Engineering 3 s.h.
Prerequisite: CHE 06202
Principles of Pharmaceutical and Personal Care Products Engineering, CHE 06.450 Fundamental concepts covered include dosage types and personal care product/drug development time-line. Introduction to manufacturing environment of the sector is examined, including regulatory, design, and operational aspects.

CHE 06451: Pharmaceutical & Personal Care Product Manufacturing Processes 3 s.h.
Prerequisite(s): CHE 06309 AND CHE 06312 AND CHE 06310 AND CHE 06316
Pharmaceutical and Personal Care Products Manufacturing Processes, CHE 06.451 Basic manufacturing concepts such as small vs. large molecule synthesis, process scale-up, formulation techniques; unit processes used in both API synthesis and finished product formulation; single and multiphase mixing and reaction processes; solid/liquid separations via crystallization, filtration and drying; and milling, granulation, and other solids processing operations.

CHE 06462: Bioprocess Engineering 3 s.h.
Prerequisites: CHEM 06100 and MATH 01130 or CHEM 06105 and MATH 01130
This course reviews the fundamentals and engineering of bioprocess engineering with emphasis on applying biotechnology to industrial processes. Essential aspects of biochemistry, microbiology and kinetics are presented. This course discusses bioreactor engineering, and recovery and purification processes. Processing applications of engineering kinetics and enzyme technology are included. Laboratory experiments and demonstrations will be integrated throughout the course.

CHE 06463: Green Engineering Of Chemical Processes 3 s.h.
Prerequisites: CHE 06314 and CHE 06316
This course evaluates process design techniques to minimize waste and by-products in the processing and manufacturing industries. Topics include: mass and heat recycling processes; technologies for process stream renovation, material reuse and recycling methods. Case studies of industrial applications are utilized.

CHE 06464: Advanced Separation Technology 3 s.h.
This course describes advanced separation processes not previously covered in Transfer Processes II and Separation Processes courses. Topics include: crystallization and precipitation; adsorption, chromatography and ion exchange; reverse osmosis, ultrafiltration, gas permeation and prevaporation. Commercial system design parameters and laboratory demonstrations will be included. An overview of other novel separation processes will be done.

CHE 06465: Advanced Design Of Reactors 3 s.h.
This course presents an overview of chemical reaction types and ideal reactors. Topics presented include: catalysis and catalytic reactors; analogies for real reactors; fluid flow and heat and mass transfer effects on chemical reactions and reactor design; numerical analyses and simulation of reacting systems; applications in the chemical industry.

CHE 06466: Polymer Processing 3 s.h.
Prerequisites: CHE 06381 and CHE 06310
The course provides an introduction to the various aspects of polymer engineering starting with basic polymer properties, structure and function. The major topics covered are the formation of polymer systems and manufacturing techniques. Fabrication processes topics include coating, extrusion, and foams. The production of thin-films and membranes will focus on stretching, phase inversion, and hollow fiber spinning. Students will study application of polymeric materials engineering to various industries.

CHE 06468: Principles Of Electrochemical Engineering 3 s.h.
Prerequisites: CHEM 06100 or CHEM 06105
This course will focus on the fundamental principles of process electrochemistry. Basic principles of thermodynamics, kinetics and mass transfer as applied to electrochemical systems will be presented. Modeling of electrochemical systems and application of electrochemical principles to corroding systems will be conducted by the students. Engineering case studies of commercial applications in energy conversion and storage and electrolytic processes will be presented.

CHE 06470: Principles Of Air Pollution Control 3 s.h.
Prerequisites: CHEM 06100 or CHEM 06105
This course introduces students to air pollution control theory. Students design air pollution control processes and specify equipment related to the control of particulate, gaseous and toxic air emissions. The chemistry required for pollution control process design is presented. The environmental impacts due both to controlling and not controlling emissions are considered. Students design control equipment, specify and troubleshoot control systems and predict the impacts for each major type of control system.

CHE 06471: Principles of Biomedical Control Systems 3 s.h.
Prerequisite(s): CHE 06405
This course is an extension of Process Dynamics and Control (CHE 06405) focusing on the identification and study of biomedical control systems. Students will learn to identify components of physiological control systems and examine the origin of diseases at a systems level. Additional topics include the incorporation of artificial organs into existing physiological control systems, mathematical modeling of biological processes, and designing therapeutic strategies.

CHE 06472: Principles Of Biomedical Processes 3 s.h.
Prerequisites: CHEM 06100 or CHEM 06105
This course introduces students to chemical engineering fundamentals applied to biomedical systems. Students analyze and design biomedical processes. The basic biochemistry and physiology required for understanding of biomedical systems is presented. Basic principles of mass transfer, heat transfer, fluid flow, and chemical reaction are used to analyze or design drug delivery systems, pharmacokinetic models, the circulatory system, transport across cell membranes, and human and artificial organs. Laboratory experiments and demonstrations will be integrated throughout the course.

CHE 06473: Principles of Biomaterials Engineering 3 s.h.
Prerequisites: CHEM 06100 or CHEM 06105
The goal of studying biomaterials is to understand how the body's natural tissues are organized on a compositional, structural, and properties basis. We also seek to understand how the body recognizes and responds to foreign materials, and combine this knowledge in order to successfully design implants that can be used to treat debilitating diseases.

CHE 06474: Fundamentals Of Particle Technology 3 s.h.
Prerequisites: CHEM 06100 or CHEM 06105
This course introduces students to the chemical engineering functions of particle technology. Students analyze and design chemical industry processes involving particles. The basic chemistry of particle synthesis and manufacturing is presented. Principles of mass and heat transfer, fluid flow and chemical reaction kinetics are used to analyze a wide range of industrial processes involving particles. Processes involving fluidization, pneumatic conveying, multi-phase mixing and catalysis will be discussed. Laboratory experiments and demonstrations will be integrated throughout the course.

CHE 06475: Principles of Biopharmaceutical and Industrial Fluid Mixing 3 s.h.
Prerequisite(s): CHEM 06100 or CHEM 06105
Students in this course will demonstrate the importance mixing of in both biotechnology and the pharmaceutical industries. The design project in this class will include a product that requires multiple process steps involving multiple phases and complex liquids and chemical reactions. Students will apply single and multi-phase fluid dynamica to the design of an industrial process that includes equipment design. A major objective of the class is to develop equipment for the biotechnology and pharmaceutical industry.

CHE 06476: Principles Of Bioseparation Processes 3 s.h.
This course will focus on the fundamental principles of bioseparation processes. The characteristics of bioseparations will be presented as applied to downstream processing in the pharmaceutical/biotechnology and related industries. Theory and design of filtration, microfiltration, centrifugation, cell disruption, extraction, adsorption, chromatography, precipitation, ultrafiltration, crystallization, and drying will be presented as applied to biosystems. Commercial design considerations, such as sanitary design/sterilization, water quality, solvent recovery, waste disposal and biosafety will be reviewed.

CHE 06477: Fundamentals Of Engineering Process Analysis And Experimental Design 3 s.h.
This course exposes students to advanced engineering applications of process analysis and experimental design. The course includes a multidisciplinary approach with theoretical background to support the course applications. Students will use advanced statistical and optimization techniques for process analysis and experimental design, process monitoring and quality control presently used in industry. The analysis and experimental design techniques presented in this course serve to optimize complex industrially relevant processes and make engineering design and calculations more effective. Applications from a wide range of industries will be presented including pharmaceutical, food, bulk and specialty chemicals, and petroleum industry applications.

CHE 06478: Tissue Engineering Fundamentals 3 s.h.
Prerequisite(s): BIOL 01210 or BIOL 01211 or BIOL 01204
Tissue engineering is an expanding field that integrates principles of biology and engineering for the development of tissue substitutes and artificial organs. This course, which utilizes a combined lecture-laboratory approach, will review embryology, cell culture techniques, stem cell biology, cell signaling, cell development and differentiation, biocompatibility, tissue organization and function, biomaterial synthesis/characterization, and structure-function relationships in tissue engineering scaffolds.

CHE 06479: Industrial Process Pathways 3 s.h.
Prerequisites: CHE 06316
This course will study chemical reaction mechanisms that play crucial roles in the chemical industry. Fundamentals of reaction thermochemistry and reaction kinetics will be discussed. Students will learn to construct mechanistic models of complex, multi-reaction systems, and to apply these models to the solution of practical problems such as yield optimization.

CHE 06480: Project Optimization In Engineering 3 s.h.
This course will overview strategies for planning and directing long-term engineering projects. Topics will include project organization, project scheduling, allocation of resources, project optimization and financial analyses.

CHE 06481: Advanced Process Analysis 3 s.h.
This course will examine advanced topics in process analysis including: process consistency, identification of optimal process based on economic analysis, process documentation including flowsheets and budgets, replacement analysis for processing equipment, and rationing limited resources between competing projects.

CHE 06482: Principles Of Food Engineering 3 s.h.
Prerequisites: MATH 01141, CHEM 06100 and CHEM 06105 or MATH 01131
This course introduces students to chemical engineering fundamentals applied to food processing systems. Students analyze and design food engineering processes. The basic chemistry required for understanding of food systems is presented. Basic principles of mass transfer, heat transfer, fluid flow, chemical reaction, process control, and mixing are used to analyze or design food production systems. Computer simulations will be used for the design of food processing systems. Laboratory experiments and demonstrations will be integrated throughout the course.

CHE 06483: Principles Of Engineering Exercise Physiology 4 s.h.
Prerequisites: MATH 01236 and CHEM 06100
This course introduces students to chemical engineering fundamentals applied to physiologic systems, primarily during exercise. The basic biochemistry and physiology required for understanding these systems is presented. Basic principles of mass transfer, heat transfer, fluid flow, thermodynamics, and chemical reaction are used to analyze the human metabolic system, respiratory system, cardiovascular system, and thermal system. The interrelationships of these systems will be investigated, and their dynamic response to exercise will be studied. Laboratory experiments will be conducted throughout the course. This course is jointly taught with the Department of Health and Exercise Science.

CHE 06484: Fundamentals Of Controlled Release 3 s.h.
Controlled release systems are designed to provide delivery of an agent at a pre-determined rate for an extended period of item. Controlled release offers several advantages over traditional methods of formulation and administration: maintenance of effective concentrations for a sustained period, less total agent required, cost effectiveness, convenience and compliance. This course introduces students to chemical engineering fundamentals applied to controlled release systems. Basic principles of materials, mass transfer, heat transfer, fluid flow and chemical reactions are used to analyze and design controlled release systems. Applications to pharmaceutical, agricultural, and food industries will be explored. Laboratory experiments and demonstrations will be integrated throughout the course.

CHE 06485: Fundamentals Of Engineering Quality Control 3 s.h.
Prerequisites: MATH 01235
This course will expose students to the fundamental principles of engineering quality control and process controller design. Students will learn basic control charting techniques and process capability assessment. The course will include process monitoring and control techniques routinely used in industry and expose students to the relevance of these techniques in the design and development of processes and process safety and risk assessment. The course will include numerous examples from a wide range of engineering applications and industries.

CHE 06486: Membrane Processes 3 s.h.
Prerequisites: CHEM 06105 and MATH 01131 or MATH 01141 or CHEM 06100 and MATH 01131
Principles of membrane processes: reverse osmosis, ultrafiltration, microfiltration, electrodialysis, prevaporation, gas permeation, and their application to traditional and emerging fields. Membrane materials and structure. Mass transfer and design aspects for both liquid and gas seperation systems.

CHE 06487: Applied Process Optimization 3 s.h.
Prerequisites: CHEM 06315 and CHE 06316 and CHE 06405
In chemical and biochemical processes, optimization is essential to determine appropriate design and operating conditions. These systems have wide-range of complexities and requires multiple modeling methods and solution algorithms. Thus, topics studied will include, linear optimization, nonlinear optimization (convex and nonconvex), discrete optimization, heuristic optimization, uncertainty characterization, stochastic optimization, optimal control and multi-objective optimization. Will include computer lab sessions to demonstrate case studies in GAMS and Matlab.

CHE 06490: Special Topics In Chemical Engineering: Topic 3 to 4 s.h.
Prerequisites: (MATH 01131 or MATH 01140) and (CHEM 06100 or CHEM 06105)
This course presents chemical engineering topics related to recent developments in industrial practice or research. May be repeated.

CHE 06640: Engineering Process Analysis 3 s.h.
This course focuses on engineering processes and introduces students to the commonalities among processes and manufacturing platforms. Students will learn analysis techniques relevant to engineering process data and to assess data quality, compare different types of engineering data, and develop process data models. In addition, students will be introduced to time series analysis and multivariate analysis methods.

CHEM 05100: Essentials of General Chemistry 3 s.h.
This course presents fundamental principles of chemistry and math as well as their application to solving chemistry problems used in Chemistry I (CHEM 06100). Students will learn essential chemical principles to succeed in Chemistry I. Chemistry background information on topics such as the composition, structures and properties of matter, elemental symbols, elemental properties, isotopes, composition of matter, chemical formulas, atoms, molecules an moles, basic stoichiometry, and the concepts of acids and bases will be presented. Mathematical topics including solving simple algebraic equations, unit conversions, the metric system, use of proportions, percentages, and word problems within the context of general chemistry will also be presented. There are no prerequisites for this course.

CHEM 05102: Chemistry Of Everyday Life (Lecture And Lab) 4 s.h.
A one-semester course for the non-science major presenting an overview of General, Organic and Biochemistry. Emphasis is upon the application of chemical principles to industrial processes, environmental concerns and biologically interesting reactions. This course cannot be applied for credit toward a science major nor used as prerequisite for CHEM06.101

CHEM 05103: Chemistry in the World Around Us 3 s.h.
This course provides a one semester (no lab) introduction to chemistry for non-science and non-engineering majors. The course will focus on the foundational scientific principles of chemistry that influence our existence. Emphasis is on developing scientific literacy and critical thinking through the study of the chemical processes that are industrially, pharmaceutically, or environmentally relevant. This course cannot be applied toward a science major nor used as a prerequisite for CHEM 06.101. There are no prerequisites for this course.

CHEM 05249: Introduction to Forensic Science 3 s.h.
This course is intended to introduce non-science and non-engineering majors to fundamental chemical and biochemical principles that underlie standard forensic investigative approaches. This will include basic structure and function of biomolecules, cellular processes, analytical methods to detect and measure target materials, and standard examples that are relevant to common investigative procedures. There also will be discussion of good laboratory practices and statistical analysis of complex datasets.

CHEM 05300: Chemistry Learning Assistant for General and Organic Chemistry 2 s.h.
Permission of Advising Professor required for registration
This upper-level chemistry course is designed to provide students with experience in facilitating problem solving in small groups and broaden their knowledge of basic chemistry. Students will gain this experience by 1) completing problem sets to be embedded in lecture to prepare for class facilitation, 2) providing assistance to students during small group work in lecture, 3) exploring current literature in chemical education research. This course is recommended for all Chemistry and Chemistry-related students since it improves their depth of knowledge of chemistry while enhancing their communication skills.

CHEM 05301: Chemistry In The Environment 3 s.h.
Prerequisites: MATH 03305 or ENST 94101 or CHEM 05102
This course relates the fundamentals of chemistry learned in the prerequisite course to the natural processes found in nature. It also examines how chemistry is related to environmental concerns in our modern world. The course is not designed for majors in science and engineering.

CHEM 05310: Independent Study-Chem 1 to 6 s.h.

CHEM 05350: Forensic Chemistry (Lecture And Lab) 4 s.h.
This course considers the application of physical and chemical methods to the identification and analysis of the physical evidence associated with a crime. The course emphasizes those areas of chemistry and to a lesser extent physics, biology and geology useful for determining the evidential value of crime scene and related evidence. The laboratory experience emphasizes the application of physical and chemical analytical procedures to the examination of materials that would likely be considered evidence in a crime.

CHEM 05430: Advanced Topics In Chemistry 3 s.h.
Prerequisite: CHEM 07201
This course covers special topics in individual areas of chemistry. Specific prerequisites are determined by the nature of the course when it is announced.

CHEM 05435: Cooperative Experience In Chemistry 3 s.h.
The goal of this course is to provide the student with the opportunity to participate in a research/development experience in a non-academic setting. The course may be taken as an advanced elective by students with Junior or Senior status for a maximum of 3 s.h. credit. It may be elected to fulfill the research requirement of the BS in Chemistry major, It can be taken more than once.

CHEM 05440: Research I 3 s.h.
This course provides individual laboratory investigation of a topic outside the scope of existing courses; laboratory and conferences are required. The results of investigation will be presented in a written and oral report.

CHEM 05441: Research II 3 s.h.
Prerequisites: CHEM 05440
This course is a continuation of CHEM05.440.

CHEM 05450: Seminar I 1 s.h.
Prerequisite(s): CHEM 07348 or CHEM 08400
In this course students give oral reports on topics chosen from the current chemical literature. Students must attend local professional meetings.

CHEM 05530: Special Topics in Chemistry 3 s.h.
Selected topics in individual areas of chemistry (analytical, organic, inorganic or physical). Consent of the instructor is necessary. Prerequisites are determined by the nature of the topic. The requirements of this course include a graduate laboratory project and/or research paper. This course may not be offered annually.

CHEM 05550: Advanced Seminar 1 s.h.
Oral presentation of scientific studies and data at the graduate level. The talks are accompanied by 35 mm slides prepared by the student. Attendance at South Jersey American Chemical Society meetings is required. This course may not be offered annually.

CHEM 06100: Chemistry I 4 s.h.
Prerequisite(s): Passing grade on Chemistry Placement Exam or C- or better in CHEM 05100
This course presents the basic principles involved in the study of chemistry. It emphasizes modern theories and laws used in the understanding of the structures and reactions of the elements and compounds and also includes gas laws, stoichiometry, and solution theory.

CHEM 06101: Chemistry II (Lecture And Lab) 4 s.h.
Prerequisites: CHEM 06100 or CHEM 06105
This course is a continuation of CHEM06.100. It covers these topics: equilibria, including acids and bases, complexes, and sparingly soluble compounds, thermodynamics, kinetics, electrochemistry, and solution theory. Descriptive inorganic chemistry is also covered.

CHEM 06105: Advanced College Chemistry I (Lecture And Lab) 4 s.h.
Prerequisites: Passing grade on Chemistry Placement Exam OR C- or better in Essentials of General Chemistry(CHEM 05100) OR appropriate AP test scores (3, 4, or 5).
This course is an introductory chemistry course for students in chemistry and biochemistry. The content includes theories and laws used in the understanding of the structures and reactions of elements and compounds, atomic structure, stoichiometry, gas laws, states of matter, and solution theory. Illustrative examples focusing on the research interests of the Department will be used to introduce topics. Introduction to Advanced laboratory methods will also be covered. It is not recommended for those who do not have a declared science or engineering major.

CHEM 06106: Advanced College Chemistry II (Lecture And Lab) 4 s.h.
Prerequisites: CHEM 06105Advanced College Chemistry I.
This course is a continuation of Advanced College Chemistry I. Topics include thermodynamics, chemical kinetics, chemical equilibrium, acid base chemistry, precipitation reactions, redox reactions, and electrochemistry. Illustrated examples focusing on the research interests of the Department will be used to introduce topics. Advanced laboratory methods will also be covered.

CHEM 06300: Advanced Inorganic Chemistry 4 s.h.
Prerequisite: CHEM 08400
This course studies concepts and models of inorganic chemistry. It explains molecular geometries and other physical and chemical properties on the basis of the several chemical bonding theories and with reference to the periodic table. Students study both main group and transition element chemistries. The laboratory component emphasizes the synthesis and characterization of inorganic compounds.

CHEM 06301: Inorganic Chemistry 3 s.h.
Prerequisites: CHEM 07201 or CHEM 07202
This course covers the basic concepts and models of inorganic chemistry. The course encompasses the study of vaious elements in the periodic table along with their components. Students study the descriptive chemistry of both main group and d-block transition elements.

CHEM 06400: Advanced Inorganic Chemistry Lecture 3 s.h.
Prerequisite: CHEM 06301
This course covers concepts and models of inorganic chemistry. It encompasses molecular geometries and other physical and chemical properties on the basis of the several chemical bonding theories and with reference to the periodic table. Students study the chemistry of both main group and d-block transition elements.

CHEM 06401: Advanced Inorganic Chemistry Laboratory 2 s.h.
Prerequisite: CHEM 06400 with concurrency allowed.
This course covers concepts and models of inorganic chemistry in the laboratory setting. Students study both main group and transition element chemistries. The laboratory component emphasizes the synthesis and characterization of inorganic compounds.

CHEM 07200: Organic Chemistry I (Lecture And Lab) 4 s.h.
Prerequisites: CHEM 06101 or CHEM 06106
This course studies the chemistry of carbon compounds and their properties, structures and reactions. It emphasizes the study of the principle classes of aliphatic and aromatic compounds, which in conjunction with selected experiments, gives an understanding of the mechanisms of organic reactions. Required for science majors.

CHEM 07201: Organic Chemistry II (Lecture And Lab) 4 s.h.
Prerequisites: CHEM 07200
This course is a continuation of CHEM07.200. Required for science majors.

CHEM 07202: Industrial Organic Chemistry 3 s.h.
Prerequisite(s): CHEM 07200, Restricted to engineering majors.
Industrial Organic Chemistry will cover common topics found typically in Organic Chemistry II (CHEM07.201) but will focus on the utility of this chemistry in an industrial setting. Highlights include: polymer synthesis, mineral sources of chemicals, renewable sources of chemicals, green chemistry, aromatic materials, coal, organic color chemistry, detergents, food, pharmaceutical chemistry, and others.

CHEM 07203: Organic Chemistry II for Biomedical Sciences 4 s.h.
Prerequisite: CHEM 07200
This course studies the chemistry of carbon compounds and their properties, structures and reactions in biochemical framework. It emphasizes the study of the principle classes of aliphatic and aromatic compounds, which in conjunction with selected experiments, gives an understanding of the mechamisms of organic reactions. Specifically designed for Biomedical Sciences and Engineering majors. This course if a continuation of CHEM 07201.

CHEM 07205: Biochemical Foundations of Nutrition 3 s.h.
Prerequisites: Chem 07200 and matriculation into BS in Nutrition and Dietetics
This course will advance students' understanding of organic chemistry topics and will serve as an introduction to biochemical concepts that are related to nutrition. This course is geared specifically towards the students pursuing the coordinated BSMS nutrition and dietetics degree.

CHEM 07348: Biochemistry (Lecture And Lab) 4 s.h.
Prerequisites: (CHEM 07201 OR CHEM 07202 OR CHEM 07203) AND (MCB 01102 OR BIOL 01202 OR BIOL 01203)
This course deals with chemical compounds and reactions important to the functioning of biological systems and includes a discussion of the metabolic pathways for energy production and biosynthesis.

CHEM 07357: Chemical Biology 3 s.h.
Prerequisite(s): CHEM 07201 or CHEM 07202 or CHEM 07203
The goal of this course is to describe how chemistry is applied to biochemical and biological systems to answer specific questions. It examines the use of small, synthetic molecules that are used as probes of biochemical function as well as how to design experiments using these molecules. The course also encompasses the use of purely synthetic compounds as functional or structural mimics of biological molecules. The methods and techniques used to measure designed interactions will also be discussed.

CHEM 07388: Natural Products Chemistry 3 s.h.
Prerequisites: CHEM 07201 OR CHEM 07202 OR CHEM 07203
This course is an introduction to the various aspects of chemistry that contribute to the extraction, isolation, analysis, and biochemical effects of natural products. This course will focus on pharmaceutical, biotechnological, and medicinal applications of these molecules with a special emphasis on cannabinoids.

CHEM 07405: Introduction To Polymer Chemistry 3 s.h.
Prerequisite(s): CHEM 07201 or CHEM 07202 or CHEM 07203
This course presents an introduction to the topic of polymer chemistry. The subject matter, by its nature, crosses all the lines of specialization within chemistry. The structure, properties and synthesis of polymeric materials are covered in accordance with the recommendations of the joint polymer education committee of the American Chemical Society.

CHEM 07407: Advanced Biochemistry Lecture 3 s.h.
Prerequisite: CHEM 07348 and CHEM 09250
This lecture course deals with complex biochemical processes involving the interaction of numerous classes of biomolecules. Specifically the course focuses on the interplay of proteins, lipids, carbohydrates, and nucleic acids in the cellular response and adaptation to the environment, both locally in the cell and of the organism as a whole. The course relies on both traditional descriptions of biochemical processes and the inclusion of primary literature sources to analyze experimental data, explain methodology, and introduce cutting edge concepts.

CHEM 07408: Advanced Biochemistry 4 s.h.
Prerequisites: BIOL 14348 or CHEM 07348
This course provides an in-depth study of the principles involved in biological processes. It emphasizes the significance of biochemical reactions and regulations as well as mechanisms. A thorough elucidation of the structure, function and mechanism will be presented. The overall strategy of living systems will be illustrated. The laboratory experiments will provide exposure to representative procedures and some important modern techniques.

CHEM 07409: Advanced Biochemistry Laboratory 2 s.h.
Prerequisites: CHEM 07407 (may be takenconcurrently) and CHEM 09250
This laboratory course deals with isolation and characterization of molecules from biochemical systems. The fundamentals and applications of chromatographic, electrophoretic, and spectroscopy techniques applied to biological molecules are taught through laboratory projects.

CHEM 07410: Medicinal Chemistry 3 s.h.
Prerequisites: CHEM 07201 or CHEM 07202 or CHEM 07203
A study of the biochemical principles and metabolic pathways with particular emphasis on pharmaceutical applications and biotechnology. This course will focus on the molecular mechanisms of drug action and chemical basis of drug therapy. Current methods used to study medicinal chemistry including recombinant DNA, combinatorial chemistry and bioinformatics will be reviewed. A 3-D molecular modeling of drug targets and drug design will be integrated throughout the course. Clinical trials of drug case study are included.

CHEM 07412: Introduction to Antibiotics 3 s.h.
Prerequisites: CHEM 07201 or CHEM 07202 or CHEM 07203
Antibiotics are broadly defined as agents that arrest or kill bacteria and serve a central role in modern medicine. Chemical compounds that exhibit antibiotic activity are wide ranging in chemical composition and biochemical mechanism of action. This course will provide an overview of the important class of biologically active molecules.

CHEM 07431: Advanced Topics In Biochemistry 3 s.h.
Prerequisite: CHEM 07201
This course covers special topics in individual areas of biochemistry. Specific prerequisites are determineed by the nature of the course when it is announced.

CHEM 07442: Biochemical Research Methods 3 s.h.
Prerequisite: CHEM 07348
This course provides individual laboratory investigation of a topic beyond the scope of existing courses based on current research in the department. The results of the research project will be presented in a written and oral report.

CHEM 07464: Advanced Organic Chemistry I (Lecture) - WI 3 s.h.
Prerequisites: ENGL 01112, CHEM 07201
This course provides an advanced presentation of the major classes of organic chemistry reactions, giving major emphasis to the detailed mechanisms of such reactions. Modern organic theory is included. This course is generally offered in fall every other year. A writing intensive course.

CHEM 07465: Physical Organic Chemistry 3 s.h.
Prerequisite(s): CHEM 07201 or CHEM 07203
This course covers the study of the physicochemical properties of organic reactions. Major topics of discussion include the study of kinetics and conformational analysis of molecules. The basic reactivity patterns and the physicochemical rules that define reaction mechanisms will also be introduced. The course is ideal for Chemistry, Biochemistry, Chemical Engineering, and Biology majors.

CHEM 07466: Advanced Organic Chemistry II (Lecture) 3 s.h.
This is a continuation of CHEM07.464. It examines classes of compounds and reactions not presented in CHEM07.464. This course is not offered annually.

CHEM 07467: Organic Preparations (Lecture & Lab) 3 s.h.
This is a laboratory course that provides an in-depth study of the procedures and key organic transformations that can be applied to the pharmaceutical and fine chemical industry. Major topics of discussion include the preparations of carbonyl derivatives and functionalized aromatics as well as other key pharmacological scaffolds. The course is ideal for Chemistry, Biochemistry, Chemical Engineering, and Biology majors.

CHEM 07470: Organic Spectroscopic Analysis (Lecture And Lab) 3 s.h.
Prerequisite(s): CHEM 07201 or CHEM 07202 or CHEM 07203
This is a laboratory course with class discussion on the separation and identification of organic compounds. It uses both classical and instrumental techniques in compound structure determination. Lectures emphasize interpreting IR, NMR and mass spectra. This course is not offered annually.

CHEM 07472: Organometallic Chemistry 3 s.h.
Prerequisite(s): CHEM 07201 OR CHEM 07202 or CHEM 07203
This course covers the chemistry of organometallic compounds and corresponding applications in diverse fields such as organic synthesis, pharmaceutical industry, and the petroleum chemical industry. Major topics of discussion include the study of physical and chemical properties, characterization, and preparation of organic compounds. The basic reactivity patterns and the reaction mechanisms will also be introduced. The course is ideal for Chemistry, Biochemistry, Chemical Engineering, and Biology majors.

CHEM 07475: Polymer Synthesis 4 s.h.
Prerequisite(s): (CHEM 07201 or CHEM 07203) and (CHEM 08401 or CHEM 08305)
This course provides an in-depth study of the procedures, techniques and theoretical aspects of polymer synthesis. Reaction mechanisms including kinetic and thermodynamic considerations will be studied. The topic of polymer synthesis will be examined from raw material sources through product usage. The laboratory experiments will provide exposure to representative procedures and techniques.

CHEM 07478: Polymer Characterization 4 s.h.
Prerequisite(s): (CHEM 07201 or CHEM 07203) and (CHEM 08401 or CHEM 08305)
This course provides an in-depth study of the procedures, techniques and theoretical aspects of polymer characterization. Major topics include molecular weight determinations, polymer solutions, viscoelasticity and bulk properties. The laboratory experiments will provide exposure to representative procedures and techniques with emphasis on molecular weight determination and thermal methods.

CHEM 07490: General Aspects of Pharmacology 3 s.h.
Prerequisites: CHEM 07348 OR MCB 01333 OR BIOL 14440
This course provides an understanding of the basic principles and mechanisms in pharmacology. Topics discussed include drug discovery, pharmacodynamics, and pharmacokinetics, and the interactions between drugs and living tissues. It also provides fundamental knowledge about mechanisms of action, structure-activity relationships, drug metabolism, testing and regulation of pharmaceuticals, and drug-drug interactions.

CHEM 07492: Pharmaceutical Chemistry 3 s.h.
Prerequisite(s): CHEM 07201 or CHEM 07202 or CHEM 07203
This course covers the structure, properties, and preparation, of organic and inorganic pharmaceutical drugs. Some of the topics that will be discussed include natural source derived organic pharmaceuticals, inorganic pharmaceuticals, and their properties under biological conditions, etc. This course is ideal for Chemistry, Biochemistry, Biology, and Chemical Engineering majors.

CHEM 07493: Introduction to Regulatory Affairs 3 s.h.
Prerequisites: CHEM 07201 or CHEM 07202 or CHEM 07203
This course will provide an introduction to the regulatory requirements associated with the medial product/device development. This course would be relevant to the students majoring in chemistry and biochemistry with an interest in allied health professions.

CHEM 07494: Good Laboratory Practice (GLP) Techniques 3 s.h.
Prerequisite(s): CHEM 07201 or CHEM 07202 or CHEM 07203
This course will provide an introduction to Good Laboratory Practice (GLP) techniques in Food and Pharmaceutical industries. The course will cover Good Laboratory Practice techniques commonly employed in the non-clinical as well as clinical laboratory studies. This course might be relevant to the students majoring in chemistry, biochemistry, and chemical engineering.

CHEM 07531: Special Topics in Biochemistry 3 s.h.
This course covers special topics in individual areas of biochemistry. Specific prerequisites are determined by the nature of the course when it is announced.

CHEM 07557: Chemical Biology 3 s.h.
The goal of this course is to describe how chemistry is applied to biochemical and biological systems to answer specific questions. It examines the use of small, synthetic molecules that are used as probes of biochemical function as well as how to design experiments using these molecules. The course also encompasses the use of purely synthetic compounds as functional or structural mimics of biological molecules. The methods and techniques used to measure designed interactions will also be discussed.

CHEM 07560: Advanced Biochemistry Lecture 3 s.h.
This lecture course deals with complex biochemical processes involving the interaction of numerous classes of biomolecules. Specifically the course focuses on the interplay of proteins, lipids, carbohydrates, and nucleic acids in the cellular response and adaptation to the environment, both locally in the cell and of the organism as a whole. The course relies on both traditional descriptions of biochemical processes and the inclusion of primary literature sources to analyze experimental data, explain methodology, and introduce cutting edge concepts.

CHEM 07564: Advanced Organic Synthesis 3 s.h.
Prerequisite: Matriculation into MS Pharmaceutical Sciences or COGS in Industrial Chemistry or Permission of the Instructor
This course will provide and in-depth overview of several synthetically useful chemical methodologies, reagents, and reactions that are essential in synthesis of organic pharmaceuticals. Some of the general categories of reactions to be discussed in this course include reduction, oxidation, protecting groups, and carbon-carbon bond forming reactions. This course will survey a broad and diverse range of enantioselective, diastereoselective, chemoselective, and/or regioselective chemical transformations critical for the preparation of medicinal compounds. This course would suit the needs of graduate and senior undergraduate students who intend to pursue careers in the field of pharmaceutical sciences.

CHEM 07565: Organic Reactions And Mechanisms 3 s.h.
An advanced presentation of the major classes of organic chemical reactions, with the major emphasis being placed upon the detailed mechanisms of such reactions. Modern organic theory is included. The requirements of this course include a research paper or individual project. Admission to the course will be at the discretion of the graduate adviser. This course may not be offered annually.

CHEM 07568: Medicinal Chemistry 3 s.h.
This course describes various topics related to the biochemical principles and metabolic pathways with particular emphasis on pharmaceutical applications and biotechnology. This course will focus on the molecular mechanisms of drug action and chemical basis for drug therapy. Current methods used to study medicinal chemistry including recombinant DNA, combinatorial chemistry and bioinformatics, will be reviewed. A 3-D molecular modeling of drug targets and drug design will be integrated throughout the course. Clinical trials of drug case study are included. A term project is incorporated into this course. Students are required to conduct an in-depth review of the literature regarding a topic.

CHEM 07570: Organic Spectroscopy 3 s.h.
This is a laboratory course with class discussion on the separation and identification of organic compounds. Both classical and instrumental techniques are used in compound structure determination. Lecture emphasis is placed on interpreting IR, NMR, and mass spectra. The requirements of this course include a graduate laboratory project and/or research paper. Admission to the course will be at the discretion of the graduate adviser. This course may not be offered annually.

CHEM 07572: Advanced Organometallic Chemistry 3 s.h.
Prerequisite: Matriculation into MS Pharmaceutical Sciences or COGS in Industrial Chemistry or Permission of the Instructor
This course covers the chemistry of organometallic compounds and their applications in organic synthesis, and pharmaceutical industry. Some of the topics discussed in this course include the study of physical and chemical properties, characterization, analysis, and preparation of organometallic compounds, along with advanced organometallic reaction mechanisms such as substitution, addition, elimination, and insertion, etc. The course is designed for pharmaceutical sciences students and includes submission of a written report on original research literature in organometallic chemistry.

CHEM 07590: General Aspects of Pharmacology 3 s.h.
Prerequisite: Matriculation into MS Pharmaceutical Sciences or COGS in Industrial Chemistry or Permission of the Instructor
This course attempts to provide an understanding of the basic principles and mechanism in pharmacology. Some of the topics discussed include pharmacodynamics and pharmacokinetics of drugs, and their interactions with the living tissues. It also provides a fundamental knowledge about the mechanism of action, structure-activity relationships, and interaction of therapeutics with physiological system and metabolism of drugs.

CHEM 07592: Advanced Pharmaceutical Chemistry 3 s.h.
Prerequisite: Matriculation into MS Pharmaceutical Sciences or COGS in Industrial Chemistry or Permission of the Instructor
This course covers the structure, properties, preparation, and analysis of organic and inorganic pharmaceutical drugs. Some of the topics that will be discussed include pharmacognosy, organic and inorganic pharmaceuticals, solubility characteristics and properties of these compounds under biological conditions, etc. The course is designed for pharmaceutical sciences students and includes submissions of a written report on original research literature in pharmaceutical chemistry.

CHEM 08305: Biophysical Chemistry 4 s.h.
Prerequisite(s): (CHEM 07201 OR CHEM 07202 OR CHEM 07203) and (MCB 01101 OR BIOL 01106) AND MATH 01131 and PHYS 00222 and CHEM 09250
This course covers the topics of physical chemistry and their applications in biochemistry. Topics include thermodynamics, kinetics and spectroscopy.

CHEM 08400: Physical Chemistry I (Lecture) 3 s.h.
Prerequisite(s): (CHEM 07201 or CHEM 07202) and (MATH 01131 or MATH 01141) and (PHYS 02201 or PHYS 00222 or PHYS 02203 or PHYS 00211 or CHE 06302 or CHEM 07203)
This course deals with the problems of the fundamental principles underlying physical chemistry. It gives major emphasis to thermodynamics, kinetics and quantum mechanics. It also includes spectroscopy, group theory and statistical mechanics. MATH 01230 recommended.

CHEM 08401: Physical Chemistry II (Lecture) 3 s.h.
Prerequisite: CHEM 08400
This is a continuation of CHEM 08400.

CHEM 08402: Physical Chemistry Laboratory I 2 s.h.
Prerequisites: CHEM 09250 and CHEM 08400
Laboratory work in this course is designed to illustrate the principles of physical chemistry.

CHEM 08403: Physical Chemistry Laboratory II 2 s.h.
Prerequisite(s): CHEM 08402
This course is a continuation of CHEM08.402

CHEM 08405: Applications in Experimental and Computational Chemistry 3 s.h.
Prerequisite(s): CHEM 08400 OR CHEM 08305
This course focuses on experimental and theoretical / computational techniques in chemistry, with emphasis on physical chemistry. This hands-on lecture-based course will provide students with hands-on experience in different physical chemistry methods for studying molecular structures, molecular interactions, reaction dynamics, and molecular electronic properties. Both experiment-based and computational-based techniques will be explored with emphasis on utilizing modern instrumentation and software to studying problems in diverse areas such as materials, biomedicine, and drug design.

CHEM 08410: Survey Of Molecular Modeling Methods 3 s.h.
Prerequisite(s): (CHEM 07201 or CHEM 07202 or CHEM 07203) and (MATH 01130 or MATH 01140)
This survey course emphasizes the applications of molecular modeling theory and simulations in chemistry and biochemistry. The course will present to students a broad and in-depth knowledge of different modeling concepts and methodologies, and provide students opportunities to apply modern computational software to investigate molecular structures, chemical reactions, and biomolecular processes such as enzyme catalysis and protein conformational changes, etc. This course is ideal for Chemistry, Biochemistry, Bioinformatics, and Pharmaceutical Science students.

CHEM 08505: Advanced Biophysical Chemistry 3 s.h.
Prerequisite: Matriculation into MS Pharmaceutical Sciences or COGS in Industrial Chemistry or Permission of the Instructor
This is a graduate-level Biophysical Chemistry cousre, which focuses on applications of physical chemistry concepts and methods to biological systems. Topics cover the basic concepts of thermodynamics, reactions kinetics and spectroscopyk, etc. Additionally, various specific biophysical chemistry topics and experimental techniques are to be discussed. The course will equip students with a strong theoretical background to understand advanced topics covered in other courses. Students will be additionally required to complete an independent literature report as directed by the instructor.

CHEM 08510: Advanced Survey of Molecular Modeling Methods 3 s.h.
Prerequisite: Matriculation into MS Pharmaceutical Sciences or COGS in Industrial Chemistry or Permission of the Instructor
This survey course emphasizes the applications of molecular modeling theory and simulations in chemistry and biochemistry. The course will present to students a broad and in-depth knowledge of different modeling concepts and methodologies, and provide students opportunities to apply modern computational software to investigate molecular structures, chemical reactions, and biomolecular processes such as enzyme catalysis and protein conformational changes, etc. The topics will include quantum chemistry calculations, molecular mechanics, molecular dynamics simulations, in silico drug design, etc. This course is ideal for Chemistry, Biochemistry, Bioinformatics, and Pharmaceutical Science students.

CHEM 09249: Analytical Chemistry 4 s.h.
Prerequisite(s): CHEM 06101 or CHEM 06106
This course is for those taking chemistry as a minor and covers basic concepts in analytical chemistry and serves to develop skills needed to solve analytical problems in a quantitative manner. A wide range of techniques that are useful in modern analytical chemistry are introduced. Statistics relevant to analytical chemistry molecular spectroscopy, atomic spectroscopy as well as acid base chemical equilibrium are covered.

CHEM 09250: Quantitative Analysis (Lecture And Lab) 4 s.h.
Prerequisites: CHEM 06101 or CHEM 06106
This course provides lecture and laboratory experience in classical methods of gravimetric and volumetric analyses as well as electrical and spectroscopic analyses.

CHEM 09300: Environmental Chemistry 3 s.h.
Prerequisite(s): CHEM 07200 and CHEM 09250
This course is comprehensive overview study of environmental science from a chemistry perspective. The course is appropriate for junior/senior-level undergraduate students. Topics inlcude environmental pollution of soil, water and air, atmosphere and climate change, and methods for measuring and abating this pollution.

CHEM 09322: Bioanalytical Chemistry 3 s.h.
Prerequisite(s): (CHEM 09249 or CHEM 09250) and (CHEM 07201 or CHEM 07202 or CHEM 07203)
This course will focus on the details of analysis of biomolecules using a variety of analytical techniques including liquid chromatography, electrophoresis and capillary electrophoresis. A thorough discussion of mass spectrometry technique, as applied to biomolecules, will be conducted. This course will also introduce students to different DNA analysis techniques and electrochemical biosensors in biology and medicine. This also includes the analytical centrifugation methods as used in determination of molecular weight of biomolecules. This course prepares students for graduate school, careers in pharmacy, medical, and forensic among others.

CHEM 09330: Chemical Analysis of Cannabinoids 3 s.h.
Pre-requisites: (CHEM 09249 or CHEM 09250) and (CHEM 07201 or CHEM 7202 or CHEM 7203)
This course is an introduction to the various aspects of chemical analysis that are used for the characterization of cannabinoid content in a variety of natural and commercial products. The focus will be on extraction, spectroscopic (including IR, UV/Vis, and mass spectrometry), and chromatographic techniques (gas chromatography, liquid chromatography, preparative chromatography, and supercritical fluid chromatography), specifically related to their use for cannabinoid analysis, residual solvent measurements, and pesticide detection.

CHEM 09351: Chemical Characterization of Surfaces and Materials 3 s.h.
Prerequisite: CHEM 09250
The majority of graduates from Chemistry and Biochemistry programs go on to obtain employment in the chemical and pharmaceutical industries, with a large number of these positions requiring knowledge in analytical techniques for quality control, quality assurance, and production. These students require strong, hands-on experience in modern analytical techniques used for these jobs. This course will be especially beneficial to students who want to pursue careers in pharmaceutical science and/or chemical manufacturing by combining specific lecture topics related to advanced experimental analytical techniques and laboratory experiences utilizing related instrumentation. This is a combined lecture and laboratory course.

CHEM 09410: Instrumental Methods (Lecture And Lab) 4 s.h.
Prerequisites: CHEM 08400 and CHEM 09250
This course covers the use of instrumental methods in the solution of chemical problems. It stresses both the theoretical and practical aspects of obtaining and interpreting data. Among the instruments considered are visible, UV, IR, NMR, AA, ICP, Raman and Mass Spectrometers as well as electrical and chromatographic techniques.

CHEM 09411: Electrochemistry 3 s.h.
Prerequisite(s): CHEM 09250 and PHYS 00222
This course covers principles of electrolyte solutions, thermodynamics and kinetics of electrochemical reactions, devices and instrumentation of electrochemical measurements, techniques of electroanalytical methods, and examples of bioelectrochemistry. The course introduces a variety of applications of the electroanalytical methods in the areas of point-of-care diagnosis, hazard detection, and biosensors.

CHEM 09420: Supramolecular Chemistry 3 s.h.
Prerequisite(s): (CHEM 07201 or CHEM 07202 or CHEM 07203) and (CHEM 08400 or CHEM 08305 or CHE 06340)
The course is about concepts, structures, functions, and applications of supramolecular molecular systems. The supramolecular systems discussed in this course include surface assembled monolayer and multilayers, L-B films, host-guest molecular recognition systems, liquid crystals, and nanoclusters. Application of supramolecular chemistry includes clininc diagnostics, drug design and drug delivery, biomimic, and nanofabrication.

CHEM 09510: Instrumental Analysis 4 s.h.
Prerequisite: Matriculation into MS Pharmaceutical Sciences or COGS in Industrial Chemistry or Permission of the Instructor
The theoretical basis, construction, and data interpretation of most instruments used by chemist are studied. Among the instruments considered are visible, UV, IR, NMR, AA, fluorescence, flame emission, and mass spectrometers. Electroanalytical, potentiometric, conductometric, electrogravimetric, and voltametric methods of analysis are used. Laboratory experiments allow "hands-on" use of representative instruments. The requirements of this course include a graduate laboratory project. Admission to the course will be at the discretion of the graduate adviser. This course may not be offered annually.

CHEM 09522: Advanced Bioanalytical Chemistry 3 s.h.
Prerequisite: Matriculation into MS Pharmaceutical Sciences or COGS in Industrial Chemistry or Permission of the Instructor
This course will focus on the details of analysis of biomolecules using a variety of analytical techniques including liquid chromatography, electrophoresis and capillary electrophoresis. A thorough discussion of mass spectometry technique, as applied to biomolecules, will be conducted. This course will also introduce students to different DNA analysis techniques and electrochemical biosensors in biology and medicine. This also includes the analytical centrifugation methods as used in determination of molecular weight of biomolecules. This course prepares students for graduate school, careers in pharmacy, medical, and forensic among others.

INTR 06202: Introduction to Nature of Science -WI 3 s.h.
Prerequisite(s): COMP 01112
This course focuses on providing students with an overview of critical considerations and concepts relating to nature of science (NOS), responsible conduct of research (RCR), rigor & reproducibility, scientific citizenship, the scientific enterprise and ethical and philosophical issues in the applied sciences.

PHYS 08305: Biophysical Chemistry 4 s.h.
Prerequisites: BIOL 01101, MATH 01131, PHYS 02201, CHEM 07201 and CHEM 09250
This course covers the topics of physical chemistry and their applications in biochemistry. Topics include thermodynamics, kinetics and spectroscopy. This course also provides laboratory experience in physical methods that apply to biological systems.

CEE 08051: Engineering Fundamentals I 2 s.h.
An introduction to the practice of engineering through authentic, multidisciplinary problems and projects. Sustainability is used to demonstrate the broader context of engineering work. The importance of diversity and inclusion in engineering work is addressed. Course topics include: academic success strategies, engineering skills, engineering communication, computer-based tools, entrepreneurial mindset, engineering design, and teamwork.

CEE 08052: Engineering Fundamentals II 2 s.h.
A continuation of Engineering Fundamentals 1 focused on product design that considers the needs of the customer. The course provides expanded treatment of the practice of engineering through authentic, multidisciplinary projects. Project work reinforces the following topics: statistics, economics, computer-based tools, entrepreneurial mindset, engineering design, teamwork, diversity, inclusion, and ethics. This course has short seminar/lectures and long project sessions. On long days students meet with the professor to complete additional activities and multi-week team-based projects. Some periods are also used for team meetings, exams, student presentations, etc. To prepare for class, students read chapters assigned and complete the recommended work beforehand.

CEE 08101: Introduction to Infrastructure 2 s.h.
Prerequisite(s): None
The civil infrastructure of the US is deteriorating rapidly. The quality of the infrastructure directly affects the economy and security of the US. The next generation of civil and environmental engineers needs to be more skilled and more able to create a sustainable infrastructure. The goal of this course is to introduce freshmen civil and environmental engineers to the built infrastructure including bridges, buildings, foundations, dams, canals, roads, intersections, water treatment plants, wastewater treatment plants, and solid waste landfills. Students will be exposed to case studies in each area of infrastructure and will prepare final team oral and written reports on specific infrastructure cases.

CEE 08102: Engineering Graphics 2 s.h.
The course deals with the creation and interpretation of engineering drawings, maps, and plans using engineering software programs.

CEE 08103: Field Surveying 2 s.h.
The course deals with the measurement of existing and man-made land profiles. The tasks performed include measurements of drainage areas, distances, angles, and elevations; closing traverses; topographic surveys; and highway alignments.

CEE 08203: Surveying And Engineering Graphics 4 s.h.
The course deals with the measurement of existing and man-made land profiles (surveying), and the creation and interpretation of engineering drawings, maps and plans (engineering graphics). The tasks performed include the measurements of drainage areas, distances, angles, and elevations; closing traverses; topographic surveys; and highway alignments. Additional tasks include creation and interpretation of engineering plans, drawings, and maps using appropriate engineering software programs.

CEE 08301: Civil Engineering Materials 2 s.h.
Prerequisites: ENGR 01271 with minimum grade of C-
This course deals with asphalt pavement, concrete pavement, and structural concrete including: the testing and analysis of aggregates, asphalt binders, cement and admixtures; the design of asphalt pavement, concrete pavement, and structural concrete; and the testing and analysis of asphalt pavement specimens, concrete pavement specimens, and structural concrete specimens. The course includes appropriate laboratory experiments.

CEE 08305: Civil Engineering Systems 3 s.h.
Prerequisites: MATH 01131 or MATH 01140
The course deals with the theories and principles of civil engineering systems as applied to real-world analysis and design problems. The course covers four important areas of civil engineering systems: linear programming, project scheduling, probability and statistics, and engineering economics. The course includes appropriate computer applications.

CEE 08311: Environmental Engineering I 3 s.h.
Prerequisite: CHEM 06100 with a grade of C- or better
This course deals with topics in principles of environmental engineering, including ecosystems, water and wastewater treatment and design, and sludge/residuals management.

CEE 08312: Sustainable Civil & Environmental Engineering 3 s.h.
Prerequisites: CHEM 06100 with C- or better grade.
This course deals with topics in solid and hazardous waste and air pollution engineering, including regulations, fundamentals, evaluation, management, prevention, treatment and disposal.

CEE 08342: Water Resources Engineering 3 s.h.
Prerequisite: (ENGR 01341 with a grade of C- or better or ENGR 01342 with a grade of C- or better) and (MATH 01235 with a grade of D- or better or MATH 01231 with a grade of D- or better)
This course deals with the analysis and design of basic water flow structures using the principles of hydraulics and hydrology. The topics covered in hydrology include the analysis of rainfall, runoff, groundwater flow, and stream flow. The topics covered in hydraulics include the analysis and design of hydraulic structures such as weirs, open channels, culverts, and storm sewers. The course includes appropriate laboratory experiments and computer applications.

CEE 08351: Geotechnical Engineering 3 s.h.
Prerequisite: (ENGR 01341 with a grade of C- or better or ENGR 01342 with a grade of C- or better) and (ENGR 01272 with a grade of C- or better or ENGR 01273 with a grade of C- or better) and CEE 08301
The course deals with the basic principles of geo-technical engineering including soil properties and soil mechanics. The study of soil properties includes soil gradation, void ratio, porosity, water content, degree of saturation, specific gravity, soil consistency, soil classification. The study of soil mechanics includes permeability, capillarity, seepage and stresses in soils. The course includes appropriate laboratory experiments.

CEE 08361: Transportation Engineering 3 s.h.
Prerequisites: CEE 08103
The course deals with the analysis, design, construction, operation, maintenance, rehabilitation, and efficiency of transportation systems and mass transit systems. The course includes a study of the impact on transportation systems caused by sociological, geographical, economic and environmental factors. The course also includes appropriate field measurements and computer applications.

CEE 08382: Structural Analysis 3 s.h.
Prerequisite: ENGR 01272 with a grade of C- or better or ENGR 01273 with a grade of C- or better
This course deals with the analysis of simply-supported and continuous structures using classic and matrix analysis methods including integration, moment-area, conjugate beam, virtual work, force, and stiffness methods. Trusses, beams, and frames are considered in the course.

CEE 08383: Analysis And Design Of Steel Frames 3 s.h.
Prerequisites: CEE 08382
This course deals with the analysis and design of structural frames. Analysis using the stiffness method is emphasized. The design of frame members includes the design of steel beams and beam-columns, connections for steel frames, bracing and composite steel/concrete members. Steel joists and decking are also introduced. The course includes appropriate computer applications.

CEE 08404: Engineering Estimating For Seniors 3 s.h.
Prerequisites: ECON 04102
The course deals with the development of engineering estimates for civil engineering projects and project components including labor, materials, and equipment. Total project costs including direct and indirect costs, field and home-office costs, and contingency are covered. Also covered are the various types of civil engineering estimates including piles and cofferdams, wellpoints and earthdrilling, water and sewer systems, road and highway pavements, concrete buildings and bridges, and steel buildings and bridges. The course includes appropriate computer applications.

CEE 08412: Environmental Treatment Process Principles 3 s.h.
Topics in Fundamentals of Physiochochemical Processes in Environmental Engineering such as Absorption, Coagulation/Flocculation, Filtration, Sedimentation, Disinfection, Ion Exchange, Chemical Oxidation, Corrosion and Membranes.

CEE 08413: Introduction To Environmental Management 3 s.h.
This course deals with integrated environmental management issues and methodologies with a global perspective. Topics include environmental decision-making from a socio-economic and environmental standpoint, environmental data collection, analysis, and management, techniques for environmental assessment and feasibility case studies. The course is intended to give students an understanding of current environmental issues and tools for analysis of data for environmental management. The issues are examined from the worldwide perspectives of science, engineering, business, and society.

CEE 08422: Site Remediation Engineering Principles 3 s.h.
This course deals with topics with site remediation engineering. Topics include site characterization, site safety, modeling site conditions, conducting feasibility studies, and designing remediation systems, such as pump and treat, stabalization, containment, treatment walls, natural attenuation, enhanced bioremediation, phytoremediation, oxidation, soil flushing, and soil vapor extraction.

CEE 08431: Solid And Hazardous Waste Management 3 s.h.
The course deals with solid and hazardous waste sources, regulations and management; engineering principles; treatment and disposal methods; design of landfills; recycling; toxicology principles; and risk assessment. The course includes appropriate laboratory experiments and computer applications.

CEE 08432: Pollutant Fate And Transport Principles 3 s.h.
This course deals with topics in characteristics and properties of organic pollutants, aquatic chemistry, transport mechanisms for pollutants (Absorption, Retardation, Attenuation, Volatilization, Biodegradation), groundwater (Properties, Flow Equations, Transport in Porous Media) and mathematical modeling.

CEE 08433: Principles Of Integrated Solid Waste Management 3 s.h.
The course deals with the theories and principles of integrated solid waste management as applied to real-world analysis and design problems. The course covers the design of facilities and programs, such as landfills, composting facilities, transfer stations, collection programs, and drop-off centers, and planning of integrated systems for municipalities and counties. Computer applications are included.

CEE 08436: Sustainable Technologies For Built Environments 3 s.h.
Prerequisite(s): (Any 100 level MATH) or STAT Course
This course introduces engineering and non-engineering students to innovative technologies that must be employed to sustain the human species on Earth by reducing the impact of urban communities. After an introduction to Sustainability, technologies will be considered in five areas related to the built environment: environmental protection, energy, water, shelter, and transportation. The course is designed to increase students' understanding of sustainable technologies and ability to incorporate such technologies into programs to improve sustainability.

CEE 08437: Sustainable Buildings 3 s.h.
Prerequisite(s): (Any 100 level MATH) or STAT Course
This course introduces engineering and non-engineering students to innovative designs that can be employed to better sustain the human species on Earth by reducing the impact of buildings. After an introduction to the impact of buildings on sustainability, technologies will be considered in five areas: sustainable sites, water, energy, materials, and indoor environmental quality.

CEE 08438: Biological Treatment Processes for Engineers 3 s.h.
Prerequisite: CEE 08311
This engineering course will allow students to apply engineering concepts and techniques for characterizing and mathematically modeling human impacts on microbial systems and vice versa. Special consideration will be given to microbe-mediated cycling of organic materials (i.e., pollutants) in natural and engineered systems, including: conventional water and wastewater treatment, municipal landfills, pristine and contaminated groundwater and surface waters, etc.

CEE 08441: Surface Hydrology 3 s.h.
Prerequisite: CEE 08342
This course is to increase knowledge on the application of hydrologic methods to water resources problems. Specifics include the use of probabilistic techniques to characterize hydrologic processes. Such analyses are characterized by data collection, analysis and interpretation, simulation, and forecasting. The level of understanding should, upon completion of the course, be sufficient to understand and appreciate the important issues in the current literature where statistical and optimization methods are used in prediction and interpretation of hydrologic processes. Synergy between hydrological processes and environmental quality, hydrometeorology, global warming, informatics, and ecology and conversation will be discussed.

CEE 08442: Hydrometeorology 3 s.h.
Prerequisite: CEE 08342
This course introduces hydrometeorology to the students and latest technologies used by water resources engineers for understanding, modeling and simulating the global water issues. This course will investigate the relationship between hydrology and meteorology and focus on key processes including precipitation, stream and ground water flow, flooding, water chemistry and contamination, and water resource management. A large component of the course will include collecting and analyzing data, estimating stream flow, and using spreadsheet and graphic programs to monitor water levels following precipitation events. Students in the class will use state of the art software to analyze the collected datasets. Topics included in this course are intended for students engaged in environmental and water resources engineering. The course is designed for students that are familiar with key concepts from courses in mathematics, hydrology, and water

monitoring.

CEE 08443: Advanced Water Resources Engineering For Seniors 3 s.h.
Prerequisites: CEE 08342
The fundamental theme of the course is the study of advanced topics in water resources engineering including the analysis and design of advanced hydraulic structures, hydraulic similitude and modeling, wave action, and advanced hydrology. The course includes appropriate laboratory experiments and computer applications.

CEE 08444: Principles Of Hydraulic Design 3 s.h.
Prerequisites: CEE 08342
The fundamental theme of the course is the design and analysis of structures for controlling and conveying water in both the built and natural environment. Topics covered vary from year to year based upon instructor and student interests. Past topics have included open channel flow design, dams and spillways sanitary and storm sewers, culverts, pumping stations, turbomachinery, and hydraulic similitude and modeling.

CEE 08445: Principles Of Environmental Fluid Mechanics 3 s.h.
Prerequisites: CEE 08342
The fundamental theme of the course is the engineering study of fluid flow in the environment. Advanced topics in water resources engineering are explored, with content varying based upon instructor and student interests. Past topics have included open channel flow, hydrology, fish passage at hydraulic structures, sediment transport, mixing in natural water bodies, and water quality modeling. The course includes appropriate laboratory and/or field experiments and computer applications.

CEE 08446: River Engineering Principles 3 s.h.
Prerequisite: CEE 08342
This course presents the theory and analytical techniques for the design and analysis of engineering projects that control or convey water in open channel systems. Topics include sediment transport, design of hydraulic structures, river restoration, and computer modeling.

CEE 08447: Watershed Engineering Principles 3 s.h.
Prerequisite: CEE 08342
This course presents the theory and analytical techniques for the design and analysis of stormwater management projects. Topics include environmental law, stormwater mitigation structures, rainfall-runoff analysis, limnology, and computer modeling.

CEE 08448: Introduction to Water and Environmental Monitoring 3 s.h.
Prerequisites: CEE 08203 and CEE 08342
This course introduces the latest technologies and techniques used by water resources and environmental engineers for mapping, modeling and monitoring. The goal of this class is to allow students to develop an understanding of water and environmental spaces and how maps represent them. This course will provide an overview of the application of advance geographic information system, remote sensing and complex mapping in water resources and environmental engineering. Students will use satellite images to extract data and produce viable information. State of the art software will be uses in this class.

CEE 08452: Foundation Engineering For Seniors 3 s.h.
Prerequisites: CEE 08351 with C- or better grade.
The fundamental theme of the course is the analysis and design of structural building and bridge foundations based on advanced principles of soil mechanics. These advanced principles of soil mechanics include compressibility, shear strength, and bearing capacity. The types of foundations analyzed and designed include spread footings and pile foundations. The course includes appropriate laboratory experiments and computer applications.

CEE 08453: Earth Retaining Systems For Seniors 3 s.h.
Prerequisites: CEE 08351 with C- or better grade.
The fundamental theme of the course is earth retaining systems including advanced principles of soil mechanics and analysis and design of earth retaining systems. The advanced principles of soil mechanics covered include lateral soil pressure and slope stability. The analysis and design of earth retaining systems includes slopes, embankments, retaining walls, and other systems. The course includes appropriate laboratory experiments and computer applications.

CEE 08463: Transportation Planning, Demand, And Data Analysis 3 s.h.
Prerequisite: CEE 08361
This course introduces students to the general field of transportation planning including travel demand analysis and data collection methods. Statistical data collection and analysis methods are discussed. Examples using the traditional four-step planning process illustrate common planning procedures. Computer applications are included.

CEE 08464: Elements Of Transportation Engineering for Seniors 3 s.h.
Prerequisite: CEE 08361
The fundamental theme of the course is the study of advanced topics in highway design and analysis, signalized and un-signalized intersection design, forecast travel demand modeling and transportation planning. Topics covered vary from year to year based upon instructor and student interests. This course also includes field measurements and computer applications.

CEE 08465: Pavement Analysis And Evaluation 3 s.h.
Prerequisites: CEE 08361 and CEE 08301
The fundamental theme of this course is the engineering study of the mechanical behavior of flexible and rigid pavements. These include understanding of the pavement response and field performance data, and design of flexible and rigid pavements. The course will include appropriate computer applications.

CEE 08466: Introduction to Transportation Systems Modeling 3 s.h.
Prerequisite: CEE 08361
Introduces latest technologies and techniques used by transportation planners and engineers to study current travel characteristics and estimate future travel demand and supply. This course focuses on urban travel characteristics and activity analysis, travel demand and supply analysis, transportation system and project evaluation, and program and project implementation strategies. The course will (1) introduce concepts, procedures and methods associated with transportation planning; (2) provide basic knowledge of travel demand forecasting models; and (3) provide basic knowledge of relevant travel demand modeling software. The course is designed for undergraduate students who want to develop their career in transportation engineering and planning.

CEE 08468: Introduction to Intelligent Transportation System 3 s.h.
This course will introduce Intelligent Transportation System's (ITS) planning, design, implementation and evaluation concepts. The course will start with an introduction to systems engineering and fundamentals of ITS followed by detailed logical and physical architecture development for any ITS project. Furthermore, the course will introduce selected tools require to plan, design, implement and evaluate ITS projects.

CEE 08473: Advanced Structural Analysis For Seniors 3 s.h.
Prerequisites: CEE 08382
The course deals with the matrix method of structural analysis. The topics covered include structural members, member joints, member end conditions, local and global structural matrices, condensation of global structural matrices, static structural analysis, and dynamic structural analysis. The course will include appropriate computer applications.

CEE 08474: Structural Mechanics 3 s.h.
Prerequisites: (CEE 08383 or ME 10301) and MATH 01235
This course presents the foundations of structural mechanics. Topics include: stress and strain tensors; equilibrium; compatibility and consecutive relationships; stain energy density; energy methods for solid bodies, frames and trusses; and techniques for approximate solutions of problems.

CEE 08475: Fatigue And Fracture 3 s.h.
Prerequisites: (CEE 08383 or ME 10301) and MATH 01235
This course presents the theory and analytical techniques to design structural components for cyclic loading. Topics include linear elastic fracture mechanics; S-N fatigue; fatigue crack growth; and algorithms for simulating three-dimensional crack propagation.

CEE 08476: Portland Cement Concrete 3 s.h.
Prerequisite: CEE 08301
The course deals with the proportioning, properties, and performance of different types of portland cement concrete mixtures. It covers cementitious materials, admixtures, aggregates, microstructure, strength and durability; mixture design, properties, advanced performance testing of special types of concrete, such as high-strength, lightweight, fiber-reinforced, and self-consolidating portland cement concretes.

CEE 08481: Reinforced Concrete Design 3 s.h.
Prerequisites: CEE 08382
The course deals with the topic of reinforced concrete analysis and design. The analysis and design of reinforced concrete structural members includes types of concrete and steel, fundamentals of reinforced concrete behavior, analysis and design of rectangular and T-beams and slabs including flexural and shear behavior, development of reinforcement, deflections and crack control. Analysis and design of short reinforced concrete columns is also included. The course includes appropriate computer applications.

CEE 08483: Advanced Steel Design For Seniors 3 s.h.
Prerequisite: CEE 08383
This course addresses advanced topics not covered in a first course in steel design including topics such as design of plate girders, connections, and structural frames and bracing.

CEE 08484: Prestressed Concrete For Seniors 3 s.h.
Prerequisites: CEE 08481
The fundamental theme of this course is the analysis and design of prestressed concrete members for highway bridges, parking structures, office buildings, and industrial buildings. Topics covered include prestressed construction applications and materials, flexural analysis of pretensioned and post-tensioning beams, bending and shear design, loss of prestress, deflection, and composite beams. The course includes appropriate computer applications.

CEE 08485: Advanced Reinforced Concrete For Seniors 3 s.h.
Prerequisites: CEE 08481
The fundamental theme of the course is the design and analysis of advanced reinforced concrete structures and structural components including two-way slabs, footings, retaining walls, shear walls, and slender columns.

CEE 08486: Bridge Engineering For Seniors 3 s.h.
Prerequisites: CEE 08382 and CEE 08383
The fundamental theme of the course is the analysis and design of modern steel highway bridges utilizing the bridge code of the American Association of State Highway and Transportation Officials. The topics covered include bridge loads, load combinations, design methods, reinforced concrete deck slabs, steel wide-flange stringer bridges, steel composite wide-flange stringer bridges, continuous bridge spans, steel composite plate-girder bridges, elastomeric bearing connections, steel fixed bridge connections, and steel roller bridge connections. The course includes appropriate computer applications.

CEE 08487: Design Of Masonry And Wood Structures 3 s.h.
Prerequisite: CEE 08382
This course provides the fundamentals of structural design using masonry and wood. Topics include materials properties, flexure, axial loading, and lateral load resisting systems. This course builds upon previously acquired fundamental concepts of structural analysis and design.

CEE 08488: Pavement Rehabilitation Method 3 s.h.
Prerequisite: CEE 08361
This course provides a wide knowledge in pavement distresses and rehabilitation, data collection and monitoring, pavement performance modeling, and economic analysis. Pavement rehabilitation and management is an essential part of pavement engineering as it improves the safety of our roadways and preserves our infrastructure assets. This course will explore the foundations of pavement rehabilitation using field case studies. The course will also include hands-on experience collecting, recording, and analyzing pavement condition data.

CEE 08490: Civil Engineering Practice 1 s.h.
Prerequisites: CEE 08305
This sequence of seminars and workshops is designed to give civil engineering students meaningful exposure to several critical topics related to the real-world practice of civil engineering. Topics covered will include bid specifications and documents, contracts and performance bonds, engineering estimates and cost engineering, engineering management and project scheduling, and professional ethics and responsibilities.

CEE 08491: Civil Engineering Design Project I 2 s.h.
Prerequisites: (CEE 08322 or CEE 08383 or 08351) and (CEE 08361 or CEE 08311)
This is the first course in a sequence of two courses that will provide a meaningful design experience for teams of undergraduate civil engineering students under the direction of two or more faculty advisers. The sequence will include a thorough literature search and review, the development of a clear and concise problem statement, consultations with other faculty and industry experts, and the derivation of publishable results. The project will culminate in a final written report and oral presentation.

CEE 08492: Civil Engineering Design Project II 2 s.h.
Prerequisites: CEE 08491
This is the second course in a sequence of two courses that will provide a meaningful design experience for teams of undergraduate civil engineering students under the direction of two or more faculty advisers. The sequence will include a thorough literature search and review, the development of a clear and concise problem statement, consultations with other faculty and industry experts, and the derivation of publishable results. The project will culminate in a final written report and oral presentation.

CEE 08493: Selected Topics In Civil And Environmental Engineering 1 to 3 s.h.
This course is designed to introduce students to emerging topics in the Civil and Environmental Engineering field. Consent of the instructor is necessary, and prerequisites are determined by the nature of the topic.

CEE 08575: Advanced Fatigue And Fracture 3 s.h.
This course presents the theory and analytical techniques to design structural components for cyclic loading. Topics include linear elastic fracture mechanics; S-N fatigue; fatigue crack growth; and algorithms for simulating three-dimensional crack propagation. The course culminates with an original research project, resulting in both oral and written reports.

ENGR 01480: Viscoelasticity 3 s.h.
This course covers the fundamentals of linear and non-linear viscoelastic behavior of materials: constitutive modeling, experimental development of material properties, and solution of classic problems. Non-linear viscoelasticity and the effect of temperature on non-linear viscoelastic properties are presented. Standard experimental methods to characterize determine viscoelastic properties are discussed. Classic solutions, and the use of time-temperature superposition of solutions, are presented. This course might not be offered annually.

SET 01103: CADD I 3 s.h.
This course introduces students to computer-aided drafting and design (CADD) with AutoCAD software. Students learn to create, store and retrieve drawings on AutoCAD. Industry standards and procedures are used to develop the students' skills and proficiency in CADD.

SET 01108: Introduction to Surveying 3 s.h.
Prerequisite: MATH 01122
This course is a systematic study of the basic principles of plane surveying. Topics include field practice, office procedures and familiarization with various surveying instruments, (transit, theodolite, EDM, total station, automatic-level and laser-level). Traversing, triangulation and leveling are also studied.

SET 01113: CADD II 3 s.h.
This course is a continuation of the study of AutoCAD. Topics include block, attribute, importing and exporting, x-ref, the user coordinate system and the basics of three-dimensional construction. Extensive hands-on projects using AutoCAD are required.

SET 01201: Codes, Contracts and Specifications 3 s.h.
Prerequisite: COMP 01111
This course is a study of business and professional relations in architecture and engineering. Topics include law of contracts, torts, agency, the independent contractor, real property liens, partnerships and corporations. Also included are litigation, arbitration of disputes, labor laws in construction work, bidding procedures and specification writing.

SET 01203: 3-D Modeling 3 s.h.
Prerequisite: SET 01113
This course provides advanced computer-aided drafting and design (CADD) techniques. A variety of design and drafting problems are studied using AutoCAD. Students generate drawings in such areas as architectural, mechanical, civil, piping, structural and pictorial drafting. These projects involve: three-dimensional construction, surfaces, solids, rendering and animation.

SET 01206: Evidence and Procedures for Boundary Location 3 s.h.
Prerequisite: SET 01108
This course presents a systematic study of the applications of the laws of boundaries and evidence necessary for boundary determination. The history and development of land boundaries, the surveyor's role in court, court procedures and legal elements of surveying are studied.

SET 01207: Hydraulics 3 s.h.
Prerequisite: MATH 01122
This course is a study of the behaviors of fluids under static and dynamic conditions. Attention is given to buoyancy and stability of floating bodies. The use of Bernoulli's equation for calculations of flow through pipes, orifices and open channels is covered. This is a non-calculus based treatment of the subject and this course is not a substitute for ENGR 01342 Engineering Fluid Mechanics or ENGR 01341 Fluid Mechanics.

SET 01208: Route and Construction Surveying 3 s.h.
Prerequisite: SET 01108
This course is a systematic study of road layout including parabolic curves, circular curves and cross-sections. Field and office practices in various methods of establishing horizontal and vertical control for mapping and planning as applied to different construction projects are discussed. Other topics include determination of earth quantities, slope staking and the use of the stereometer in interpreting aerial photographs. Students receive hands-on experience with various surveying instruments, data collectors and computers to develop skills in the field-to-finish concepts for surveying and engineering operations.

SET 01301: Legal Aspects of Surveying 3 s.h.
Prerequisite: SET 01206
This course covers land surveyor ethics and professional responsibility, real property law, real and record evidence, conveyances, recording systems, legal aspects of boundary establishment, unwritten title, easements, prescription, water boundaries, surveying plans, and the surveyor in court.

SET 01302: Adjustment Computations 4 s.h.
Prerequisites: GEOG 16160 AND SET 01108
Adjustment computations covers the basic theory and mechanics of a least squares adjustment using the traditional surveying observations of distances, angles, azimuths, and elevation differences. The theory of error propagation is used to determine the precision of indirectly measured quantities. Post-adjustment analysis is studied through the use of various statistical tests, and error ellipse computation and analysis.

SET 01303: Boundaries and Adjacent Properties 3 s.h.
Prerequisite: SET 01206
A course on legal principles regarding boundaries and the constructive solutions of the problems of boundary surveying by a consideration of deed descriptions and examples of their application to surveying.

SET 01304: Digital Practices in Surveying 3 s.h.
Prerequisites: SET 01113 AND SET 01208
In this course students will be taught skills in using robotic and digital geospacial data collection technologies for mapping, data preparation and processing, and using Computer Aided Drafting (CAD) methods for presentation.

SET 01305: Boundary Line Analysis 3 s.h.
Prerequisite: SET 01303
A course that develops the analytical synthesis of real property law, land surveying procedures, and scenario development compatible with current case law decisions for the development of most probable scenarios of boundary location for the court's consideration.

SET 01401: Geodetic Control Surveying 3 s.h.
Prerequisite: SET 01108
In this course students study the higher order methods and techniques of establishing control in surveying systems such as Global Positioning System (GPS). The course addresses observations using High Accuracy Reference Networks (HARNs), 1st, 2nd and 3rd Orders of accuracy and the computations necessary to reduce these observations to measurements and the applications of these measurements to the State Plane Coordinate systems and the geoid.

SET 01402: Professional Practice in Surveying 2 s.h.
This course provides meaningful exposure to professional practice issues in surveying. Topics covered include professional licensure, contracts and performance bonds, marketing, regulatory issues, surveyor-client relationships, the surveyor as expert witness, and professional ethics and responsibilities.

SET 01403: Fundamentals of Geodesy 3 s.h.
Prerequisite: SET 001401
Topics in geometric geodesy include definitions and the geometry of the reference ellipsoid that approximates the real Earth's physical and dynamic characteristics and computations of geodetic coordinates on a reference ellipsoid and map projections. Concepts on map projections include properties and characteristics of most common map projections (and distortions) and geodetic field survey data reduction and computation on State Plane Coordinate Systems. Topics in the physical geodesy and basic concepts of positioning using other advanced space-based technologies such as satellite laser

ranging and satellite altimetry are also discussed.

SET 01490: Surveying Engineering Technology Capstone Course 4 s.h.
Prerequisites: SET 01305 AND SET 01302 AND SET 01401
This course provides a culminating and integrating experience to develop student competency in both technical and non-technical skills in solving surveying problems. A class project integrates many components of previous surveying coursework and emphasizes working with others on a long term project: project description, project planning, field collection, office processing, computer-aided drafting, final product preparation, and oral presentation of results.

CMS 04200: Introduction To Communication Studies 3 s.h.
Introduction to Communication Studies introduces students to the field of Communication Studies by examining the various disciplines within the field. Such disciplines include interpersonal communication, communication ethics, health communication, family communication, organizational communication, intercultural communication, rhetorical studies, media studies, and others. The course also looks at the similarities and differences among the disciplines.

CMS 04205: Public Speaking 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201
This course trains students in the fundamentals of public speaking, including study and practice of speech preparation and speech delivery. The goal is to enable the student to participate effectively in oral communication, as a student, professionally and as a citizen.

CMS 04206: Digital Presentations 3 s.h.
Pre-requisites: COMP 01112 or ENGR 01201 or HONR 01112
This course covers the fundamentals of presentations and meetings in digital contexts with attention to both the speaker and audience perspectives. Although the course will instruct students in the use of current technological platforms to organize presentations and meetings, emphasis will be placed on effective message construction and critical interpretation. Students will learn how to conduct audience analyses, build audience interest, and strategically research and use supporting materials in digital presentations and meetings while maintaining ethical responsibilities. The ultimate goal of the course is to prepare students to participate effectively and ethically in digital discourse, such that they can be impactful professionals and citizens.

CMS 04208: Business and Professional Communication 3 s.h.
Prerequisite: CMS 04205
This course offers a unique emphasis on communication in the workplace. Techniques for negotiating communication in today's ever-changing business world will be focused on, with attention to business communication concepts. These concepts range from management and leadership models to ethics in message communication. Significant attention to various aspects of business presentations and interviewing strategies help to prepare students for success regardless of their past experience.

CMS 04210: Mass Media And Their Influences 3 s.h.
Prerequisites: ENGL 05105 or COMP 01112 or ENGR 01201 or permission of instructor
This course studies the impact on our daily lives of television, radio, films, magazines and newspapers. Students examine how the media influence politics, purchases, and entertainment, and how the media affect the culture in shaping beliefs and attitudes. It discusses how each of the media operates and what each accomplishes. This course examines the gap between real life and "mediated" reality.

CMS 04211: Mass Media And Their Influences - Wi 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201 or permission of instructor
This is a writing intensive course that studies the impact on our daily lives of television, radio, films, magazines, and newspapers. Students examine how the media influence politics, purchases, and entertainment, and how the media affect the culture in shaping beliefs and attitudes. It discusses how each of the media operates and what each accomplishes. This course examines the gap between real life and "mediated" reality.

CMS 04215: Fiction To Film 3 s.h.
Prerequisite: 30 credits required
This course provides comparative study of film and literature. Students learn the critical vocabulary of literature and film and enhance their understanding of both art forms. The course covers American and foreign works.

CMS 04220: Interpersonal Communication 3 s.h.
Students explore the basic theories and concepts of interpersonal communication research. Some areas to be covered include perception and social cognition, the relationship of culture to interpersonal communication, self-perception and communication, interpersonal systems, sex/gender and interpersonal communication, and interpersonal communication contexts (i.e., family, friendship, romance).

CMS 04223: Sports Communication, Culture & Identity 3 s.h.
Prerequisite: COMP 01112
This course focuses on how race, class, gender, sexuality, and ability are viewed, discussed, and performed in athletics. Concentrating on examining various areas in the field, the class will address depictions of athletes in the media, equity issues, as well as the behaviors of consumers, among many other aspects.

CMS 04225: Semantics 3 s.h.
Prerequisites: 30 credits required
This course makes students aware of the relationship between language and human behavior and of the use and abuse of verbal and non-verbal language. It emphasizes meaning, the classification and abstraction processes and the application of semantic principles to the language of literature, politics, advertising and prejudice.

CMS 04226: Semantics - WI 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201 + 30 credits required
This is a writing intensive course that makes students aware of the relationship between language and human behavior and of the use and abuse of verbal and non-verbal language. It emphasizes meaning, the classification and abstraction processes and the application of semantic principles to the language of literature, politics, advertising and prejudice.

CMS 04240: Small Group Communication 3 s.h.
This course focuses on the principles and theories of communication as they relate to the small group process. It deals with the barriers to effective group discussion and leadership with corresponding remedial measures, as well as an application of small group research as it pertains to hypothetical and actual small group situations.

CMS 04241: Small Group Communication - WI 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201
This is a writing intensive course that focuses on the principles and theories of communication as they relate to the small group process. It deals with the barriers to effective small group discussion and leadership with corresponding remedial measures as well as an application of small group research as it pertains to hypothetical and actual small group situations.

CMS 04250: Communication Theory 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201 or permission of instructor
This sophomore-level course acquaints students with current theories as they apply to a variety of communication environments. Drawing upon a wealth of timely research, students study theories relating to interpersonal, small group, organizational, public and mass communication. The course presents theories through readings as well as extensive class discussion.

CMS 04255: Nonverbal Communication 3 s.h.
This course will introduce students to the theories and applications of nonverbal communication across different contexts, such as interpersonal, health, mass media, work, and intercultural. The topics studied will include messages of and about the human body; approach-avoidance signals of space, gaze, and touch; facial expressions; and the overlapping channels of voice and gesture.

CMS 04260: Organizational Communication Theory And Research 3 s.h.
Prerequisites: Comp 01112 or ENGR 01201
Organizational Communication theory and research introduces students to the basics of organizational communication. The class will focus on how scholars and researchers study and understand the communication patterns and relationships that go on in organizations. Students will be asked to consider a variety of perspectives and theories of organizational communication while comparing them to each other and to their own experiences as organizational actors.

CMS 04270: Persuasion And Social Influence 3 s.h.
This course surveys theories and theorists dealing with the area of persuasion, beginning with the Classical Age and extending through present-day empirical research. It emphasizes applying the theories to practical situations and goals.

CMS 04290: Rhetorical Theory 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201
Rhetorical Theory introduces students to the concept of rhetoric and how it has been theorized from antiquity to the present. The course provides students with a systematic history of rhetorical theory and spotlights significant theorists such as Plato, Aristotle, Cicero, Blair and Burke. Students will explore how both ancient and contemporary theories of rhetoric apply to contemporary society.

CMS 04305: Advanced Public Speaking 3 s.h.
Prerequisites: CMS 06202 or CMS 04205 or permission of instructor
Students analyze the special problems of advanced speech composition and delivery through discussion and platform appearance. In addition to strengthening students' command of the fundamentals of public speaking, this course gives attention to rhetorical style and specialized types of speaking situations. This course may not be offered annually.

CMS 04310: Images Of Gender In Popular Culture 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201
This course examines the concept of gender as it is rhetorically constructed in contemporary popular culture. Students will analyze how various cultural texts (such as advertisements, popular songs, television shows, or video games) communicate what it means to be masculine and feminine in U.S. culture. The course will examine how these images have changed historically and how depictions of race, class, and sexual identity also contribute to our understandings of gender in popular culture.

CMS 04313: Environmental Communication 3 s.h.
This course focuses on the social construction of nature, as well as how environmental knowledge and constructs are communicated among mass media, the public, organizations, and the scientific communities. Topics to be explored include discursive and visual communication of environmental issues and nature, environmental frames in media, constructs of animals and wilderness, politics, environmental justice, green advertising, environmental controversies and more.

CMS 04315: Participatory Media 3 s.h.
Prerequisites: COMP 01112
This course examines the social, economic and political implications of the use of participatory media, which enable audience participation in the production of mediated messages. Students taking this course will study network theory, the historical roots of the participatory culture, collective action and social networking, convergence, and the changing modes of media production. Students will also study legal and social justice issues related to these evolving trends in media use.

CMS 04316: Mediated Interpersonal Communication 3 s.h.
Prerequisite: COMP 01112, or HONR 01112, or ENGR 01201, orENGL 01112
The study of mediated interpersonal communication focuses on the role that communication technologies play in meaning making within interpersonal communication contexts, such as personal, family, community, and professional relationships. The purpose of the course will be to discuss the history and changing meaning of mediated interpersonal communication, survey relevant theoretical perspectives in the research literature, and apply those perspectives in contemporary issues. This course may not be offered annually.

CMS 04317: Digital Communities 3 s.h.
Prerequisites: CMS 04205
This course focuses on the role of digital media in a group's or organization's communication practices. It includes a service learning component that allows students to apply what they are learning to a community management campaign for a local nonprofit organization. Students will learn about media ecology, network theory, the characteristics of community, strategies and approaches that groups and organizations us to enact a community management plan, best practices for messaging strategies and the ways in which discourse shapes understanding, details about what online community managers do and why they do it, and ways to adapt messaging to specific technological platforms. This course may not be offered annually.

CMS 04318: Leadership Communication 3 s.h.
This course surveys theories of leadership communication and looks at leaders from different fields, including business, political, social, religious, and cultural, analyzing their ethical communication, and their vision and transformational influence. The course provides a basic introduction to leadership by focusing on the social construction of leaders and followers. The course will examine topics such as: the nature of leadership, theories of communication and leadership, communication ethics in leadership, creating a vision, communication leadership globally, and leadership for the greater good. The course will combine the theory and practice of leadership communication by having an applied component, such as case study analyses of "real world" leaders, and personal reflection of students' leadership communication skills. Attention will be given to helping students to understand and improve their own leadership performance.

CMS 04319: Organizational Communication in Sports 3 s.h.
Prerequisite: COMP 01112
This course juxtaposes the organization structure and communication of sports and sport industries with those of traditional corporations. It examines organizational, group, and interpersonal communication theories to explain how sport works, and ultimately, how it can work better. Given the strong cultural emphasis on the individual in sport, the course explores how interpersonal and organizational communication impact various stakeholders.

CMS 04320: Communicating Gender 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201
Communicating Gender will consider the theory, research, and experience of the intersection between gender and communication. Focus will be given to the ways in which gender, as a concept and set of expectations, is created through communication. Students will also consider their own individual experiences as gendered communicators while studying the varying perspectives of communication studies scholars with regard to this phenomenon.

CMS 04323: Images of Athletes in Popular Culture 3 s.h.
Prerequisite: COMP 01112
This course examines images of athletes and athletics as they are rhetorically constructed in contemporary popular culture. Students will analyze how various cultural texts (such as magazine covers, advertisements, television shows, films, or video games) communicate what it means to be an athlete in both the U.S. and internationally. The course will examine how these images have changed historically and how depictions of gender, race, class, and sexual identity also contribute to our understandings of what it means to be an athlete in popular culture.

CMS 04325: Linguistics 3 s.h.
Students study the nature of human language by examining four major components: phonology, semantics, syntax, and morphology. Linguistics principally emphasizes linguistic universals, characteristics which all human languages share. Students discuss dialect formation, first-language acquisition in children, and animal communication systems. Students also compare modern linguistic theories.

CMS 04327: Women and Nonbinary Identities in Sports Communication 3 s.h.
Prerequisite(s): COMP 01112
Women and nonbinary athletes have long been marginalized and underrepresented in organized sport, including domestically in the United States, and on an international scale. This course examines the communication, representation, depiction, and construction of women and nonbinary identities within sports from a rhetorical perspective, highlighting historical, cultural, and social contexts and analyzing the background and participation of individuals who encompass these identities as athletes, coaches, media members, in front offices, and more.

CMS 04330: International Media Communication 3 s.h.
This course examines systems of communication from a global perspective, analyzing the historical, cultural, and philosophical influences that have shaped those systems. The course enables students to analyze the systemic effects of globalization, new technologies, regulation, efforts of various groups to control development of communication structures, inequities in communication infrastructure, so-called cultural imperialism, and the linkage between international media and diplomacy, economics, and politics.

CMS 04333: Special Topics in Sports Communication 3 s.h.
Prerequisite: COMP 01112
This course provides students with an opportunity to thoroughly investigate specific areas critical to the field of communication and sport. Course topics change as new trends develop and as student interest necessitates scheduling. Topics are selected on the basis of timeliness and the availability of expert staff. General topics are announced as the course is scheduled.

CMS 04335: Introduction To Survey Research 3 s.h.
Prerequisites: 60 credits required
This course provides students with an understanding of research in general and survey research in particular. Theory is applied through emphasis on survey design, sampling, interviewing, tabulating and analysis of data. Students learn the "whys" and "hows" of public opinion polling by doing an actual survey.

CMS 04340: Family Communication 3 s.h.
Prerequisites: COMP 01112 or ENGR 01210
This course focuses on how scholars and researchers study and understand the communication patterns and relationships in families. Family types, roles, and ongoing communication processes are discussed. Students are asked to consider a variety of prospectives and theories of family communication while comparing them to each other and to their own experiences as family members.

CMS 04345: Argumentation And Debate 3 s.h.
Prerequisites: CMS 06202 or CMS 04205 or permission of instructor
This course focuses on the principles and techniques of argumentative speaking and formal debating. Students study types and tests of evidence and reasoning, and develop skills in logical persuasion, cross examination, intensive research, case preparation, and critical listening. This course may not be offered annually.

CMS 04350: Communication Studies Research Methods 4 s.h.
Prerequisites: CMS 01220 or CMS 04200 and CMS 01300 or CMS 04250
This course introduces the student to quantitative and qualitative research methods used in communication studies. Students will learn about research procedures, identification and definition of variables, sampling methods, and basic statistical methods such as discourse analysis, correlational analysis, parametric and non-parametric tests, and descriptive techniques. Students will become familiar with current communication studies research and will design and complete a research project.

CMS 04355: Communication Studies Internship I 3 s.h.
Prerequisites: 75 credits required and CommunicationStudies Major with 2.5 Major GPA
Under professional supervision in the field, students practice theories and skills learned in the classroom. No part is a prerequisite for another; order is not a factor in selecting this course.

CMS 04356: Communication Studies Internship II 3 s.h.
Prerequisites: 75 credits required and CommunicationStudies Major with 2.5 Major GPA
Under professional supervision in the field, students practice theories and skills learned in the classroom. No part is a prerequisite for another; order is not a factor in selecting this course.

CMS 04357: Communication Studies Internship III 6 s.h.
Prerequisites: 75 credits required and CommunicationStudies Major with 2.5 Major GPA
Under professional supervision in the field, students practice theories and skills learned in the classroom. No part is a prerequisite for another; order is not a factor in selecting this course.

CMS 04360: Intercultural Communication 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201
Intercultural Communication will consider the theory, research, and experience of intercultural communication. The nature of culture and its relationship to communication will be discussed. Students will be asked to consider their own experiences as intercultural communicators while studying the varying perspectives of communication studies scholars with regards to this phenomenon.

CMS 04365: Research Practicum In Communication Studies 1 to 3 s.h.
Prerequisites: Completion of 75 credits required, approval of Communication Studies Department advisor.
Research Practicum in Communication Studies allows students to apply the theories and methodology learned in Communication Studies courses to a research partnership with a member of the department faculty. Students earn 1 credit for every 40 hours of work, with most practica implemented for 3 credit hours. Students keep a detailed log of working hours, prepare a portfolio representative of their practicum experience, write an analytical critique of the practicum, and are evaluated by their faculty partner as well as the practicum supervisor. To receive approval for this course, students must have a minimum 2.5 grade point average.

CMS 04370: Political Communication 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201 and POSC 07100 or POSC 07110 or POSC 07200
Political Communication investigates the many and varied understandings of how "the political" functions symbolically in contemporary society. Most broadly the course further develops students' appreciation for the inherently political relationship between language and meaning. More specifically, it focuses on the intersections of public, political discourse, representations and manifestations of the tensions between liberalism and democracy, the performance of citizenship, and civic responsibility.

CMS 04375: Special Topics In Communication 3 s.h.
This course provides students with an opportunity to thoroughly investigate specific areas critical to the field of communication. Course topics change as new trends develop and as student interest necessitates scheduling. Topics are selected on the basis of timeliness and the availability of expert staff. General topics are announced as the course is scheduled. This course is not offered annually.

CMS 04380: Health Communication 3 s.h.
Prerequsites: COMP 01112 or ENGR 01201
Health communication will address the topic of health as it is enacted and defined in communication. Specific topics to be discussed are doctor-patient interaction, social and cultural issues of health, mass media representations of health and healthy behaviors, along with communication within health organizations.

CMS 04382: Communication in Health Campaigns and Interventions 3 s.h.
Pre-requisites: COMP 01112
Communication in Health Campaigns and Interventions provides an overview of the theories and practices in the design, execution, and evaluation of health communication campaigns and interventions. Students will examine health promotion strategies used in national renowned mass media campaigns and new media campaigns, as well as in community-based and interpersonal-level health interventions. Students will gain hands-on experience in campaign development and message design when they complete a course project on the topic they choose.

CMS 04385: Constructing Health 3 s.h.
Constructing Health will address the various communicative means by which the concept and structure of "health" is socially defined. Students taking this course will study the constructs of health, medicine, the body, and normalcy as enacted in rhetorical, mediated, organizational and interpersonal communication examplars. The relationship between power and these constructions is also interrogated.

CMS 04390: Rhetorical Criticism 3 s.h.
Prerequisites: CMS 06202
This course surveys ancient to modern theories of speech criticism to develop defensible criteria for evaluating speeches, social movements, and non-oratorical events. Students study and evaluate past and present public speeches by applying various rhetorical standards. This course may not be offered annually.

CMS 04393: Rhetoric of Science, Technology, and Medicine-Writing Intensive 3 s.h.
Prerequisite: COMP 01112
This course covers the history of the field of RSTM and its major theoretical frameworks. Students perform their own studies to offer suggestions for improved communication strategies. Identity and ideology in scientific, technological, and medical discourses are highlighted throughout.

CMS 04395: Rhetoric of Sport 3 s.h.
Prerequisite: COMP 01112
This course examines the ancient connection between the art of rhetoric and the vocation of athletics. Students will explore the rhetorical dimensions of sport and sport culture using various rhetorical methodologies, such as metaphor, genre, or feminist criticism. Additionally, students will analyze the rhetorical form and function of variety of sports texts, both historical and contemporary.

CMS 04405: Independent Study - Communication Studies 1 to 3 s.h.
Prerequisite: department permission
This course provides students with an opportunity to work independently on specialized communication topics under the guidance of a faculty member. Generally, this course may not be substituted for any course offered by a department in the College of Communication. In addition to departmental permission, approval by the dean is also required.

CMS 04425: Ethical Issues in Human Communication 3 s.h.
Prerequisite: 90 credit hours
Ethical Issues in Human Communication will address numerous ethical conundrums in our communicative activities. Specific ethical systems provide the groundwork for application to interpersonal, organizational, intercultural, political and rhetorical communication contexts. Case studies and class discussions will be used to encourage students to develop their own ethical frameworks for communication contexts.

CMS 04440: Rhetoric of Reality Television 3 s.h.
Pre-requisite: COMP 01112 or HONR 01111 or ENGR 01102
This course examines rhetorical dimensions of the reality television genre. Students will analyze the various subgenres constituting Reality TV, with particular attention given to how such shows critique and/or validate certain identity positions in Western culture, including gender, gender identity, race, class, sexual orientation, and regional identity. Students will explore concepts of authenticity, truth, and suspension of disbelief as they relate to a television format based in documenting the “real.”

CMS 04450: Seminar In Communication Studies - Wi 3 s.h.
Prerequisite(s): CMS 04350 with a grade of C- or higher and standing in the Communication Studies major
This writing intensive course provides a seminar experience in areas of communication that are not part of the regular course offerings. Examples of potential topics include Friendship, Rhetoric of Music, Romantic Relationships, and Presidential Campaigns.

CMS 04455: Senior Transition 1 s.h.
Prerequisite(s): CMS 04450 or (corequisite) and Communication Studies major
This course asks Communication Studies majors to gather representative works from their major and reflect on them in light of the department's goals. It also provides preparation for post graduation work in their filed through specific discussion of graduate school and job attainment.

HSC 08100: Introduction to Health and Science Communication 3 s.h.
Prerequisite: COMP 01112 OR HONR 01112 OR ENGR 01201
Students are introduced to the ways in which people communicate about health and illness, environmental risk, and science policy. This is the required introductory course for the program in the Health and Science Communication (HSC). The course is open to non-majors.

HSC 08200: Developing Health and Scientific Literacy 3 s.h.
Prerequisite: COMP 01112
Developing Health and Scientific Literacies will help students navigate scientific and medical scholarship to better understand cutting edge research into issues that affect all of humanity, such as climate change and genetic engineering. In this course, students will learn to identify, evaluate, and report on scholarly sources, gaining comfort with reading and understanding technical language. Students will learn about how scientific and medical scholarship is produced and circulated, and what institutions, practices, and ethical standards influence those processes. Students will practice reading and summarizing scholarly sources, as well as translating them for lay audiences. Students will also learn to engage health and scientific scholarship for its intersections with social concerns and communal values.

HSC 08350: Special Topics in Health and Science Communication 3 s.h.
This course will allow students studying Health and Science Communication the opportunity to investigate specific topics areas within these major disciplines. The course will be made up of lectures, class discussions, and a variety of assignments involving health and science communication. Areas of study would cover major trends and other developments within these disciplines, such as climate change, nanotechnology, genetics, or the cultural competence of health communication.

HSC 08450: Senior Seminar in Health and Science Communication 3 s.h.
Prerequisite(s): minimum 90 earned hours AND (HSC 08100 AND HSC 08200) AND (CMS 04350 OR CMS 04390 OR PR 06310 OR JRN 02363 OR WA 01201)
In this seminar students will integrate what they have learned as Health and Science Communication majors by creating a culminating, researched project. Students will produce a work that draws on the theoretical foundations of the field, that demonstrates a keen understanding of their audience, and that follows disciplinary standards and reflects their chosen concentrations. Students will share their final products during a symposium where they will represent their work visually and orally.

CS 00100: Computer Science Learning Community 1 s.h.
One semester requirement for all students who enter the major.

CS 01101: Computer Science Principles 3 s.h.
This course introduces students to the foundational concepts of computer science and challenges them to explore how computing and technology can impact the world. More than a traditional introduction to programming, it is a rigorous, engaging, and approachable course that explores many of the foundational ideas of computing so all students understand how these concepts are transforming the world we live in. Topics covered include creativity and innovation, abstraction, data and Information (e.g., the role of data analytics), algorithms, programming, the Internet and the global impact of computing. This course is designed to map to the relatively new high school Advance Placement course and exam.

CS 01102: Introduction To Programming 3 s.h.
This course acquaints students with the logical structure of a computer, the algorithmic formulation of problems, and a modern high-level programming language. Extensive programming experience is included in the course. Proficiency equivalent to Basic Algebra II (MATH01.195) is expected for this course.

CS 01104: Introduction To Scientific Programming 3 s.h.
This course emphasizes algorithmic solutions of problems. The syntax of the programming language is also studied, as well as the writing of structured code. Proficiency equivalent to Basic Algebra II.

CS 01105: Web Literacy 3 s.h.
This is an introductory course on the world wide web, exposing how it works, and showing students how to use it appropriately. This course teaches students to create and modify basic web pages with markup languages and style directives, and how to embed non-text information such as video, images, and sound. The principles of publishing websites on the Internet and the process by which a page is delivered to end users will also be covered.

CS 01110: Computing Environments 3 s.h.
Students will be exposed to a variety of computing environments. The course will include extensive hands-on of a variety of software applications. Topics covered will include user tools, user programming techniques, application packages, and networking communications. Students will gain an understanding of the principles of computing which will enable them to adapt to future technological developments. A solid and fundamental understanding of computers and current operating systems, word processing and spreadsheet software are essential to this course.

CS 01190: Introduction To Computer Game Modeling 3 s.h.
This is an introductory computer games modeling course which examines the basics of computer game design and visual effects. Students will use graphics software modeling packages to create characters and visual effects, and to develop a computer game idea, including storyline and plots. Elementary programming techniques may also be taught.

CS 01205: Computer Laboratory Techniques 3 s.h.
Prerequisite(s): CS 04113 or CS 04103; and Sophomore Standing
A practical introduction to the hardware, software and networks used by the Computer Science Department. A foundation in programming using the language or languages required for intermediate and advanced computer science courses will be included.

CS 01210: Introduction To Computer Networks And Data Communications 3 s.h.
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This course examines the basics of data communication and computer networks and covers such topics as IT system components, layered network architectures, introduction to internetworking, the Internet, IP protocols, basics of TCP and UDP transmission protocols, standard network applications and basics of network security, network utility software, network traffic analysis, network mapping techniques, and configuring local area networks in a popular operating system.

CS 01211: Principles Of Information Security 3 s.h.
Students will be exposed to the spectrum of security activities, methods, technologies, and threats. This course will cover a range of key topics in the area of information and computer security including inspection and protection of information assets, detection of and reaction to security threats, taxonomy of security threats, and concentrating on issues in computer and operating systems security, principles of network security, and basics of cryptography.

CS 01295: Special Topics in Computer Science .5 to 3 s.h.
Restricted to CS Majors and Minors
Specific topical outline to be covered will vary depending upon the topic chosen for the course and will be clearly stated on the coruse syllabus.

CS 01395: Topics In Computer Science 1 to 4 s.h.
Prerequisites: CS 04222 or CS 04225
This course enables the faculty to offer courses in advanced topics which are not offered on a regular basis. Prerequisites will vary according to the specific topic being studied.

CS 01400: Independent Study 1 to 4 s.h.

CS 01541: Bioinformatics - Advanced Computational Aspects 3 s.h.
matriculation in the MS Computer Science program or MS Bioinformatics or permission of the program coordinator
This course introduces the advanced student to the computer hardware, software, algorithms and statistical packages that are used in computational aspects of bioinformatics. Hardware topics include multiprocessor clusters, high performance computing, and parallelism. Software topics include message passing and shared memory styles of parallel/concurrent programming languages, databases, avalilable software packages, and visualization techniques for large data sets. Algorithms and statistical packages include those for the studey of molecular biology, evolution, structural biology, and biological networks. Students will design and carry out an independent research project using and developing appropriate bioinformatics algorithms, software and/or hardware. Undergraduate preparation in Calculus, Statistics (preferably Biostatistics), and Introduction to Computer Programming is strongly suggested.

CS 02421: Big Data Tools and Techniques 3 s.h.
Pre-requisites: CS 10337 or MIS 02337 or CS 04430 or (CS 10338 and CS 10339)
Big data refers to the large, diverse sets of information that grow at ever-increasing rates. It encompasses the volume of information, the velocity or speed at which it is created and collected, and the variety or scope of the data points being covered. Big data often comes from multiple sources and arrives in multiple formats. This course discusses various tools for loading, storing, visualizing and analyzing Big-Data sets.

CS 02570: Information Visualization 3 s.h.
Prerequisite(s): matriculation in the MS Computer Science program OR the MS Data Science program OR the COGS in Computational Data Science program OR permission of the program coordinator
This is a graduate level course in Information Visualization. Topics covered include graphics programming, information visualization general principles, visualization techniques for 1-dimensional, 2-dimensional, and N-dimensional information, graph visualization, visualization techniques for image and digital libraries, as well as for the World Wide Web, interactivity, theories behind information visualization, and focus+context techniques. This course also includes the implementation of techniques presented in lecture. Students are encouraged to devise new techniques, implement them, and determine their effectiveness. Students will be required to complete in-depth assignments, read, summarize, and present recent journal papers from the information visualization literature, and prepare term papers with regard to an information visualization research topic. Students will also be required to specify, design, implement, and document a semester-long software project related to information visualization.

CS 04103: Computer Science And Programming 4 s.h.
Prerequisites: MATH 01122 OR MATH 01130 OR CS 01104
This course emphasizes programming methodology, algorithms and simple data structures. Topics to be covered include top down design of functions and classes, basic data abstraction and encapsulation, control structures, file i/o, user defined classes and object-oriented principles.

CS 04110: Introduction To Programming Using Robots 3 s.h.
This course teaches fundamental programming skills centered in the context of robot programming. Students will program small robots to perform a variety of tasks. In addition to learning a sophisticated programming language, students will gain skills in design techniques and experience working in teams to build complex systems.

CS 04113: Introduction To Object Oriented Programming 4 s.h.
Prerequisite: MATH 01122 or MATH 01130
This course introduces the fundamental concepts of programming from an object-oriented perspective. Topics are drawn from classes and objects, abstraction, encapsulation, data types, calling methods and passing parameters decisions, loops, arrays and collections, documentation, testing and debugging, exceptions, design issues, inheritance and polymorphic variables and methods. The course emphasizes modern software engineering and design. Students are expected to be sufficiently proficient in mathematics such that they are ready to take Calculus I (MATH 01130).

CS 04114: Object Oriented Programming And Data Abstraction 3 s.h.
Prerequisites: CS 04113 or (CS 04103 and CS 04112)
Objects and data abstraction continues from Introduction to Object-Oriented Programming to the methodology of programming from an object-oriented perspective. Through the study of object design, this course introduces software engineering and focuses on file I/O, function prototypes, exception handling, decoupling strategies, and other advanced topics.

CS 04171: Creating Android Applications 3 s.h.
Prerequisite(s): None
This course is designed for students who want to start developing mobile applications on Android platforms and understand the basic concepts of Computer Science. The course will start with the basics of Android programming by covering the most recent version of Android and understanding its development framework. Students will then learn to develop feature-rich Android applications using the MIT App Inventor Integrated Development Environment and learn the basic "Big Ideas" of Computer Science such as, algorithmic thinking, abstractions, logic, flow control, and data representation, storage and manipulation.

CS 04210: Advanced Programming Workshop 2 s.h.
Prerequisites: CS 04103 OR CS 04113 Minimum Grade of C-
Programming languages, integrated development environments, application programming interfaces, software packages, and libraries are examples of programming technologies. This project intensive course, which is part of B.A. in Computing and Informatics program, explores a specified programming technology at an advanced level.

CS 04222: Data Structures And Algorithms 4 s.h.
Prerequisite(s): CS 04.114 (C- or better) and MATH 03.160 or MATH 03.150; Corequisite: CS 01205
This course features programs of realistic complexity. The programs utilize data structures (string, lists, graphs, stacks, trees) and algorithms (searching, sorting, etc.) for manipulating these data structures. The course emphasizes interactive design and includes the use of microcomputer systems and direct access data files.

CS 04225: Principles of Data Structures 3 s.h.
Prerequisites: CS 04103 or CS 04113 Minimum Grade of C-
The course features programs of realistic complexity. The programs utilize data structures (strings, lists, graphs, stacks) and algorithms (searching, sorting, etc.) for manipulating these data structures. The course emphasizes interactive design and includes the use of microcomputer systems and direct access data files.

CS 04301: Bioinformatics - Computational Aspects 3 s.h.
Prerequisite(s): (CS 01104 or CS 04103) and CS 01205 and BINF 07250
This course introduces the student to the computer hardware, software, algorithms and statistical packages that are used in computational aspects of bioinformatics. Hardware topics include multiprocessor clusters, high performance computing, and parallelism. Software topics include message passing and shared memory styles of parallel/concurrent programming languages, databases, available software packages, and visualization techniques for large data sets. Algorithms and statistical packages include those for the study of molecular biology, evolution, structural biology, and biological networks.

CS 04305: Web Programming 3 s.h.
Prerequisites: CS 01205 and CS 04222
This course introduces the student to some of the underlying software components of the World Wide Web as it currently exists. Topics include markup languages, scripting languages, programming languages such as Java, and other software components of the Web.

CS 04315: Programming Languages 3 s.h.
Prerequisites: (CS 04222 or CS 04225) and (CS 06205 or ECE 09241)
A study of the fundamental principles underlying the design of programming languages. Students will study two or more languages from contrasting programming paradigms such as Functional, Object-Oriented, Logical, or Concurrent.

CS 04350: Blockchain Programming 3 s.h.
Prerequisite(s): (CS 10250 OR CS 07350) AND (CS 01104 OR cs 04113)
This course covers the computer science techniques to architect a collection of data into a blockchain data model. Students will configure how each block stores data, learn how blocks are validated in order to add new ones to the chain; and create methods to validate the chain integrity. Students will also create a back-end API web service and migrate their private blockchain to the web service they created, learn how to post blocks to the blockchain via a web client and learn how to validate blockchain health.

CS 04371: Introduction to Android Programming 3 s.h.
Prerequisite(s): CS 04113 or CS 04171
This course is targeted for students who want to start writing mobile applications on Android platforms. Android has become a formidable mobile operating system, and this course will provide hands-on learning on writing Android applications. The course will start with the basics of Android programming by covering the most recent version of Android and understanding its development framework. Students will then learn both the fundamentals and the nuts and bolts of Android application development and have an exciting opportunity to write feature-rich Android applications.

CS 04372: Advanced Android Programming 3 s.h.
Prerequisite(s): CS 10271 or CS 04225 or CS 04222
This course is designed to extend the material presented in Introduction to Android Programming (CS 04.371). This course covers advanced and custom Android user interface development, localization and resource management, the Android network API, location aware applications, data storage, testing and performance tuning, and publishing and selling Android applications. Students will gain a deeper understanding of Android application development and have an exciting opportunity to write feature-rich Android applications.

CS 04375: Introduction to iOS Application Programming 3 s.h.
Prerequisited: CS 04103 or CS 04104 or CS 04113
This course is targeted for students who wanted to start writing mobile applications on iOS platforms. iOS has become a formidable mobile operating system, and the courses will provide hands-on learning on writing iOS applications. The course will start with the basics of iOS programming by covering the most recent version of iOS and understanding its development framework. Students will then learn both the fundamentals and the nuts and bolts of iOS application development and have an exciting opportunity to write feature-rich iOS applications.

CS 04376: Advanced iOS Application Programming 3 s.h.
Prerequisites: CS 04375or permission of the instructor.
This course is designed to extend the material presented in Introduction to iOS Programming (CS 04.375). This course covers advanced and custom iOS user interface development, localization, and resource management, the iOS network API, location aware applications, data storage, testing, and performance tuning, and publishing and selling iOS applications. Students will gain a deeper understanding of iOS application development and have an exciting opportunity to write feature-rich iOS applications.

CS 04380: Object Oriented Design 3 s.h.
Prerequisite: CS 04222
This course will introduce important concepts, such as inheritance and polymorphism, which are crucial tools needed for crafting object-oriented solutions to real-world problems. Design patterns that commonly occur in design situations will be covered. A formal notation for describing and evaluating object-oriented designs such as the Unified Modeling Language (UML) will be taught. Students will apply the concepts to design and implement object-oriented solutions to one or more reasonably sized real-world problems.

CS 04390: Operating Systems 3 s.h.
Prerequisites: CS 04222 and CS 06205
The course concentrates on the design and functions of the operating systems of multi-user computers. Its topics include time sharing methods of memory allocation and protection, files, CPU scheduling, input-output management, interrupt handling, deadlocking and recovery and design principles. The course discusses one or more operating systems for small computers, such as UNIX.

CS 04391: Concurrent Programming 3 s.h.
Prerequisites: CS 04390
Introduces the motivation for and fundamental concepts of concurrent programming. Topics include processes, threads, context switching, atomic instructions/actions, shared data, race conditions, critical sections, mutual exclusion, synchronization, locks, barriers, semaphores, monitors, shared-memory multiprocessors, and an overview of distributed programming (distributed-memory multicomputers, interprocess communication, message passing, remote procedure call, rendezvous). The course includes developing concurrent programming skills by using a language that supports the multithreaded paradigm.

CS 04392: System Programming And Operating System Internals 3 s.h.
Prerequisites: CS 04390 and CS 01205
This course examines the system kernel of a modern operating system including the file structure and implementation, the process structure and process scheduling, memory management policies, and the I/O subsystem. This course also covers the system call interface to the system kernel and various inter-process communication schemes.

CS 04394: Distributed Systems 3 s.h.
Prerequisites: (CS 06205 and CS 04222) or (ECE 09242 and CS 04225)
This course will introduce students to the Distributed System, a network of (possibly autonomous) computers that cooperatively solve single problems or facilitate parallel execution of related tasks. Key topics of study include Distributed Systems Architecture, Distributed Resource Management, and Accessing Distributed Resources. Students will participate in algorithm, process and system design for distributed systems.

CS 04400: Computer Science - Senior Project 3 s.h.
Prerequisite(s): CS 01205 and CS 07340 and CS 07321
This is an advanced programming course in which students work on large-scale individual or team programming projects and make a formal presentation on their work. The course discusses program development, methodologies and strategies.

CS 04401: Compiler Design 3 s.h.
Prerequisites: CS 04315 and CS 07210
This course presents theory of compiler design, syntax-directed translation, and code generation. Students design a compiler for a subset of a high-level programming language.

CS 04430: Database Systems: Theory And Programming 3 s.h.
Prerequisites: CS 04222
This course focuses on the design of DBMS and their use to create databases. The course covers both the theoretical concepts and the implementation aspects of database systems with a special emphasis on relational database systems, SQL, programming (in a modern programming language such as C++ or Java) using a real database Application Programming Interface (such as JDBC or ODBC)

CS 04440: Data Warehousing 3 s.h.
Prerequisites: MIS 02337 OR CS 10337 OR CS 04430
This course teaches Data Warehousing and its applications to Data Analytics and Knowledge Discovery. Topics include requirements gathering for data warehousing, data warehouse architecture, dimensional model design for data warehousing, physical database design for data warehousing, extracting, transforming, and loading strategies, introduction to Knowledge Discovery, design and development of analytics applications, expansion and support of a data warehouse.

CS 04471: Topics in Mobile Programming 3 s.h.
Prerequisite(s): Permission of the instructor or sufficient programming background
Students will explore topics in mobile application development. This course covers the various mobile operating systems, mobile development tools, and all that is needed to create mobile applications, using programming languages appropriate for the mobile platform being studied. Students will gain an advanced understanding of mobile application development and have an exciting opportunity to write and publish feature-rich mobile applications.

CS 04623: Advanced Software Engineering 3 s.h.
Prerequisite: CS 04524 Agile Software Engineering plus Matriculation in the MS Computer Science program OR the COG in Software Engineering program OR permission of the program coordinator
Students will apply their knowledge from Agile Software Engineering to explore in greater depth advanced theory and practice of software engineering techniques. Emphasis will be placed on new and emerging methodologies like SAFE, Lean, Kanban. Students will be expected to compare and contrast various methodologies and techniques and complete in-depth assignments involving conference or journal papers from the software engineering literature.

CS 06205: Computer Organization 3 s.h.
Prerequisite(s): Minimum Requirement C- for each of the following: (CS 04113 or CS 04103) and (MATH 03160 or MATH 03150) and Sophmore Standing
This course provides an introduction to computer organization. Students are exposed to the register level architecture of a modern computer and its assembly language. The topics include machine level data representation, von Neumann architecture and instruction execution cycle, memory hierarchy, I/O and interrupts, instruction sets and types, addressing modes, instruction formats and translation.

CS 06310: Principles Of Digital Computers 3 s.h.
Prerequisite: CS 06205
This course provides an introduction to the fundamentals of computer hardware systems. The topics include digital logic, combinational circuits, sequential circuits, memory system structure, bus and interconnection structure, computer arithmetic and the ALU unit, I/O system structure, hardwired control unit, microprogrammed control unit, and alternative computer architectures. This course is not open to students who have taken CS06.370 Digital Design and Lab.

CS 06311: Digital Computer Laboratory 1 s.h.
Corequisites: CS 06310 Prerequisites: CS 06205
This lab course provides the student with hands-on experience in the design and implementation of digital components. State-of-the-art systems are used to design, test, and implement digital circuits: Combinational circuits, sequential circuits, registers, counters, datapath, arithmetic/logic units, control units, and CPU design. This course is taken concurrently with Principles of Digital Computers.

CS 06390: Introduction To Systems Simulation And Modeling 3 s.h.
Prerequisite(s): (CS 04222 or CS 04225) and (MATH 01210 or (ENGR 01202 and MATH01235))
The students in this course will understand the fundamentals of and have practical experience with system modeling and simulation. Course topics include the Monte Carlo simulation technique, discrete event simulation algorithms and tools, and principles of mathematical modeling, queuing theory, input modeling, output analysis, and verification and validation of a simulation model. The students in this course will learn to use a commercial simulation software tool and will conduct a simulation study in an engineering field.

CS 06410: Data Communications And Networking 3 s.h.
Prerequisites: CS 07340 and STAT 02290
Students in this upper-division course will study the principles of data communications and important network architectures and protocols. Its topics include: the advantages of networking, major network architectures, protocol reference models and stacks, the Data Link Layer, the Network Layer, the Transport Layer, and the Internet. Additional topics may include: local, metropolitan and wide area networks; wireless, telephone and cellular networks; network security; and network programming. Students complete a networking team project.

CS 06412: Advanced Computer Architecture 3 s.h.
Prerequisites: CS 06310
This is an advanced course in computer architecture designed to expand the knowledge gained by students in the Principles of Digital Computers course. The topics include various performance enhancement techniques such as DMA, I/O processor, cache memory, multiport memories, RISC, pipelining, and various advanced architectures such as high-level language architecture, data-flow architecture, and multiprocessor and multi-computer architectures. This course also allows detailed examination of one or two contemporary computers.

CS 06415: Wireless Networks, Protocols And Applications 3 s.h.
Prerequisites: CS 06410
This course prepares students to understand wireless networks systems, and the underlying communications technologies that make them possible. The course covers descriptive material on wireless communications technologies, and important deployed and proposed wireless networks and systems. Wireless system performance and Quality of Service capabilities are addressed. Students will prepare and deliver technical presentations on state-of-the-art topics in wireless networks and systems.

CS 06416: Tcp/Ip And Internet Protocols And Technologies 3 s.h.
Prerequisites: CS 06410
This is an advanced computer networking course that will expand students knowledge received in the Data Communications and Networking course. This course will examine operation of the TCP/IP protocol as well as design and architecture of the Internet. This course will cover such topics as: Medium access protocols, address resolution protocols, Internet Protocol (IP), Quality of Service, Transport Protocol, and congestion control mechanisms. This course will also include selected topics on network security and network management. Students will prepare and deliver technical presentations on state-of-the-art research topics in the Internet.

CS 06417: Principles of Network Security 3 s.h.
Prerequisites: CS 01210 or CS 06410 and CS 07351
This course examines the fundamentals of network security. The material covered in this course includes such topics as cryptographic systems necessary for network security, public key infrastructure, principles of data integrity, authentication, and key management, Internet architecture and TCP/ICP protocol suite, application layer security, secure sockets layer and transport layer security protocols, IPSec, distributed and cloud security, wireless and mobile security, network security techniques and components, network-based vulnerability detection and penetration testing, defense in depth, and others. Students will prepare and deliver technical presentations on state-of-the-art research topics in the network security.

CS 06420: Embedded Systems Programming 3 s.h.
Prerequisites: (CS 04390 and CS 06310 and CS 06311) or (CS 04390 and ECE 09241 and ECE 09242)
Embedded software is used in almost every electronic device. This course deals with software issues that arise in embedded systems programming. Important concepts covered in this course will include device programming interfaces, device drivers, multi-tasking with real-time constraints, task synchronization, device testing and debugging, and embedded software development tools such as emulators and in-circuit debuggers. These concepts will be applied to design and implement embedded software for one or more modest-sized embedded systems.

CS 06440: Cloud Computing and the Internet Things 3 s.h.
Prerequisite(s): (CS 01210 or CS 06410) and (CS 04225 or CS 04222)
This course exposes students to the variety, complexity, and capabilities of modern cloud platforms and investigates Embedded Systems and the Internet of Things (IoT) techniques, and architectures. The topics covered in the course include cloud infrastructure components,essential characteristics of cloud platforms, security implication of cloud resources, typical instruction sets and architectures of embedded systems, IoT system architectures, IoT networking and security, MQTT and REST protocols, cyber considerations and issues related to embedded systems and IoT devices, hands-on experience in using Amazon and Microsoft cloud(AWS and Azure) to visualize live data streams of IoT devices as well as other topics. Coursework will include student presentations and a term project that will provide exposure to scientific research in cloud computing and IoT.

CS 06447: Introduction to IoT Upper Stack 3 s.h.
Prerequisite(s): CS 06440 OR ECE 09475
The Internet of Things is often characterized by a lower stack which involves connected device hardware and software and an upper stack which contains the cloud platform and applications. A communications layer connects the upper and lower stack. This course will explore the upper stack in depth, covering such topics as IoT security, cryptography, game theory foundations, credential management for connected devices, data wrangling/cleansing and overviews of machine learning and visualization.

CS 06470: Cyber Operations 3 s.h.
Prerequisite(s): CS 06417 and CS 01205
This course exposes students to the principals and practice of the cyber operations and will introduce a high-level overview of the different phases of cyber operations and required critical skills. The topics covered in the course include offensive cyber operations, software reverse engineering, detecting software vulnerabilities, identifying command and control operations, implementing exploits for discovered vulnerabilities as well as other topics through hands-on experiences and technical presentations.

CS 07210: Foundations Of Computer Science 3 s.h.
Prerequisites: C- or better in (MATH 03160 or MATH 03150) and one of the following: CS 01102, CS 04103, CS 01104 or CS 04113
This course provides an introduction to the theoretical foundations of computer science, including finite automata, context-free grammars, Turing machines, and formal logic.

CS 07252: Foundations of Computer Forensics 3 s.h.
This interdisciplinary course focuses on the legal and technical principles of digital forensics. Analysis of complex legal issues and current trends in high technology crime will be followed by exploration of formal methodologies and best practices for the forensically sound acquisition and analysis of digital evidence. Social and ethical impacts will also be explored throughout the course as it relates to high technology crime. Hands-on scenario based activities will provide students with opportunities to develop the legal understanding and technical skills that will serve as a foundation to pursue careers in computer forensics in law enforcement and the private sector.

CS 07310: Robotics 3 s.h.
Prerequisites: (CS 04222 and MATH 01210) or (CS 04225 and ENGR 01202 and MATH 01236)
This course provides an introduction to the fundamentals of robotics. Students will study robot manipulators and mobile robots, robot sensors, and robot cognition. Students will also gain experience programming in small groups, and programming in a domain where noisy and imprecise data is commonplace.

CS 07320: Software Engineering Laboratory 1 s.h.
This lab is designed for students who are not taking CS 07321 Software Engineering I yet wish to learn how to use software development tools. The course will cover selected topics in software engineering models and methods as well as software design notations. Any prerequisite software engineering knowledge will not be expected of students and will be included in this course.

CS 07321: Software Engineering I 4 s.h.
Prerequisites: (CS04.222 or CS 04.225) and (CMS 04.205 or ENGR 01.202) and (WA 01.302 or ENGR 01.201)
An introduction to the discipline of Software Engineering. Students will explore the major phases of the Software Lifecycle, including analysis, specification, design, implementation, and testing. Techniques for creating documentation and using software development tools will be presented. Students will gain experience in these areas by working in teams to develop a software system. Proficiency in programming is expected of the students entering this course.

CS 07322: Software Engineering II 3 s.h.
Prerequisites: CS 07321
Students will apply their knowledge from Software Engineering to develop an advanced software system, working in teams, The project will be taken through each of the major software development phrases and student teams will create appropriate deliverables for each phase. Advanced modern software engineering topics such as critical systems, real-time systems, formal specification and validation, and project management will be covered.

CS 07340: Design And Analysis Of Algorithms 3 s.h.
Prerequisites: CS 04222 and CS 07210
In this course, students will learn to design and analyze efficient algorithms for sorting, searching, graphs, sets, matrices, and other applications. Students will also learn to recognize and prove NP-Completeness.

CS 07342: Algorithms for the Data Scientist 3 s.h.
Prerequisite(s): CS 04225 and CS 04222
This course will cover the basic approaches and mindsets for analyzing and designing algorithms and data structures. Topics include the following: Worst and average case analysis. Recurrences and asymptotics. Efficient algorithms for sorting, searching, and selection. Data structures: binary search trees, heaps, hash tables. Algorithm design techniques: divide-and-conquer, dynamic programming, greedy algorithms, randomization. Algorithms for fundamental graph problems: minimum-cost spanning tree, connected components, topological sort, and shortest paths. Possible additional topics: network flow, string searching, amortized analysis, stable matchings, and approximation algorithms.

CS 07350: Computer Cryptography 3 s.h.
Prerequisites: CS 07210 and CS 04222
This course introduces students to the principles and practices which are required for secure communication: cryptography, cryptanalysis, authentication, integrity, and digital certificates. Mathematical tools and algorithms are used to build and analyze secure cryptographic systems with computers. Social, political, and ethical aspects of cryptography are also covered.

CS 07351: Cyber Security: Fundamentals, Principles and Applications 3 s.h.
Prerequisites: (MATH 03150 or MATH 03160) and CS 06205
This course exposes students to the security fundamental principles and will introduce a wide range of security activities, methodologies, and procedures. The topics covered in the course include fundamental concepts of computer security, principles of cryptography, software security and trusted systems, isolation and virtualization, host-based vulnerability detection, security architecture, Windows and Linux system administration, access control and least privilege, legal and ethics as well as other topics.

CS 07353: Security of Mobile Devices 3 s.h.
Prerequisites: CS 04222, CS 06205
This course focuses on the technical and logistical principles of securing mobile devices. Current operating systems, applications and networks will be addressed. Social and ethical implications will also be explored throughout the course. Both hands-on experience and scenario-based analysis will be emphasized in the course.

CS 07355: Cybersecurity Management, Policy and Risk 3 s.h.
This course covers cybersecurity planning and management, security risk analysis, policy, legal, ethics and compliance issues and security program management from a technical cybersecurity perspective at the undergraduate level. Course is cross-listed with MIS 02318 - Information Systems Risk Management. Students cannot receive credit for both.

CS 07360: Introduction To Computer Graphics 3 s.h.
Prerequisites: (MATH 01210 or MATH 01235) and CS 07340
This junior/senior level course covers such topics as fundamentals of graphics devices; use of graphics language/packages; windowing and clipping; geometrical transformation in 2- and 3-D; raster display algorithms; hidden line and surface elimination; animation.

CS 07370: Introduction To Information Visualization 3 s.h.
Prerequisites: CS 04.222 OR CS 04.225 OR MIS 02.337 OR MIS 02.338 OR CS 10.337
This is a junior/senior level course that introduces basic elements of Information Visualization, which is concerned with the creation of visual representation of Big Data abstract phenomena for which there may not be a natural physical reality, such as stock market movements, social relationships, gene expression levels, manufacturing production monitoring, survey data from political polls, or supermarket purchases. Students will be exposed to techniques covering the five main phases of developing information visualization tools: representation, presentation, interaction, perception and interpretation, and evaluation. Students will be required to develop a large project related to information visualization.

CS 07380: Introduction To Computer Animation 3 s.h.
Prerequisites: (MATH 01210 or MATH 01236) and (PHYS02200 or PHYS 00220)
This is a junior/senior level course that takes a look at Computer Animation from a programmers perspective. It will investigate the theory, algorithms, and techniques for describing and programming motion for virtual 3D worlds. Approaches that will be explored include keyframing systems, kinematics, motion of articulated figures, and procedural and behavioral systems. This course includes the implementation of techniques presented in lecture. Students are encouraged to devise new techniques, implement them, and determine their effectiveness. Students will be required to implement and document a large software project related to computer animation.

CS 07390: Introduction To Computer Game Design And Development 3 s.h.
Prerequisites: (CS 04222 or CS 04225) and(Math 01210 or MATH 01235)
This is a junior/senior level course that introduces the technology, science, and art involved in the creation of computer games. Games will be examined in a systems context to understand gaming and game design fundamentals. The theory and practice of developing computer games will be investigated from a blend of technical, aesthetic, and cultural perspectives. Extensive study of past and current computer games will be used to illustrate course concepts. Group game development and implementation projects will culminate in classroom presentation and evaluation.

CS 07422: Theory Of Computing 3 s.h.
Prerequisites: CS 04222 and MATH 01131 and CS 07210
This is an advanced course in the theoretical foundations of computer science, building on the introduction provided in the Foundations of Computer Science course. It studies models of computers, such as finite automata and Turing machines, formal languages, and computability, as well as the fundamentals of complexity theory and NP-completeness.

CS 07430: Human-Computer Interaction 3 s.h.
Prerequisites: CS 04222 or CS 04225
This course teaches the fundamental concepts of Human Computer Interaction (HCI) and user-centered design. Students will learn how to create effective interfaces to both software and hardware systems that are both effecdtive and usable. Students will study modeling, user testing, user interaction analysis techniques, and prototyping. Team projects are required.

CS 07450: Artificial Intelligence (Ai) 3 s.h.
Prerequisite(s): CS 04222 or CS 07210 and CS 01205 and MATH 01131
AI studies methods for programming "intelligent" behavior in computers. Students study the data representation methods and algorithms used in AI, and survey research areas such as puzzle solving, game-playing, natural language processing, expert systems, and learning. This is a mathematically and programming intensive course. In addition to readings, discussion, and problem solving in AI, students will be expected to do significant programming tasks in languages that may be new to them.

CS 07455: Machine Learning 3 s.h.
Prerequisites: MATH 01210 or MATH 01235 and STAT 02290 or ECE 09363
The use of computational approaches to extract information from vast amounts of data and make intelligent decision based on that information constitutes the foundation of machine learning, a field that has made a dramatic impact on our daily lives. From weather prediction to medical diagnosis, end-user recommendations to smart homes, autonomous vehicles to speech identification, machine learning is now everywhere. This course introduces concepts, issues, and algorithms in machine learning and pattern recognition, and will discuss both theoretical and practical aspects. Main topics of the course will include basic learning theory, convex and evolutionary optimization techniques, supervised, unsupervised and semi-supervised learning, ensemble systems, model selection and combination, feature selection and performance evaluation techniques. The class will feature assignments and projects that allow students to implement various traditional and emerging machine learning algorithms, and evaluate them on real-world applications.

CS 07460: Computer Vision 3 s.h.
Prerequisites: CS 04222, MATH 01210, and STAT 02290
This course examines the fundamental issues in computer vision and major approaches that address them. The topics include image formation, image filtering and transforms, image features, mathematical morphology, segmentation, camera calibration, stereopsis, dynamic vision, object recognition and computer architectures for vision.

CS 07480: Introduction to Data Mining 3 s.h.
Prerequisites: CS 04222 and STAT 02290 or STAT 02360 and STAT 02361 or STAT 02360 and STAT 02260
This course teaches the fundamental concepts of Data Mining. Students will learn how to program systems to gather and analyze large data sets to discover important patterns.

CS 07485: Web and Text Mining 3 s.h.
Prerequisites: CS 04225 or CS 04222
This course teaches methods of mining large amounts of text. Students will be introduced to methods for obtaining, exploring, and preprocessing large amounts of text. Tools for natural language processing, topic modeling, sentiment analysis and Bayesian classifiers will be introduced. Business and biomedical applications of text mining will be discussed.

CS 07523: Advanced Software Engineering 3 s.h.
Prerequisites: Acceptance into the Computer ScienceMS or BS/MS program
Students will apply their knowledge from Software Engineering to develop an advanced software system, working in teams. The project will be taken through each of the major software development phases, and student teams will create appropriate deliverables for each phase. Advanced modern software engineering topics such as critical systems, real-time systems, formal specification and validation, and project management will be covered. Students will be required to complete in-depth assignments involving conference or journal papers from the software engineering literature.

CS 07540: Advanced Design And Analysis Of Algorithms 3 s.h.
Prerequisite(s): Matriculation in the MS Computer Science program OR the MS Data Science program OR permission of the program coordinator
Students in this course will study efficient algorithms for sorting, searching, graphs, sets, matrices, and other applications, and will learn to design and analyze new algorithms. Students will also learn to recognize and prove NP-Completeness.

CS 07556: Machine Learning I 3 s.h.

Prerequisite(s): matriculation in the MS Computer Science program OR permission of the program coordinator

This course introduces students to machine learning tasks at the graduate level including classification, regression, learning with unlabeled data), common machine learning approaches, and mathematics required to understand advanced topics in machine learning. Students will be exposed to topics such as data Issues in machine learning, Information-based learning (Decision Tree), Similarity-based learning (k-nearest neighbor), Probabilistic-based learning (naïve Bayes, Maximum A Posteriori, Bayesian Network), Linear Models (Perceptron, Linear Regression, Logistic Regression), Support Vector Machine, Neural Network, Performance measure and evaluation, Descriptive Statistics and Result Visualization, Learning with unlabeled data (clustering), Mathematics for Advanced Topics in Machine Learning (Topics in Probability, Linear Algebra, and Optimization).

CS 07570: Information Visualization 3 s.h.

This is a graduate level course in Information Visualization. Topics covered include graphics programming, information visualization general principles, visualization techniques for 1-dimensional, 2-dimensional, and N-dimensional information, graph visualization, visualization techniques for image and digital libraries, as well as for the World Wide Web, interactivity, theories behind information visualization, and focus+context techniques. This course also includes the implementation of techniques presented in lecture. Students are encouraged to devise new techniques, implement them, and determine their effectiveness. Students will be required to complete in-depth assignments, read, summarize, and present recent journal papers from the information visualization literature, and prepare term papers with regard to an information visualization research topic. Students will also be required to specify, design, implement, and document a semester-long software project related to information visualization.

CS 07655: Natural Language Processing 3 s.h.

Prerequisite: CS 07540 Advanced Design and Analysis of Algorithms plus matriculation in the MS Computer Science program OR permission of the program coordinator

This course presents methods for allowing computers to understand and generate sentences in human languages (such as English) and prepares the student to do research in natural language processing. Topics include syntax, semantics, pragmatics, and knowledge representation.

CS 10200: Fundamentals of Network Security 3 s.h.

Prerequisite: CS 01210

This course introduces network security focusing on the overall processes with an emphasis on hands-on skills in the following areas: security policy design and management; security technologies, products and solutions; firewall and secure router design, installation, configuration, and maintenance; AAA implementation, and VPN implementation using routers.

CS 10215: Penetration Testing Fundamentals 3 s.h.

Prerequisite: CS 01210

The purpose of this course is to give students of all backgrounds and experience levels a well-researched and engaging introduction to the realm of penetration testing. With real-world examples that reflect today's most important and relevant security topics, this course addresses how and why people attack computers and networks, so that students can be armed with the knowledge and techniques to successfully combat hackers. Because the world of information security changes so quickly and is often the subject of much hype, this course also aims to provide a clear differentiation between hacking myths and hacking facts. Many hands-on exercises are included, which allow students to practice skills as they are learned.

CS 10218: Ethical Hacking Fundamentals 3 s.h.

This course introduces students to ethical hacking, security testing, and network defense/counter measures. Students who have strong knowledge of computer and networking learn how to protect networks by using an attacker's technique to compromise network and systems security. Hands-on lab activities enable students to learn how to protect network/systems by using the tools and methods used by hackers to break into networks/systems. Discussion topics include: hacker methodology and tools, how hackers operate, as well as setting up strong countermeasures to protect networks/systems.

CS 10250: Cryptography and Blockchain Essentials 3 s.h.

This introduction to the basic theory and practice of cryptographic techniques used in computer security will explore the inner workings of cryptographic techniques and how to use them correctly. It will include consensus algorithms (such as Proof of Work and Byzantine Consensus) and their role in blockchains and cryptocurrencies, cryptographic tools employed in cryptocurrencies (including digital signatures algorithm and zeroknowledge proofs) and trusted hardware in blockchain-based systems.

CS 10271: Introduction to Android Programming 3 s.h.
Prerequisite(s): CS 04113 or CS 04171 or CS 04103 or CS 01104 or CS 01102
This course is targeted for students who want to start writing mobile applications on Android platforms. Android has become a formidable mobile operating system, and this course will provide hands-on learning on writing Android applications. The course will start with the basics of Android programming by covering the most recent version of Android and understanding its development framework. Students will then learn both the fundamentals and the nuts and bolts of Android application development and have an exciting opportunity to write feature-rich Android applications.

CS 10273: Introduction to Windows Mobile Application Programming 3 s.h.
Prerequisite(s): CS 04113 or CS 04171 or CS 04103 or CS 01104 or CS 01102
This course is targeted for students who want to start writing mobile applications on Windows platforms. Windows has become a formidable mobile operating system, and this course will provide hands-on learning on writing Windows applications. The course will start with the basics of Windows programming by covering the most recent version of Windows and understanding its development framework. Students will then learn both the fundamentals and the nuts and bolts of Windows application development and have an exciting opportunity to write feature-rich Windows applications.

CS 10275: Introduction to iOS Application Programming 3 s.h.
Prerequisite(s): CS 04113 or CS 04171 or CS 04103 or CS 01104 or CS 01102
This course is targeted for students who wanted to start writing mobile applications on iOS platforms. iOS has become a formidable mobile operating system, and the courses will provide hands-on learning on writing iOS applications. The course will start with the basics of iOS programming by covering the most recent version of iOS and understanding its development framework. Students will then learn both the fundamentals and the nuts and bolts of iOS application development and have an exciting opportunity to write feature-rich iOS applications.

CS 10310: Introduction to Web Development 3 s.h.
Prerequisites: (MIS 02337 or CS 10377) or (CS 10338 and CS 10339) or CS 04430 and (CS 04114 or CS 04210) and (CS 04222 or CS 04225)
This course, which is part of the BA in Computing and Informatics, teaches students the basic techniques of web site development, including some of the tools, languages, and platforms that are commonly used for web sites. This course does not count as a restricted elective for the BS in Computer Science.

CS 10337: Applied Database Technologies Applied Database Technologies 3 s.h.
Prerequisite(s): Must be enrolled in the BA in Computing & Informatics Major or the CUGS in MIS; May not be enrolled as the following classifications: Freshman or Sophomore
This course covers the practical aspects of relational database systems, including database modeling using ER and EER diagrams, physical database design, the relational database query language SQL, normal forms, database integrity and transaction management. Includes a project involving an RDBMS.

CS 10338: SQL In-depth 1 s.h.
This course provides comprehensive coverage of the relational database query language SQL. The course covers core SQL commands to define, manipulate, aggregate, and join data. Students will write advanced SQL queries (e.g., aggregate queries and subqueries), learn both Data Manipulation Language (DML) and Data Definition Language (DDL), and create database constraints.

CS 10339: Database Modeling and Design 2 s.h.
Prerequisite: CS 10338
This course covers the practical aspects of relational database systems, including database modeling using ER and EER diagrams, physical database design, normal forms, database integrity and transaction management. It assumes a strong working knowledge of SQL including Data Manipulation Language (DML) and Data Definition Language (DDL).

CS 10340: Systems Administration 3 s.h.
Prerequisites: CS 01211 AND CS 01210 OR persmission of theinstructor.
This course is designed to introduce students to the universal principles of systems administration that apply to all platforms and the major operating system families: Linus/Unix and Windows. The students will have hands on experience with the installation, configuration, administration, and management of core servers and core server operating systems.

CS 10342: Web Server Platforms 3 s.h.
Prerequisites: CS 10.310 OR permission of the instructor.
This course is designed to prepare students to install, configure, and maintain Web Servers. Students will learn about the installation, access control, security, performance, managing, and troubleshooting of web server hardware, software, and services.

CS 10344: Concepts of Computing Technologies 3 s.h.
Prerequisites: CS 01210or CS 06410; and CS 01211 or CS 07351
This course, which is part of the B.A. in Computing and Informatics program, examines the role, proper architecture, and potential contributions of Information technologies and systems – what they are, how they should be configured, and how they affect users of the technologies. This course covers a range of topics such as architectural planning, system and network administration, identity and authentication systems, change and problem administration, configuration of computing systems, data center and facilities management, capacity planning, document and content control, maintaining servers for system availability and uptime, systems monitoring and performances tuning, as well disaster recovery and system continuity.

CS 10430: Computing and Informatics Capstone Experience 3 s.h.
Prerequisites: CS 10310 AND CS 04225 AND CMS 04205
This course is designed to introduce students to all aspects of software production from the early stages of system specification through to systems maintenance. This course provides an - exposure to the software development process by which user needs are translated into a tangible software product.

CS 99210: Introductory Learning Assistant Experience in Computer Science 1 s.h.
Prerequisite: Permission of Supervising Instructor
The course is designed to provide students with an introductory experience in applied pedagogy associated with collegiate-level Learning Assistant (LA) Models while deepening their mastery of computing fundamentals. Students will review and prepare for practicum in a computing related course with exposure to LA skills and strategies. Students will utilize learned LA skills and fundamental computing knowledge to facilitate in-class active and collaborative learning exercises in small student groups. This course is recommended for all students interested in developing depth of their computing knowledge with some specific pedagogical methods while also enhancing their communication and interpersonal skills via student mentorship and staff collaboration.

CS 99300: Computer Field Experience 3 to 12 s.h.
Prerequisite(s) : Permission of instructor and CS 04222 or CS 04225
Students are assigned projects in a professional environment.

CS 99310: Advanced Learning Assistant Seminar in Computer Science 3 s.h.
Prerequisite: Permission of Instructor
This course is designed to provide students with more advanced experience in applied pedagogy associated with collegiate-level Learning Assistant (LA) Models while further deepening their mastery of computing fundamentals. Students will focus on the implementation of LA skills and strategies while completing their practicum in a computing related course. Students will apply learned LA skills and computing knowledge in areas of assessment, design, development, and facilitation of in-class active and collaborative learning activities and exercises. This course is recommended for all students interested in continuing their development of some specific computing pedagogical methods, communication techniques, and interpersonal skills via student mentorship and staff collaboration.

DA 03511: Patient Data Privacy & Ethics 3 s.h.
Patient Data Privacy & Ethics Prerequisite: Graduate standing or permission of the instructor. 3 s.h. In this course we focus on understanding privacy and ethical issues as they relate to patient and other health-related data, as well as to health information systems. Industry trends and developments will be researched and tracked by the students.

DS 01100: Introduction to Data Science 3 s.h.
This course provides an introduction to the foundational topics in data science including data manipulation, data analysis with statistics, machine learning, data communication and information visualization. It is intended to introduce the tools and techniques necessary to solve problems involving data. As an introductory course, it will utilize and explain programming and statistical data analyses without requiring prerequisite coursework in these areas. It is designed for the student interested in exploring the data science field, or as a first course in a degree program in data analytics or data science.

DS 01390: Data Science Research I 3 s.h.
This course will allow students to do real-world multidiscipline research by applying what they've learned in the regular data science curriculum to large data sets.

DS 01490: Data Science Research II 3 s.h.
Prerequisite(s): DS 01390
This course will allow students to do real-world multidiscipline research by applying what they've learned in the regular data science curriculum to large data sets. This is a continuation course that will allow students to work on significant projects or to continue research started in DS 01390 Data Science Research I.

DS 02395: Topics in Data Science 1 to 3 s.h.
Prerequisite(s): Junior Status
This course enables the faculty to offer courses in topics in Data Science which are not offered on a regular basis.

DS 02510: Visual Analytics 3 s.h.
Prerequisite: Graduate standing or permission of the instructor.
This is a graduate level course that investigates visual analytics tools and techniques used to synthesize information and derive insight from massive, dynamic, ambiguous, and often conflicting data, and to communicate the findings effectively for decision-making. Extensive use of case studies based on real-world events will be used to illustrate course concepts. Students will be required to present recent conference or journal papers from the visual analytics literature and to apply visual analytics techniques toward a focused research problem in a real-world application or a domain of interest.

INTR 01265: Computers and Society 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201

INTR 01266: Computers and Society - WI 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This interdisciplinary course focuses upon the effects of computer systems on individuals and institutions. How computer systems are developed and operated will be related to an analysis of current trends in American society. A study of present and probably future applications of computers in such areas as management, economic planning, data collections, social engineering, education and the military will be followed by an exploration of the relationship of computer systems to problem solving orientations, bureaucratization, centralization of power, alienation, privacy, autonomy and peoples' self-concept. This course is open to students at any level who satisfy the prerequisite and have course work in computer science or sociology or permission of instructor.

ECON 04335: Socio-Economic Applications of Blockchain 3 s.h.
This course explores blockchain technology and its use value within a socioeconomics framework. The course will examine the platform's advantages in addressing socioeconomics issues faced by the public and private sectors such as risk, fraud and administrative cost, need for increased transparency and accountability, accessibility, transcending borders and more efficiency within the topic areas of economics, trade finance, healthcare, sustainable development, governance, corruption and digital identity.

COUN 26450: Mental Health Awareness and (Emotional) Crisis Management in Educational Settings 3 s.h.
The purpose of this course is to provide future educators and professionals in P-12 and higher educational settings with an overview of mental health, how behaviors may present in schools, an opportunity to learn individual and systemic educational prevention and interventions, and to explore policies and ways to handle crisis management within the context of emotional safety.

COUN 26451: Trauma Informed Practices to Promote Social Emotional Development in Educational Settings 3 s.h.
The purpose of this course is to provide future educators, professionals, and administrators in P-12 and higher educational settings with an overview of trauma- informed practices in educational settings, that support the social emotional development of all students. Students will explore the core tenants of trauma informed practices, including social emotional development, and how to address systemically through whole school initiatives, individual classrooms, and across content areas. Students will also learn how to implement and evaluate these practices.

COUN 26452: Neurodiverse Learning and Social Emotional Development in Educational Settings 3 s.h.
The purpose of this course is to provide future educators, professionals, and administrators in P-12 and higher educational settings with an overview of neurodiverse learners in educational settings and how to support their academic and social emotional development.

EDSU 28100: Leadership Theory 3 s.h.
This course is an introduction into the academic study of leadership from a theoretical perspective that broadly examines the historical, social, and political context of leadership as a concept and process.

EDSU 28110: Leading Among Diverse Perspectives 3 s.h.
This course focuses on understanding that leadership requires recognizing and valuing the differences that exist among people as employees, colleagues, and team members. These differences result people bringing various perspectives and approaches to professional environments. The course provides an understanding of the historical and current experiences of groups in society and the contributions of those groups in organizations. Additionally, the course focuses on inclusive and collaborative leadership approaches.

EDSU 28120: Grant Acquisition and Management 3 s.h.
The course will focus on searching for, identifying, and preparing proposals for grant funding. The course will elucidate differences between federal and foundation grants. Students will explore the fundamental components of a grant proposal such as the abstract or summary, background and significance, specific aims/goals and objectives, project design and methods, sustainability, assessment, broader impacts, dissemination, budget, budget justification, and cover letter as well as the overall grant submission process.

EDSU 28130: Designing and Evaluating Organizational Initiatives 3 s.h.
This course focuses on creating organizational initiatives and evaluating the effectiveness of those initiatives. Topics include setting organizational goals; analyzing organizational activities; assessing strengths, weaknesses, opportunities, and threats (SWOT); understanding organizational change and resistance, evaluation approaches, administering and analyzing organizational evaluations and creating recommendations based on evaluation outcomes.

EDSU 28205: Leadership Seminar I 3 s.h.
Prerequisite(s): EDSU 28100 & EDSU 28110 & EDSU 28120 & EDSU 28130
This seminar joins leadership theory and practice by requiring students to explore leadership issues in an active, hands-on way through an internship of 120 hours (or a major project approved by the instructor). The course will provide students with a more in-depth understanding of leadership as it relates to various settings, leadership ethics, leadership and technology, writing persuasively in a leadership way, understanding organizational culture, and basic budgeting.

EDSU 28210: Educational Organizations 3 s.h.
Prerequisites: FNDS 21150, FNDS 21230
This course provides an opportunity for students to learn about the structure and administration of educational and educationally-related organizations including various models of organizations and organizational cultures and how structures and cultures can promote organizational growth.

EDSU 28211: Access, Success, and Equity in Education 3 s.h.
Prerequisites: FNDS 21150, FNDS 21230, EDSU 28210
This course provides an overview of inequity in educational opportunity and outcomes. The course covers elementary, secondary and postsecondary contexts and the steps and processes that can improve educational opportunity and outcomes to bring about a more equitable system.

EDSU 28212: Education and Empowerment for Social Change 3 s.h.
Prerequisites: FNDS 21150, FNDS 21230, EDSU 28210, EDSU 28211
Students learn how education can be used to empower individuals and communities and the steps necessary to begin; including the ability to account for and set organizational goals; gather, understand, and interpret data on organizational goals; motivate individual and organizational learning; and incorporate multiple perspectives.

EDSU 28305: Leadership Seminar II (Capstone) 3 s.h.
Prerequisite: EDSU 28205
This seminar provides students with a greater understanding of and appreciation for leadership through a required 120 hour internship (or major project with instructor approval). The course focuses on the development of skills needed to manage change in organizations, such as understanding change as a process, conflict resolution, group dynamics, and team building.

SNUR 92430: Methods And Materials In Health Teaching For School Nurses 3 s.h.
This course emphasizes the school nurse's expanding role as a classroom health teacher as well as a resource person to the school staff. Discussions and experiences will center on theories of teaching and learning, planning for teaching, curriculum development, the New Jersey Core Curriculum Content Standards (NJCCCS), teaching strategies, educational resources, classroom management, assessment, and the integration of health teaching into varied school subjects. A K-12 classroom experience is included to facilitate the integration of theory into the clinical practice.

SNUR 92444: Practicum In School Nursing 3 s.h.
Prerequisites: SNUR 92466
The purpose of this field experience is to provide an opportunity for the student to engage in a mentoring relationship with an experienced, certified school nurse. The student will have the opportunity to observe and participate in the various roles, functions, and activities of the school nurse. The course requires 50 hours of clinical experience with the school nurse mentor. A University supervisor will visit the student in the field placement situation. Meetings of all students enrolled in the Practicum are held periodically at the University's Glassboro campus.

SNUR 92445: Internship In Health Teaching For School Nursing 3 s.h.
Corequisites: SNUR 92448 Prerequisites: SNUR 92430 andSNUR 92466
The purpose of this field experience is to provide an opportunity for the student to utilize the NJ Comprehensive Health Education and Physical Education Curriculum Framework and the NJ Core Curriculum Content Standards to teach health classes in a classroom setting with an experienced, New Jersey certified teacher. The course incorporates the interaction between the school nurse and the school counseling program, by utilizing school guidance counseling standards and indicators. The course requires 10 hours of teacher observation prior to teaching 40 hours of health. A University supervisor will visit the student in the employed or field placement situation. Meetings of all students enrolled in the Internship course are held periodically at the University's Glassboro Campus.

SNUR 92448: Health Teaching Methods For School Nursing Seminar 2 s.h.
Corequisites: SNUR 92445 Prerequisites: SNUR 92430 and SNUR 92466
This senior level seminar is to be taken with Internship in Health Teaching for School Nursing (SNUR92.445). The seminar will focus on four major areas: issues in health education, instructional strategies and classroom management, analysis and assessment of the Internship in Health Teaching for School Nursing experience, and preparation for school nurse employment.

SNUR 92466: School Health Services 3 s.h.
School Health Services and functions of the school nurse within the organizing framework of the CDC's School Health Model/Whole School, Whole Community, Whole Child are discussed, as well as specific roles to include that of the school nurse within the comprehensive school counseling program. The interface between health services and nationally utilized school guidance counseling standards and indicators is discussed. Fundamentals of substance abuse are included to provide a basis of understanding with regard to the role of the school nurse including relevant information on best practices, resources, and the referral process. Particular emphasis is placed on the role of code, regulation, and SHS policy, as well as available resources relating to students, their families, and SHS personnel.

ECE 09100: Signals, Systems and Music 3 s.h.
This course is an introduction to the analysis and creative production of electronic music. The student will experience music using the principles of music theory, electronic signal analysis and system development. Both lecture and laboratory sessions are presented culminating in the development and production of electronic music using recorded sound, software generated signals and electronically produced signals.

ECE 09101: Electrical and Computer Engineering: Solving Tomorrow's Problems 2 s.h.
Electrical and Computer Engineering (ECE) is the field of engineering that has a broad reach, many real-world applications and a great impact on our lives, yet few know the impact of ECE in solving humanity's problems. This course will introduce students to the field of ECE and provide a broad overview of its subfields and its applications through a series of hands-on project experiences based on current design trends. This course will also stimulate students' interests in this field by demonstrating the extensive reach of ECE in solving a very wide range of current and emerging problems that most people do not even realize that are solved by advancements in ECE. Finally, this course will also provide a preview of the ECE program of study, introducing some of the most critical concepts taught throughout the curriculum, including instrumentation, microprocessor programming, embedded systems, circuit analysis, signal processing, and machine learning. This course will be taught from a hands-on and project based approach, focused on integrating many of the topics covered in the course.

ECE 09201: Network I 2 s.h.
Prerequisites: CS 04103 and (MATH 01131 or MATH 01141)and (PHYS 02200 or PHYS 00220) and MATH 01235
Covers basic network principles, network laws and analysis methods, including steady-state and transient responses of passive networks, with independent and dependent sources. Op amps are covered as examples of active electronic networks. Computer-aided analysis and simulation tools are presented as methods to augment network analysis and design.

ECE 09202: Network II 2 s.h.
Prerequisites: ECE 09201 Minimum Grade of C
Extends network analysis principles including ac sources, transformers, and polyphase networks. The Laplace transform is developed as a method for obtaining the transient and steady-state response of a network. The frequency response of a transfer function is analyzed using Bode plots. The Fourier transform technique is used to determine the response of networks to periodic inputs. Computer-aided analysis and simulation tools are presented as methods to augment network analysis and design.

ECE 09203: Principles of Electric Circuit Analysis 4 s.h.
Prerequisite(s): MATH 01131 and ECE 09101 and PHYS 00222 (Minimum Grade of C)
The fundamental principles of circuit and network theory constitute the very foundation on which the field of electrical engineering stands. From a simple household item such as a toaster or flashlight, to the most advanced devices, large scale electric power distribution and transmission systems, including such emerging topics as smart grid, photovoltaic energy generation to electric vehicle technology, all operate based on the basic concepts of circuit and network theory. This core course, which constitutes the primary prerequisite of most other ECE courses, is designed to provide the students not only with a comprehensive foundation of circuit and network theory, but also the basic skills of circuit analysis, design and testing. Starting with Ohm's Law, this course first discusses resistive and DC circuits and introduces Kirchhoff's Laws, Thevenin and Norton equivalents of networks, mesh and nodal analysis, followed by independent and dependent sources, and operational amplifiers. The second half of the course focuses on AC circuits and memristors. Laplace transforms will be introduced for transient and steady state response of networks, followed by various applications of AC circuits, such as filters. Computer-aided analysis and simulation tools are also presented as contemporary methods of network analysis and design.

ECE 09204: Clinical and Medical Technology in Today's Medicine 4 s.h.
Prerequisite: MATH 01123
This is a general education laboratory science course intended to provide students with a survey of current and emerging clinical and medical technologies. The course will first introduce signals of biological origin, discussing how they are generated, how they can be measured and how they are processed; followed by an overview and operation principles of clinical and medical devices that have been developed to measure and analyze various physiological systems. The course will also include an overview of medical imaging technologies as well as other current and emerging technologies, such as DNA sequencers and microarrays. Safety and ethical considerations in design and use of these technologies will also be discussed. The course will have a laboratory component allowing students to interact with real-world biological signals, systems and devices. Specifically, students will be able to acquire, analyze and interpret their own vital signals, such as signals of cardiovascular, respiratory or neurological origin.

ECE 09205: Principles and Applications of ECE for Nonmajors 3 s.h.
Prerequisites: (CS 04103 Minimum Grade of D- or CS 04113 Minimum Grade of D- or CS 01104 Minimum Grade D-) and PHYS00222 Minimum Grade of C and MATH 01230 Minimum Grade of D-
This course covers basic concepts of Electrical and Computer Engineering (ECE) topics for non-majors. An emphasis is placed on practical applications using ECE hardware and analytical techniques to be able to design, analyze (or simulate), build, and test practical circuits. The content includes basic cirect current (DC) and alternating current (AC) circuit principles, circuit law and analysis methods, diodes, transistors, operational amplifiers, power supplies, analog filters and electro-mechanics (DC motors).

ECE 09241: Introduction to Digital Systems 2 s.h.
Prerequisites: ECE 09101 and (CS 04103 or CS 04113)
Digital Systems dominate the globe, from a simple stopwatch to a cellphone to the international space station, each of these are dependent on Digital Systems. Digital systems, at the most elementary level, are composed of 0's and 1's and rudimentary logic functions. This core course takes a hands-on approach, starting with how to physically build basic logic functions (AND, OR, NOT) from transistors all the way to how to combine these functions to make complex digital systems. during the course students will learn how numbers and information are stored and manipulated in a digital system and how these basic principals can be expanded to create a computer processor. The focus of the course will be on alternative number systems (Binary, Octal, Hexadecimal), Boolean algebra, minimization, combinational circuit design, and sequential circuit design. Both synchronous and asynchronous network design and state machines will be covered. Students will get hands-on experience using modern development tools to design, test, and implement digital systems.

ECE 09243: Computer Architecture 3 s.h.
Prerequisite: ECE 09241 and CS 04103 or CS 04113
Computers and systems are ubiquitous. Processors are encountered at every computational scale ranging from embedded microprocessors in smart phones and speakers, through desktop, laptop, and tablet computers with extensive memory and I/O, to supercomputers composed of arrays of processors. This core course provides a foundation for understanding computer architecture and the interplay between the central processor, memory and input/output. The course will cover a range of analysis and design techniques and include a survey of representative modern architectures. One will be selected to provide the basis for further inquiry and to provide a platform for project-based learning.

ECE 09303: Engineering Electromagnetics 3 s.h.
Prerequisite(s): (ECE 09203 and MATH 01235) or (ECE 09203 and MATH 01210 and MATH 01231)
Engineering electromagnetics covers applications of electrostatics, magnetostatics, quasistatics, and electromagnetic wave propogation in contemporary electrical engineering practice. The course also covers numerical modeling/analysis of electromagnetic systems using appropriate software and laboratory-based measurements.

ECE 09311: Electronics I 3 s.h.
Prerequisites: ECE 09203 Minimum Grade of C
The first course in electronic devices and circuit design covers the fundamentals of circuits involving diodes, bipolar junction transistors and field effect transistors in a simulation and laboratory environment. The basics of circuit operation and modeling are covered along with applications to multistage amplifier design. The SPICE software is used as a simulation tool.

ECE 09321: Systems and Control I 3 s.h.
Prerequisite(s): ECE 09341 (Minimum Grade of C) and ECE 09311
The first course in control systems introduces the fundamental concepts of linearity, time-invariance, stability and the transfer function. Mathematical and circuit equivalence of different systems (electrical, mechanical, fluidic, and thermal) are established. A thorough treatment of stability through the Routh-Hurwitz, root locus and Nyquist criterion is given. Frequency response analysis by means of the Bode plot is also covered. Software simulation primarily with MATLAB and laboratory experiments will complement and supplement the theory.

ECE 09322: Systems And Controls II 3 s.h.
Prerequisites: ECE 09321
This course is a continuation of Systems and Controls I with the focus on multi-input, multi-output systems. The fundamental concepts of linearity and time-invariance are introduced. The state-space description and the concept of a matrix transfer function are studied in depth, especially with respect to stability. The concepts of controllability, observability, and realizations are covered. Numerical techniques are continuously emphasized. Optimal control and nonlinear systems are also discussed. Software simulation, primarily with MATLAB and laboratory experiments, will complement and supplement the theory.

ECE 09331: Electrical Communication Systems 4 s.h.
Prerequisites: ECE 09202 Minimum Grade of C and MATH 01236and ECE 09241 and ECE 09311
This is a junior level undergraduate course that covers the fundamentals of analog and digital communication systems. Analog and digital modulation techniques are covered along with optimal receivers, concept of a matched filter, error rate and intersymbol interference. Appropriate mathematical background in Fourier transforms, probability and random variables are taught. The student is exposed to software and hardware designs.

ECE 09341: Signals and Systems 2 s.h.
Prerequisite(s): (ECE 09203 minimum of Grade C and MATH 01235) or (ECE 09203 minimum of Grade C and MATH 01210 and MATH 01231)
Continuous and discrete systems are used in every branch of engineering. Communication systems (for the transmission of voice, video and data), robotic systems, energy systems, biometric systems (Identification of a person based on physiological traits), systems that aid the handicapped and system-on-chip circuits are just a few examples that use the fundamental principles taught in this course. This course provides students with a foundation in linear dynamical systems and provides the appropriate background to engage in more advanced subjects like controls, signal processing and communications. This course will discuss the fundamental tools associated with the analysis of continuous (Laplace transform, Fourier transform and Fourier series) and discrete (z-transform) signals and systems. The concepts of impulse response, frequency response, and convolution are taught with the appropriate background in complex numbers and variables. Simple analog and digital filters and their practical uses form a major component of the laboratory component.

ECE 09342: Introduction to Embedded Systems 3 s.h.
Prerequisite: ECE 09243 Minimum Grade of C and ECE 09311
With more Embedded systems being sold each year, the demand for Engineers who understand these systems is ever increasing. This course introduces students to microprocessors and microcontrollers from instruction sets and architecture to peripherals and software. Several processor architectures and instruction sets are briefly covered as well as assembly language; however, the majority of the course focuses on embedded software. At the end of this course students will be able to develop embedded systems to solve real design problems. The focus of this course will be on using embedded peripherals (analog to digital converters, communications, timers, interrupts, PWM, etc.). Students will work hand on with their own embedded systems from the beginning of the course and will learn how to design basic embedded systems using modern integrated development environments. There will be a strong emphasis on project-based learning and each student will be required to make a significant contribution to a final project.

ECE 09351: Digital Signal Processing 3 s.h.
Prerequisites: ECE 09341 Minimum Grade of C
This class is concerned with processing of digital and/or discrete time signals using linear time invariant systems, hence digital signal processing - DSP. It is DSP that makes communication systems, medical diagnosis and monitoring systems, engine diagnostics, seismic/tectonic/oceanographic analysis systems, all of audio-visual entertainment systems and many other countless systems possible. This course has been designed to deepen the real-world perspective at the forefront in each topic discussed, without sacrificing any of the elegant mathematics that underlies all DSP techniques. The primary goals of this course are to (1) introduce time and frequency domain concepts and the associated mathematical tools that are

fundamental to all DSP techniques; and (2) provide a thorough understanding and working knowledge of design, implementation, analysis and comparison of digital filters for processing of discrete time signals. The class will discuss the following topics: representation of signals and systems in time and frequency domains, the z-transform, filter structures, filter design and implementation, random signal analysis and spectral estimation, finite word-length effects and wavelet transforms for time-frequency analysis.

ECE 09360: Electrical Engineering Clinic Consultant I 1 s.h.
Prerequisites: ENGR 01.202, MATH 01.236
This course provides the student with disciplinary background and preparation for consulting work in support of multidisciplinary clinic projects. Work and topics will be directed by the clinic discipline manager.

ECE 09362: Electrical Engineering Clinic Consultant II 1 s.h.
Prerequisites: ECE 09.360
This course provides the student advanced disciplinary background and preparation for consulting work in support of multidisciplinary clinic projects. Work and topics will be directed by the clinic discipline manager.

ECE 09363: Modules In Electrical And Computer Engineering 1 s.h.
Prerequisite: ENGR 01303
The field of electrical and computer engineering is very diverse and is growing exponentially. This course is designed to serve as a feedback and feed-forward mechanism not only to reinforce certain topics previously discussed elsewhere in the curriculum, but also to introduce new and/or emerging topics that are not covered elsewhere in the curriculum. The course is taught as a series of modules covering topics that are not part of any particular course, (e.g., power systems, smart power grid), topics to be reinforced, (engineering probability and statistics, random signals, transform techniques), and emerging topics that are not yet fully integrated into the curriculum. Therefore, different offerings of this course will likely have different topical content, chosen based on the feedback of the faculty and students during curriculum assessment, as well as important emerging topics that push the boundaries of electrical and computer engineering.

ECE 09400: Electrical Engineering Clinic Consultant 1 s.h.
Prerequisites: ENGR 01202
This course provides an opportunity for consulting work in support of a multidisciplinary clinic project. Work will be managed by the discipline manager.

ECE 09401: High Speed Interconnects 3 s.h.
High speed interconnects are pervasive in electronic systems. From the smallest integrated circuits to the largest worldwide networks, the ability to interconnect components, subsystems and systems is of critical importance. This course will provide a fundamental understanding of the various techniques used to achieve high-speed interconnects. Topics to be covered include: transmission lines, metal waveguides, dielectric waveguides, antennas, and electromagnetic compatibility.

ECE 09402: Topics in Electrical and Computer Engineering 1 to 3 s.h.
This course covers special topics in individual areas of Electrical and Computer Engineering. Specific prerequisites are determined by the nature of the course when it is announced.

ECE 09403: Sustainable Design in Engineering 3 s.h.
This is a senior level undergraduate elective course that covers the fundamentals of sustainable design in engineering with an emphasis on electricity and energy. Topics include energy fundamentals (forms, fuels, conversion technologies), energy use and its impacts on a globalizing economy, life cycle assessment tools and environmental management techniques, ISO14001 implementation in industry (US vs. European experience), application of sustainable engineering practice via an eco-design software tool. The student is exposed to sustainable designs in product manufacturing and energy/electricity production.

ECE 09404: Principles of Biomedical Systems and Devices 3 s.h.
Prerequisites: ECE 09311 (Electronics I) AND ECE 09351(Digital Signal Processing).
As a survey of biomedical engineering, this class will introduce various systems of the human physiology from an engineering perspective. In particular, students will be introduced to signals of biological origin obtained from these systems; biosensors, transducers and bioelectrodes used to acquire such signals, along with medical quality amplifiers for measuring biopotentials. Electrical safety of medical devices; measurements of the blood pressure, blood flow, and respiratory system will also be discussed. Along with a carefully designed set of experiments, this course will provide the fundamental principles of biomedical engineering from an electrical and mechanical engineering perspective.

ECE 09405: Product Engineering 3 s.h.
This course treats product engineering from a variety of perspectives including engineering and non-engineering viewpoints to explore important elements for modern design. Techniques and tools of rapid prototyping, including virtual reality, are treated. Important course concepts are reinforced through product design experiences.

ECE 09406: Forensic Engineering and Product Liability 3 s.h.
This course examines engineering failure from both the forensics and liability perspectives. Forensic engineering seeks to discover the reason for product or system failure. Product liability seeks to assign and quantify blame for that failure. Methods of forensic engineering are presented. The implications of product liability on the design process are considered from several perspectives. The course is complemented with practical applications.

ECE 09407: Interaction Design 3 s.h.
Prerequisite: ENGR 01303
This course examines interaction design from several perspectives. The role of ergonomics is treated along with techniques of input and output interfacing. Methods and tools for virtual implementation are presented. The course is complemented with practical applications.

ECE 09408: Power System Engineering 3 s.h.
Prerequisites: ECE 09303: Engineering Electromagnetics.
This is an upper level elective course that covers the fundamentals of power system engineering with an emphasis on the modern electricity grid and new energy technologies. Topics include: history and key inventions in the development of the electric power industry, mechanical and electromagnetic fundamentals, three-phase circuits and transformers, AC machinery, synchronous machines and induction motors, DC machines, transmission lines, power flow, system reliability, advanced generation technologies, utility industry deregulation, and options for a sustainable electric power system in the future.

ECE 09409: Introduction to Virtual Reality 3 s.h.
Prerequisites: ECE Majors: CS 04103 or CS 04113 Non ECE Majors: Permission of Instructor
Introduction to Virtual Reality (VR) covers the architecture of current generation systems for creating 3D VR environments. Topics included are application/hardware architecture, pipeline development, geometric transformations in a 3D coordinate system, geometry and pixel shading, lighting systems, texturing and VR development. Students will be exposed to current VR technologies and next generation algorithms.

ECE 09410: Alternate Energy Systems 3 s.h.
Prerequisite: ECE 09203
This course will introduce the basics and current trends of the electric power system and electric power industry. Students will learn methods to mathematically analyze different renewable electric energy systems and evaluate their performance, economics, and sustainability. Specifically, key basics of wind and solar energy technologies, and their power grid integration issues will be extensively discussed. Opensource software will also be introduced to the class to assist their study, such as PVWatt from NREL. Other alternate energy sources, such as CHP, Microturbine, biomass, PHEV, Microgrid, etc. will also be introduced. After finishing this course, students are expected to be able to conduct a critical analysis of national and global energy systems.

ECE 09411: Modern Solid State Devices 3 s.h.
This is an introductory course in the fundamentals of solid state electronic devices. The course will cover the physical structure of silicon and compound semiconductor materials and the conduction processes in these materials. The p-n junction and its applications will be studied along with the principles of transistor devices. The course will address analog and switching applications and introduce basic laser operations.

ECE 09412: Electronic Packaging 3 s.h.
Prerequisites: ECE 09311: Electronics I.
This is an introductory course in the fundamentals of electronic packaging. It focuses on the complex interaction of materials science, mechanics of materials, and electrical signal processing. The course will progress from the basic materials used in chip packaging and board construction, through mechanical design and testing, to the electrical modeling of the interconnect structure, and finally to reliability assessment. The laboratory exercises will mirror this four-part organization by providing opportunities for laboratory experience in each of the four areas.

ECE 09413: Principles of Nondestructive Evaluation 3 s.h.
Prerequisite: ENGR 01303
Principles of nondestructive evaluation provides an introduction to contemporary and emergent methods for the non-invasive inspection of infrastructure composed of modern engineering materials. The course covers system design and the processing and analysis of nondestructive evaluation signals. Case studies on engineering design for testing are provided.

ECE 09414: Very Large Scale Integration Design 3 s.h.
Prerequisite: ECE 09311
This course provides an introduction to the design and implementation of Very Large Scale Integrated (VLSI) circuits for complex digital systems with a focus on CMOS technology. Application Specific Integrated Circuit (ASIC) and Full-custom techniques will be explored and used to design basic cells and regular structures such as data-path and memory arrays. The emphasis is on modern design issues in power, interconnected and clocking. Topics include: VLSI Design Flow; Transistor-Level CMOS Physical Design; Gate Function and Timing Characteristics; High-Level Digital Functional Blocks; and CMOS Digital Chip Design. Students will design and verify circuits using commercial Computer Aided Design (CAD) tools.

ECE 09415: Fundamentals of Emerging Electricity Market 3 s.h.
Prerequisite(s): ECE 09408
This course will provide ECE students with a basic understanding of the power system restructuring, market design, and pricing mechanisms in different physical and financial electricity markets. Rigorous mathematical formulation and MATLAB based simulation will provide students with an in-depth understanding on the major differences between the conventional regulated and the emerging restructured power system operation paradigms, and adequate training to solve the different system operation problems.

ECE 09421: Introduction to Systems Engineering 3 s.h.
Prerequisite(s): ENGR 01302 or ENGR 01303
Systems Engineering is the interdisciplinary approach and means to enable the realization of today's complex, dynamic products and systems. Individual products such as Cell phones, aircraft, automobiles, computers and even household appliances are made up of parts developed by many people with varied skill sets, often working for different companies and from remote locations. Other systems such as transportation, energy generation and distribution, medical, communications, emergency response and similar are very complex as they are composed of many varieties of products and systems. Systems Engineering is an integrating function that addresses all the disciplines and specialty groups resutling in a structured development process that proceeds from concept to production to operation including maintenance & support, and eventual disposal. Systems Engineering considers both the business and the technical needs, including environmental and safety, of all customers with the goal of providing a quality product that meets the user needs. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, proceeding with design synthesis and system validation while considering the complete problem that includes - operations, cost & schedule, performance, training & support, sustainment, test, disposal, and manufacturing. The course is designed to expose the student to the system engineering process to complement their technical skill set and to cover topics that are often not covered in other classes. The course will include frequent guest lecturers who are practicing experts in the systems engineering domain. The course will utilize the latest in processes and software tools from industry such as SysML modeling and architectural documentation tools. Students will participate in a semester long project to gain hands-on experience with the course concepts.

ECE 09422: Systems and Control II 3 s.h.
Prerequisite(s): ECE 09321
This course is a continuation of Systems and Controls I with the focus on multi-input, multi-output systems. The fundamental concepts of linearity and time-invariance are introduced. The state-space description and the concept of a matrix transfer function are studied in depth, especially with respect to stability. The concepts of controllability, observability, and realizations are covered. Numerical techniques are continuously emphasized. Optimal control and nonlinear systems are also discussed. Software simulation, primarily with MATLAB and laboratory experiments, will complement and supplement the theory.

ECE 09423: Introduction to Radar Systems 3 s.h.
Prerequisite: ECE 09341
This course will provide an introduction to radar systems, range equation and radar signal processing techniques as well as the nature of physical observables and propagators, the effects of the propagation medium on sensor performance, the relationship between signals and noise, and the characteristics of critical sensor functions (including detection and tracking). Radar subsystems will be studied, including antennas, transmitters, receivers, and signal processors.

ECE 09424: Introduction to War Gaming and C4ISR 3 s.h.
Prerequisite: Senior Standing
This course will expose students to a comprehensive range of technologies that govern the effectiveness of our nation's ability to effectively conduct military operations. It focuses on material drawn from a working group of distinguished thought leaders in critical technology and operations areas, thereby exposing students to the state-of-the-art thinking and philosophies. The class material will be enhanced by the study of patents that relate to the subject which were issued to the courses instructor.

ECE 09425: Introduction to Command and Control 3 s.h.
Prerequisites: ECE 09321 or ME 10343
Command and Control (C2) is defined as the exercise of authority and direction over assigned forces in order to accomplish a mission. This course will embark on a study of C2 information processing and decision making in the context of adaptive combat systems, as well as civilian and business examples. The course topics discussed in this class include the following: the history of military C2, C2 decision processes (Observe-Orient-Decide-Act loops), problem sense making (Identification) and solution finding and implementation processes, operational architectures, information fusion, control theory, mission success and organizational fitness.

ECE 09426: Introduction to Weapon Systems 3 s.h.
Prerequisites: MATH 01230, PHYS 00220
This course will study system engineering principles in the weapon system components and will relate the principles used in components such as prelaunch decision processing and missile in-flight control functionality to the robustness of the overall combat system. Missile systems will be studies, including basic aerodynamics and propulsion. The engineering principles discussed will be used to develop missile guidance laws and track filters to support a robust combat system design.

ECE 09427: Introduction to Model Based Systems Engineering 3 s.h.
Prerequisite: ECE 09421
This course is an extension of systems engineering by addressing the needs to better train and prepare students to use model-based techniques to solve complex design problems. This multi-disciplinary class is designed to use a model-based systems engineering approach to transform a set of customer needs, expectations, and constraints into a solution and to support that solution throughout its lifecycle. Students will utilize state of the art commercial software and a general-purpose modeling language, for developing complex systems composed of hardware, software, information, personnel, procedures, and/or facilities. Through the use of SySML students will gain an understanding of structural, behavioral, parametric, and requirements models and their application. Students will also learn how these models can be used to inform other domain specific activities or subordinate models.

ECE 09430: Introduction to RF Electronics 3 s.h.
Prerequisite: ECE 09303
Introduction to RF Electronics covers the fundamental principles behind radio-frequency (RF) design and analysis. Topics will include distributed parameter analysis, single- and multi-port networks, filter design, matching and bias networks, active devices, and amplifier design. The course also covers numerical modeling/analysis of RF sub-systems using appropriate software and laboratory-based measurements. Designing, building, and testing an RF sub-system (of receiver) is part of the course.

ECE 09431: Introduction to Optical Fiber Communications 3 s.h.
Prerequisites: ECE 09311: Electronics I.
Optical communications is an integral part of the world-wide telecommunications system. This course will consider the numerous technologies that comprise such systems as well as the techniques to design, analyze, simulate, and test such systems. Topics include: theory of optical waveguiding, waveguide structures, materials, dispersion, signal degradation in fibers, laser diodes, optical amplifiers, optical coupling, photodetectors, noise, receiver operation, and numerical and analytical techniques for performance calculations and system evaluation.

ECE 09432: Wireless Communications 3 s.h.
Prerequisites: ECE 09351: Digital Signal Processing.
This course will cover the fundamentals of cellular systems, the technologies that are used to implement such systems, radio propagation effects, modulation techniques and the analysis and systems performance evaluation of wireless links.

ECE 09433: Electrical Communications Systems 3 s.h.
Prerequisite(s): ECE 09351 and ECE 09311
This is a senior level undergraduate course that covers the fundamentals of analog and digital communication systems. Analog and digital modulation techniques are covered along with optimal receivers, concept of a matched filter, error rate and intersymbol interference. Appropriate mathematical backfround in Fourier transforms, probability and random variables are taught. The student is exposed to software and hardware designs.

ECE 09436: Introduction to Systems on Chips 3 s.h.
Prerequisite(s): ECE 09242
This course introduces students to the design principles involved in development of Systems on Chips (SoC). This course will build the conceptual foundation by discussing the SoC components and prevalent ideas in superscalar computing. Students will then be exposed to emerging trends in SoC design with hardware accelerators and open-source hardware development. The skills gained during the course will prepare the students for hardware design jobs in industry.

ECE 09444: Computer Architecture II: Specialized Systems 3 s.h.
Prerequisite: ECE 09243
The second course in computer architecture treats architecture elements of special-purpose digital systems. Use of macro functions is stressed.

ECE 09451: Architectures for Digital Signal Processing 3 s.h.
Prerequisites: ECE 09351and ECE 09342
This is a senior level undergraduate elective course that covers the fundamentals of the implementation of digital signal processing algorithms using special purpose hardware. Topics include fixed and floating point arithmetic, assembly language programming, sampling, digital filter implementation, finite wordlength effects, quantization noise and fast Fourier transform implementation. The student is exposed to application designs in communications, speech and image processing.

ECE 09452: Introduction to Digital Image Processing 3 s.h.
Prerequisites: ECE 09351
Introduction to Digital Image Processing covers the analysis and contemporaneous applications of the enhancement, restoration, compression and recognition of monochromatic images. Both classical and state-of-the-art algorithms will be employed in conjunction with appropriate software for analyzing real-world images.

ECE 09453: Adaptive Filters 3 s.h.
Prerequisites: ECE 09351
This is a senior-level undergraduate elective course that covers the fundamentals and implementation of adaptive filtering algorithms using software and special purpose hardware. Topics include random signals, least-mean squares method, recursive least squares method, filter structures and finite wordlength effects. The student is exposed to applications in communications, signal separation, radar, noise cancellation and seismic signal processing.

ECE 09454: Introduction to Artificial Neural Networks 3 s.h.
Prerequisites: ECE 09351 (Digital Signal Processing).
This course covers the design of a variety of popular neural network architectures and their contemporary engineering applications. Neural network architectures that will be studied in detail include the multilayer perceptron, radial basis function and the Hopfield networks. State-of-the-art software will be used for network design. VLSI implementations of neural networks will be discussed.

ECE 09455: Machine Learning 3 s.h.
Prerequisite(s): (Math 01210 or MATH 01235) and (STAT 02290 or ECE 09363)
The use of computational approaches to extract information from vast amounts of data and make intelligent decision based on that information constitutes the foundation of machine learning, a field that has made a dramatic impact on our daily lives. From weather prediction to medical diagnosis, end-user recommendations to smart homes, autonomous vehicles to speech identification, machine learning is now everywhere. This course introduces concepts, issues, and algorithms in machine learning and pattern recognition, and will discuss both theoretical and practical aspects. Main topics of the course will include basic learning theory, convex and evolutionary optimization techniques, supervised, unsupervised and semi-supervised learning, ensemble systems, model selection and combination, feature selection and performance evaluation techniques. The class will feature assignments and projects that allow students to implement various traditional and emerging machine learning algorithms, and evaluate them on real-world applications.

ECE 09456: Embedded Software Design 3 s.h.
Prerequisites: ECE 09342
Embedded systems dramatically enhance our lives and are prolific in our everyday life. It is not uncommon for us to come in contact with over one hundred embedded systems each day. With billions of embedded systems being produced each year there is a huge need for engineers who can create good embedded software. This course focuses on embedded software for applications running directly on an embedded processor without an operating system. A brief survey of microcontroller technologies will be covered but the class will focus on ARM microcontrollers and the embedded peripherals available on such devices. Advanced embedded communication technologies (CAN,WIFI, Bluetooth, ZigBee, etc.) will be surveyed and at least one implemented during the courses. A great emphasis will be put on good programming practices and design patterns which support working in large groups.

ECE 09457: Introduction to Biometric Systems 3 s.h.
Prerequisite: ECE 09351
Biometrics is the science of recognizing and authenticating people using their physiological and/or behavioral characteristics. By using biometrics, it is possible to establish an identity based on "who you are", rather than by "what you possess" (e.g., an ID card) or "what you remember" (e.g., a password). Interest in biometrics has increased significantly with a global market that is experiencing very rapid growth. Border and immigration control, restricted access to facilities and information systems, cybersecurity, crime investigations and forensic analysis are just a few of the primary application areas of biometrics used by commercial, government and law enforcement agencies. There is much research interest in different biometric systems with the main issues being high performance, ease of use and implementation, low cost and high user

acceptance. This course involves the study and design of various biometric systems (fingerprints, voice, face, iris and other modalities). Multibiometric systems are also covered. This includes feature fusion, classifier fusion and systems that use two or more biometric modalities. Biometric system performance and issues related to the security, ethics and privacy aspects of these systems will also be addressed.

ECE 09458: Introduction to Reinforcement Learning 3 s.h.

This course will provide a solid introduction to the field of RL, and students will learn about the core challenges and approaches, including generalization and exploration. Through a combination of lectures, and written and coding assignments, students will become well versed in key ideas and techniques for RL. The course will introduce fundamental concepts of RL, including Markov Decision and Reward Processes, Dynamic Programming, Model-Free Learning, Temporal Difference, Monte Carlo search, on-policy control, off-policy methods, and policy gradient methods. Class assignments will include implementation of basic as well as advanced RL algorithms using TensorFlow topics. Besides, students will advance their understanding and the field of RL through a final project again using TensorFlow libraries.

ECE 09461: Clinic Consultant in Electrical and Computer Engineering 1 s.h.

Corequisite: ENGR 01403

Clinic Consultant in Electrical and Computer Engineering provides a unique mechanism for students to learn and apply fundamental concepts and skills in consulting and entrepreneurship. The course, taken twice in each semester of the senior year, allows students to identify their unique skills, find a proper client and a multidisciplinary clinic project to market those skills, and provide consulting services to those clients and projects. Work will be jointly managed by the course instructor and clinic project manager as the client.

ECE 09466: Systems, Devices, and Algorithms in Bioinformatics 3 s.h.

Prerequisite: ECE 09351 (Digital Signal Processing).

Bioinformatics is the field of applying computational techniques, from mathematics, statistics, and machine learning, to the vast amounts of biological - but most specifically genomic - data. While some refer to bioinformatics only in the context of collection, storage, organization and access of such biological data within large databases, this course's view of bioinformatics will include - in fact focus on - systems and devices that generate such data, and development of methodologies and models to analyze the vast quantities of data generated by such systems and devices. The course will provide basic biological background of genomics, will introduce the students to commonly used bioinformatics databases and computational tools (such as search, alignment, and protein visualization tools) used to analyze genomic data from such databases. The focus of the course will be on basic bioinformatics systems and devices, such as high throughput next generation sequencers and genechips, followed by an in-depth discussion of the theory of basic genomic signal processing and computational intelligence techniques used in bioinformatics, including hidden Markov models and optimization algorithms for sequence alignment and gene prediction, clustering and classification algorithms.

ECE 09468: Introduction to Discrete Event Systems 3 s.h.

Prerequisites: ECE Majors: ECE 09243 Non ECE Majors: Permission of Instructor

This course introduces fundamentals of discrete event system models and their applications in modeling, control, analysis, validation, simulation, and performance evaluation of computer systems, hardware/software co-design, manufacturing/de-manufacturing processes, communication networks, and transportation, etc. The mathematical and graphical models include graphs, finite state machine, Petri Nets, timed models, stochastic timed models, and Markov chains, etc.

ECE 09469: Introduction to System-On-Chip Verification 3 s.h.

Prerequisites: ECE Majors: ECE 09243 NonECE Majors: Permission of Instructor

This course introduces fundamentals of hardware design verification, including traditional functional simulation and assertion-based verification. Topics covered include functional simulation, coverage metrics, testbench design and automation, and assertion-based verification. Property specification language (PSL) is also introduced.

ECE 09471: Instrumentation 3 s.h.

Prerequisites: ECE 09311: Electronics I.

Elements of instrumentation systems are treated including transducers, signal conditioning, and signal processing. Elements of modern instrumentation systems including standards (IEEE-488, SCPI) and smart sensors are considered. Course is complemented with an instrumentation application.

ECE 09472: Smart Grid 3 s.h.

Prerequisites: ECE 09342 AND ECE 09321

The ways in which electricity is generated, transmitted, distributed, stored, and used, are the subject of revolutionary and evolutionary changes compared to the electricity grid we have today. Smart Grid goals include the improvement of grid reliability, reduction in outages, faster return on service, ability to integrate a broad range of renewable energy sources, and to include customers in the ability to effect load decisions based on grid demand and energy pricing. This course will address grid fundamentals, tools and technologies, and then address major Smart Grid subsystems including conventional and alternative generation, storage technologies, transmission and distribution systems, standards, demand management,

real-time pricing, grid stability, control technologies, measurement including Smart Sensors and Advanced Metering Intrastructure. Physical and cyber vulnerabilities will also be addressed. The course will include a project to reinforce Smart Grid elements and involve students in this technology, which has significant international economic implications.

ECE 09473: Smart Sensors 3 s.h.
Prerequisites: ECE 09342 AND ECE 09311 AND ECE 09321
Elements of Smart Sensors and Smart Sensor systems are treated. Instrumentation fundamentals covered include transducers, signal conditioning, and data acquisition, communication, along with important considerations and associated standards. Relationship of smart sensors to integrated system health monitoring (ISHM) and similar Intelligent Sensor applications are addressed. The course will include a project to reinforce Smart Sensor elements.

ECE 09474: Electricity Supply Procurement 3 s.h.
Pre-requisites- Senior Standing
This course is a study of energy procurement in a highly competitive, open market. Topics include fundamentals of power, product design for end users, and energy purchasing to minimize risk and maximize cost savings. This course also discusses techniques to derive bidding strategies in the real-time and day-ahead market, as well as techniques for writing proper specifications.

ECE 09481: Backplane Design 3 s.h.
This course provides an overview of backplane design for a variety of digital systems. It surveys current technologies with treatment of emerging and updated standards. Methods of analysis, synthesis, and verification of backplane systems are presented. The course is complemented with project work for typical applications.

ECE 09482: Introduction to Memristors and Nanoelectronic VLSI 3 s.h.
Prerequisites: ECE 09243
This course is an advanced course in the extension of analog/digital electronic systems, dealing with CMOS devices and emerging nanoelectronic devices and technologies. Since the importance of emerging nano systems goes beyond traditional circuit theory and EE in general, this course aims to provide students with an opportunity of understanding the fundamental concepts of a set of emerging nanodevices, with particular emphases on memristors and memristive systems, and their potential applications and impacts on the next generation VLSI systems. The course will also emphasize hands-on programming and application to examples as an important means to understand and benefit from the material. Software tools such as Matlab/SPICE/Cadence will be extensively used throughout the learning and design experiments.

ECE 09483: Digital Design with VDHL 3 s.h.
The course uses VHDL to model and simulate digital systems. Specialized features of the language are presented to allow getting optimum results from simulations. Example VHDL applications are explored and a project is used to complement the course.

ECE 09484: Mixed Signal Technology 3 s.h.
This course will extend the student's background in circuit design to include the devices and technologies used in mixed analog-digital VLSI chips for high volume applications such as hard-disk drives, cordless telephones and TVs. The course will begin with device models, fabrication technology and layout as applied to mixed analog-digital circuits. Device modeling requirements for analog work will be covered as well as models used in most modern circuit simulators. Fabrication technologies will be examined that have been developed specifically for mixed signal VLSI chips. The techniques for layout of mixed signal circuits that emphasize a high degree of analog device matching and minimum digital-to-analog interference will be covered.

ECE 09485: Introduction to Engineering Cyber Security 3 s.h.
Prerequisite: ECE 09243: Computer Architecture
This course addresses the need to better prepare students for the expansion in the interest of Things (IoT) by imparting fundamental concepts and capabilities in the management of cyber security. Cyber security is key to developing large-scale, wide-area systems, which can provide the degree of security required to further implementation highly vulnerable, highly-visible systems such as the Smart Grid. To gain this understanding, the course addresses a number of key components: standards including network and encryption techniques (RSA, etc.) and security processes, methods of cyber attack, and some methods of software and hardware security enhancement. Course principles are reinforced by a significant project experience.

ECE 09486: Introduction ot Portable Platform Development 3 s.h.
Prerequisite(s): ECE 09243 and CS 04103 or CS 04113
The total number of Android and IOS devices is estimated to be over 1.6 billion devices (2013) and continues to grow. The ubiquitous nature of these devices means that they are now the default choice of platforms for hardware and software developers. This course details the ARM core architecture, which underpin the majority of mobile devices, along with the basic operation system and application software environments. Principles of effective app development using available SDK tools and project management techniques are presented. The hardware vs. software trade space will also be considered. The

course content is reinforced with a significant development project.

ECE 09490: Emerging Topics in Computer Engineering 1 to 3 s.h.
Prerequisite(s): Specific prerequisites are determined by the nature of the course content when it is announced.
This course covers special topics in emerging areas of Computer Engineering such as Computer Networks, Mobile Robotics, and Embedded Systems. Specific prerequsites are determined by the nature of the course when it is announced.

ECE 09495: Emerging Topics in Computational Intelligence, Machine Learning and Data Mining 1 to 3 s.h.
Prerequisite(s): Specific prerequisites are determined by the nature of the course content when it is announced.
As the amount of data we generate grow astronomically, so does the need for approaches, algorithms, techniques and the hardware that can be used for effective processing, storing, and analysis of such massive volumes of data. Computational intelligence, machine learning and data mining all deal with automated analysis of large volumes of data in search of known or hidden structures, aptterns and information. While well-established approaches that now form the foundations of these topics are discussed in other specifically named courses, this course will provide an introductory treatment of emerging topics - fueled by rapid growth of research and development in these areas - but that have not yet reached the mainstream textbooks. Hence, due to its very nature, the specific content of this class will be different every time it is offered, focusing on the most recent developments in these areas.

ECE 09498: Seminar: Engineering Frontiers 1 s.h.
Prerequisite(s): ENGR 01403
The Seminar in Engineering Frontiers will provide students with a glimpse into contemporaneous cutting edge technology and research in electrical and computer engineering. Course content and topics will change with each offering to maintain currency with the frontiers of engineering technology.

ECE 09499: Co-op Experience in Electrical and Computer Engineering 3 s.h.
Prerequisite(s): Senior standing and Major in Electrical and Computer Engineering, or permission of instructor
Co-op Experience in Electrical and Computer Engineering provides an opportunity for students to participate in a research or development experience in an industrial or other relevant non-academic setting. This course may be used to satisfy one ECE technical elective for a maximum of 3 s.h. credit.

ECE 09555: Advanced Topics in Pattern Recognition 3 s.h.
This class will introduce a broad spectrum of pattern recognition algorithms along with various statistical data analysis and optimization procedures that are commonly used in such algorithms. Although mathematically intensive, pattern recognition is nevertheless a very application driven field. This class will therefore cover both theoretical and practical aspects of pattern recognition. The topics discussed will include Bayes decision theory for optimum classifiers, parametric and nonparametric densityestimation techniques, discriminant analysis, basic optimization techniques, introduction to basic neural network structures, and unsupervised clustering techniques. As a graduate level course, several advanced and contemporary topics will also be covered, including fuzzy inference systems, support vector machines, adaptive resonance theory, incremental learning and online learning and particle swarm optimization. Students will be expected to conduct independent research for possible publications, as part of the class project.

EET 03121: Electrical Circuits I 3 s.h.
Corequisite: MATH 01122
This course focuses on the basic principles of direct and alternating current and on the properties of passive electrical components. The course covers atomic theory, current, voltage, resistance, resistive networks, network theorems, work, power capacitance, inductance and transformers. Laboratory exercises include building circuits from schematics, using laboratory equipment to make measurements, and to verify theory. Circuit analysis software is used to simulate and verify the laboratory analysis where appropriate.

EET 03222: Electrical Circuits II 3 s.h.
Prerequisite(s): EET 03121 AND MATH 01122
This course covers the fundamentals of AC electrical circuits. It focuses on series/parallel RLC circuits, voltage and impedance phasor diagrams, power in AC circuits, filters, resonance, frequency Response, and BODE plots. There is a final project with a written report and an oral presentation.

EET 03230: Semiconductor Electronics 4 s.h.
Prerequisite(s): EET 03222 AND MATH 01122
This course introduces the characteristics, operation, and application of solid state devices including diodes and bipolar and MOS field effect transistors. It covers diodes, power supplies, the transistor switch, and DC and AC analysis of various types of amplifiers. These include the bipolar common emitter, common collector, power amps, and MOS field effect transistor amplifiers. Laboratory experiments cover the course topics and verify lecture theory.

EET 03251: Robotics and Motion Control 3 s.h.
This class provides a comprehensive foundation of robotics and industrial automation systems for flexible manufacturing. The class will survey the robotics technology landscape, and provide an understanding of both industrial and commercial robotics in industrial manufacturing. This course will provide a hands-on experience for use and integration of sensors and actuators in production systems, as well as simulation and programming of industrial robotics systems.

EET 03332: Analog Integrated Circuits 3 s.h.
Prerequisite: EET 03230
This course focuses on the characteristics and applications of analog integrated circuits including operational amplifiers and specialized linear integrated circuits. It investigates circuits including inverting, non-inverting and differential amplifiers, non-linear circuits, active filters, equalizers, oscillators, timers, and power supply regulator IC's. Laboratory experiments cover the above topics and verify lecture theory. Circuit analysis software is used to simulate and verify the laboratory analysis where appropriate.

CM 01301: Fundamentals of the Construction Industry I 3 s.h.
Corequisite: CM 01302
This course provides a general overview of the planning, administration, management, and cost of construction projects and an introduction to the methodology used in executing specific designs. Emphasis is placed on the organization of construction firms, use and types of primary construction equipment, estimating and quantity take-offs, contractual and management systems, scheduling, project administration, and inspection of construction operations.

CM 01302: Fundamentals of the Construction Industry II 3 s.h.
Prerequisite/Corequisite: CM 01301 (may be taken concurrently)
This course introduces the design process and development of construction documents. It covers the standard design phases: programming, conceptual design, schematic design, design development, construction documents and construction administration, and the format and utilization of project manuals including contract specifications, the interpretation and analysis of engineering plans and specifications, and the new technologies being used in the design including Building Informational Modeling (BIM) and sustainable (green) practices. The course also explores the various common project delivery methods.

CM 01303: Project Building Systems 3 s.h.
Prerequisites: CM 01301, CM 01302
Students will learn the description and identification of the equipment and materials used in mechanical systems for heating, ventilating and air conditioning, electrical, plumbing, fire protection, piping, gas, lighting, water and waste water, conveyance, life safety systems, environmental, security, audio/visual, and building system controls. The course also provides and introduction to building structural and envelopes systems.

CM 01304: Project Administration 3 s.h.
Prerequisite: CM 01304 (Fundamentals of the Construction Industry II).
This course provides exposure to and use of various types of projects control systems for project efficiency and documentation. Students will learn how the submittal process operates and is monitored. They will also be shown a variety of tools used in tracking project documentation, and essential elements related to contract law and administration.

CM 01305: CONSTRUCTION COST ESTIMATING 3 s.h.
Prerequisite: CM 01302 (Fundamentals of the Construction Industry II)
Introduction to various costs of construction including direct and indirect project costs, comparison of hard and soft costs, job cost analysis and forecasting of cost to completion, labor, material and equipment expenses, cash flow, overhead, profitability, and general conditions costs. Students will learn research techniques used to create accurate estimating and bidding procedures.

CM 01306: Construction Project Planning and Scheduling 3 s.h.
Prerequisites: CM 01301, CM 01302
Students will learn procedures used in project planning and scheduling that employ float methods of scheduling logic. They will examine the critical path series of activities of project completion, including the use of computer software applications for problem solving, and related tools, spreadsheets, and information management. Also covered are work breakdown structures, activity durations, status reports, resource allocation, re-planning, monitoring, and updating of projects. Students will develop projects site logistics plans.

CM 01407: Advanced Leadership and Communication 3 s.h.
Prerequisite: CM 01302 (Fundamentals of the Construction Industry II)
The course is designed to teach students to become more effective leaders and communicators in the construction industry. Drawing on various case studies, students will examine ethical practices in the industry. They will define and role-play effective communications strategies that simulate situations they may encounter within the industry such as general-to-subcontractor, corporate, and labor relations. Students in this course will also examine principles of negotiation and dispute resolution in the construction industry.

CM 01408: Industrial Relations in the Construction Industry 3 s.h.
Prerequisite: CM 01302 (Fundamentals of the Construction Industry II).
This course examines various perspectives (union, management, government) on the collective bargaining system in place in the construction industry. Topics include the legal and regulatory environment, problem solving, and the roles of labor and corporations.

CM 01409: Building Energy Systems for Construction Managers 3 s.h.
Prerequisite: CM 01302
The Building Energy Systems for Construction Managers course provides a conceptual understanding of functions and performances of energy systems including mechanic al, electrical, electronic, and plumbing and transport systems in residential and commercial buildings. The course also provides information on integration between energy systems and other building components. While introducing the concepts of alternative energy sources, energy efficiency, structural implications of mechanical systems, indoor air quality, and environmental control strategies, the course familiarizes students with more recent and current efforts in sustainability and green building ideas. The course also introduces codes and standards relevant to energy devices used in building construction, such as National Fire Protection Association (NFPA), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), and National Electrical Code (NEC).

CM 01410: BUILD CONSTRUCTION SYS & CODES 3 s.h.
Prerequisite: CM 01302 (Fundamentals of the Construction Industry II).
This course provides a conceptual understanding of functions and performance of structural building systems. The primary purpose of this course is to provide familiarity with use of construction code with reference to International Building Codes (IBC) 2012. For anyone in the field of construction or construction management it is necessary to know about the concepts and fundamental aspects of the code. As a result, the course is intended to provide an understanding of how the code was developed, how it is to be interpreted, and how it is applied to design and construction of buildings, the goal of the course is to make implementation of the code easier, and clearer to understand. Other than discussions on structural elements and their construction methods, the course covers issues such as use and occupancy, types of construction, fire-resistive constructions, interior finishes, building material, inspections, and tests.

CM 01411: Construction Safety and Loss Prevention 3 s.h.
Prerequisite: CM 01302 (Fundamentals of the Construction Industry II).
This course offers a practical guide for eliminating safety and health hazards from construction worksites. The Handbook of OSHA Construction Safety and Health addressed the occupational safety and health issues faced by those working in the construction industry. The course covers a vast range of issues including program development, safety and health program implementation, intervention, and prevention of construction incidents, regulatory hazards faced by those working in the construction industry and sources of information. The course also features updates for construction regulations, construction job audit, training requirements, and OSHA regulations. It includes new record keeping guidelines and forms with additional material on focused inspections. Containing updated contact information for the newest agencies, the course also presents a model safety and health program, examples of accident analysis and prevention approaches.

CM 01412: Capstone Project - WI 3 s.h.
Prerequisite(s): CM 01303 and CM 01304 and CM 01305 and CM 01306 and CM 01408 and CM 01409 and CM 01410 and CM 01411; Corequisite: CM 01407 (may be taken concurrently)
In the course, students will build on what they have learned in the major, integrating the theory and knowledge that they gained in class with practical experience in the construction industry. Capstone projects are developed through a series of project meetings between the student and program faculty, with significant written deliverables.

ENGR 01101: First-Year Engineering Clinic I 2 s.h.
An introduction to the practice of engineering through authentic, multidisciplinary problems and projects. Sustainability is used to demonstrate the broader context of engineering work. The importance of diversity and inclusion in engineering work is addressed. Course topics include: academic success strategies, engineering skills, engineering communication, computer-based tools, entrepreneurial mindset, engineering design, and teamwork.

ENGR 01102: First-Year Engineering Clinic II 2 s.h.
Prerequisite(s): ENGR 01101 with minimum Grade of D-Corequisite: MATH 01130
A continuation of First-Year Engineering Clinic I focused on product design that considers the needs of the customer. The course provides expanded treatment of the practice of engineering through authentic, multidisciplinary projects. Project work reinforces the following topics: statistics, economics, computer-based tools, entrepreneurial mindset, engineering design, teamwork, diversity, inclusion, and ethics.

ENGR 01201: Sophomore Engineering Clinic I 4 s.h.
Prerquisite(s): ENGR 01102 and COMP 01111 and PHYS 00220 and MATH 01131
This course, a continuation of the Engineering Clinic series, provides expanded treatment of the practice of engineering through applications drawn from various engineering disciplines and industry. Project work includes a variety of technical communication topics, analytic and computer-based tools, including the design process, engineering ethics, safety and teamwork. The composition component presents critical thinking, reading, writing, research and argumentation.

ENGR 01202: Sophomore Engineering Clinic II 4 s.h.
Prerequisite(s): ENGR 01201
This course is a continuation of the Engineering Clinic sequence that provides design and design support experiences. The clinic also integrates information from supporting courses. The goal of the public speaking component is to enable students to participate effectively in oral communication, especially as related to technical presentations.

ENGR 01203: Sophomore Engineering Clinic Project 3 s.h.
Prerequisite(s): ENGR 01102 and COMP 01111and PHYS 00220 and MATH 01131
This course, a continuation of the Engineering Clinic series, provides expanded treatment of the practice of engineering through applications drawn from various engineering disciplines and industry. Project work includes a variety of technical communication topics, analytic and computer-based tools, including the design process, engineering ethics, safety and teamwork. The course also includes a significant emphasis on information literacy, technical report writing, and technical presentations.

ENGR 01217: Engineering in a Global Context 3 s.h.
Prerequisite: ENGR 01101
This course examines how engineering is related with larger economic, social, cultural, and technological dynamics in an era of increased globalization. Students will get a better understanding and appreciation of what engineering is, how engineers are trained, what engineers do, and how engineering and culture interact. The course approaches these themes through discussions of: the relation and interaction of engineering, science, technology, and society; the history and development of the engineering profession; ethical decision making in engineering; and professional practice in cross-cultural contexts. The last part of the course is focused on preparing students for an intensive, mandatory 2-week study tour of a particular country (e.g., China) that will occur during Spring break or Maymester (at faculty's discretion and is trip dependent).

ENGR 01271: Statics 2 s.h.
Prerequisite(s): MATH 01131 and PHYS 00220
The course deals with the study of engineering statics which includes the statics of structural systems. The study of structural systems includes equilibrium, structural analysis, and geometric properties of structural members.

ENGR 01272: Solid Mechanics 2 s.h.
Prerequisites: ENGR 01271
The course deals with the study of solid mechanics including stress and strain, mechanical properties of materials, and beam and bar analysis. The study of beam and bars includes axial forces, torsion, bending, shear, combined loading, buckling, and design.

ENGR 01273: Strength Of Materials 3 s.h.
Prerequisite: ENGR 01271
The course presents the theory and analytical techniques used in the design and analysis of engineered structural components. The course addresses the principles of stress and strain, mechanical properties of materials, and beam and bar analysis. The study of structural components includes axial forces, torsion, bending, shear, combined loading, buckling, and design. Concepts such as principal stresses, Hooke's Law for plane stress, and failure criteria are introduced.

ENGR 01281: Material Science 2 s.h.
Prerequisite(s): PHYS 00220 and CHEM 06100
This course develops the material structure and property relations. Atomic bonding, lattice structures, crystalline and polymeric structures and properties, imperfections, dislocations, phase diagrams, and quantitative analysis are presented. Properties of metals and alloys, ceramics, polymers, composites, and electrical materials are discussed.

ENGR 01282: Manufacturing Processes 2 s.h.
Prerequisites: ENGR 01281
This course develops the fabrication processes for engineering materials. Discussion of heat treatment of metals will be followed by manufacturing methods for metals and alloys. Casting, powder metallurgy, hot and cold forming, welding and joining, and material removal techniques for metals will be followed by fabrication techniques for non-metals, ceramics, and composites.

ENGR 01283: Materials Science And Manufacturing 3 s.h.
Prerequisite(s): CHEM 06100
This course is intended to give students a strong background in materials science and manufacturing. The course covers the behavior of materials, starting from an atomic level, and building to how atomic level structures influence macroscopic failure in both metals and polymers. The rheology of various materials becomes the transition into how they are developed into useful products through various manufacturing methods including casting, extrusion, molding, sintering, machining and through composite fabrication techniques.

ENGR 01291: Dynamics 2 s.h.
Prerequisite(s): ENGR 01271
Study of kinematics and kinetics of a particle, including work-energy and impulse-momentum methods. Systems of particles are considered. Kinematics and kinetics of plane motion of rigid bodies are introduced with respect to absolute and relative motions in various reference frames. Concept of mass moment of inertia is introduced.

ENGR 01299: Special Topics In Engineering 1 to 6 s.h.
This course is designed to introduce students to emerging topics in the engineering field. Consent of the instructor is necessary, and prerequisites are determined by the nature of the topic.

ENGR 01303: Junior Engineering Clinic 2 s.h.
Prerequisite(s): (ENGR 01202 or ENGR 01203 and COMP 01112 and CMS 04205) and (MATH 01235 or MATH 01210 and MATH 01231) and (BME 11301 or CHE 06202 or CHE 06203 or ECE 09311 or ENGR 01272 or ENGR 01273 or ENGR 01291)
This is one course in a sequence of courses that will provide a meaningful research and design experience for a team of undergraduate students under the direction of an engineering faculty advisor. The research topic will be chosen by mutual agreement of the undergraduate students and their advisor. The sequence will include a thorough literature search and review, the development of a clear and concise problem statement, consultations with other faculty and professional experts, and the derivation of publishable results. The research will culminate in a final written report and oral presentation.

ENGR 01341: Fluid Mechanics I 2 s.h.
Prerequisite(s): MATH 01230 and PHYS 00220 and (CHE 06201 with min C- grade or ENGR 01271)
The course deals with general fluid flow and with fluid flow in pipe systems. Topics covered in the area of general fluid flow include hydrostatics, laws of fluid motion, kinematics, dynamics, energy balance, and dimensionless groups. Topics covered in the area of pipe flow include incompressible flow, compressibility, pumps, viscosity, boundary layers, turbulence, and losses. The course includes appropriate laboratory experiments and computer applications.

ENGR 01342: Engineering Fluid Mechanics 3 s.h.
Prerequisite(s): MATH 01230 and PHYS 00220 and (CHE 06201 with min C- grade or ENGR 01271)
This course is designed for multidisciplinary engineering students required to have an introductory knowledge of fluid flow. This course includes all of the topics of Fluid Mechanics I (ENGR 01.341) and is equivalent to ENGR 01.341. Topics covered in the area of general fluid flow include hydrostatics, Mass and Energy Balances, incompressible inviscid and viscous flows, momentum balances and dimensionless groups. Topics covered in the area of pipe flow include incompressible and compressible flows, fluid machinery including pumps and turbines, viscous flows, boundary layers, turbulence, and pressure losses. The course includes appropriate laboratory experiments and computer applications.

ENGR 01391: Independent Study In Engineering 0 to 4 s.h.
This course is designed for engineering students. They will conduct work under the supervision of an appropriate faculty member on engineering projects. The execution of the proposed project, including the preparation and presentation of an acceptable report of work, will be required.

ENGR 01403: Senior Engineering Clinic - WI 2 s.h.
Prerequisite(s): ENGR 01303 and (CHE 06316 orCEE 08361 or ME 10321 or BME 11031 or (ECE 09303 and (ECE 09321 or ECE 09351) and ECE 09342))
This course provides a culminating experience to the Engineering Clinic sequence. The goal of this sequence of courses is to give teams of undergraduate engineering students a meaningful, leading-edge, team-based, multidisciplinary engineering project experience. The sequence will include a thorough literature search and review, the development of a clear and concise problem statement, consultations with other faculty and professional experts, and delivery of a final written report and oral presentation.

ENGR 01410: Introduction To Finite Element Analysis 3 s.h.
Prerequisites: (ENGR 01272 or ENGR 01273) and MATH 01235
Fundamental concepts for the development of finite element analysis are introduced. The element stiffness matrices are developed using shape functions defined on the elements. Aspects of global stiffness formation, consideration of boundary conditions, and nodal load calculations are presented. Mesh division and problem modeling considerations are discussed in detail. Topics of scalar field problems and natural frequency analysis are covered. Computer applications are included.

EET 03330: Instrumentation and Measurement 3 s.h.
Prerequistes: EET 03230
Instrumentation is needed to monitor and control engineering development and manufacturing processes. An instrumentation and measurement background provides the foundation needed to be effective in a wide range of application environments. Importance of metrology to the ISO-certified environment is also addressed.

EET 03340: Embedded Systems and the Internet of Things 4 s.h.
Prerequisites: ECE 09241 and EET 03230
The Internet of Things (IoT) is a rapidly growing segment of technology, which emphasizes devices capable of sensing and control that are accessed via a network or cloud. This course provides students with an introduction to embedded systems and the Internet of Things. The course contains a significant laboratory component.

EET 03350: Applied Digital Signal Processing 4 s.h.
Prerequisites: MATH 01131
Digital signal processing is ubiquitous, finding applications ranging from automotive to telecommunications as examples. Processor architectures have been optimized to perform key DSP operations to improve performance beyond that available from general-purpose computer architectures. An understanding of the discrete-time theory underlying implementation of filtering and signal analysis positions the student to develop and maintain DSP-based systems.

EET 03360: Rapid Prototyping and Fabrication 4 s.h.
Prerequisites: EET 03330 and EET 03332
Rapid prototyping and fabrication tools are key to accelerating product concepts to the marketplace. Rapid prototyping focuses on development of sample parts used to validate design approaches; rapid fabrication tools make parts that are suitable for production. All of these are critically important to maintain competitiveness. This course contains a significant design project that uses the latest in rapid prototyping equipment.

EET 03370: Control Systems and Programmable Logic Controllers 3 s.h.
Prerequisite: EET 03340
Control of manufacturing processes is key to producing high-quality manufacturing throughput. Programmable Logic Controllers (PLCs) are used widely as the approach to control the automation of manufacturing processes. Understanding the basics of control theory combined with the practical application to PLCs prepares students for leadership roles in industrial automation.

EET 03380: Applied Communication Systems 3 s.h.
Prerequisite: EET 03350
Modern design and manufacturing environments rely on a variety of communication backbones. Wired and wireless communication connect system elements with the control systems and operators that maintain the overall process. This course provides students with an introduction to modern communication systems from the standpoint of electrical engineering technology.

EET 03390: Electric Power and Energy Systems 3 s.h.
Prerequisite: EET 03332
Electric power and energy conversion systems are elements important to the well-being and advancement of society, and are the backbones of industry. Understanding the basics of power systems prepares a student to compete for positions in the power industry as well as a broad array of other industries.

EET 03490: Project Management 3 s.h.
Prerequisite: EGR 02352
Project management is an important skill to ensure that complex projects are properly scoped and mapped into available resources. Use of project management tools ensures that projects will be completed on time and on budget.

EGR 02351: Junior Technology Clinic I 2 s.h.
Prerequisites: EGR 02216 AND MTH 118 AND ENGR 01273 OR EET 03222
This is the first of a sequence of courses including Junior Technology Clinics I and II and Senior Technology Clinics I and II that will provide a meaningful design experience for a team of undergraduate students under the direction of an engineering faculty advisor. The project topic will be chosen by mutual agreement of the undergraduate students and their advisor. The project will include a thorough literature search and review, the development of a clear and concise problem statement and consultations with other faculty and professional experts. The project will culminate in a final written report and oral presentation.

EGR 02352: Junior Technology Clinic II 2 s.h.
Prerequisite: EGR 02351
This is the second of a sequence of courses including Junior Technology Clinics I and II and Senior Technology Clinics I and II that will provide a meaningful design experience for a team of undergraduate students under the direction of an engineering faculty advisor. The project topic will be chosen by mutual agreement of the undergraduate students and their advisor. The project will include a thorough literature search and review, the development of a clear and concise problem statement and consultations with other faculty and professional experts. The project will culminate in a final written report and oral presentation.

EGR 02451: Senior Technology Clinic I 2 s.h.
Prerequisite: EGR 02352
This is the third of a sequence of courses including Junior Technology Clinics I and II and Senior Technology Clinics I and II that will provide a meaningful design experience for a team of undergraduate students under the direction of an engineering faculty advisor. The project topic will be chosen by mutual agreement of the undergraduate students and their advisor. The project will include a thorough literature search and review, the development of a clear and concise problem statement and consultations with other faculty and professional experts. The project will culminate in a final written report and oral presentation.

EGR 02452: Senior Technology Clinic II 2 s.h.
Prerequisite: EGR 02451
This is the fourth of a sequence of courses including Junior Technology Clinics I and II and Senior Technology Clinics I and II that will provide a meaningful design experience for a team of undergraduate students under the direction of an engineering faculty advisor. The project topic will be chosen by mutual agreement of the undergraduate students and their advisor. The project will include a thorough literature search and review, the development of a clear and concise problem statement and consultations with other faculty and professional experts. The project will culminate in a final written report and oral presentation.

MET 07201: Applied Thermal Engineering 3 s.h.
Prerequisites: CHE 115 AND PHY 210 AND MTH 118
This course introduces students to the science of thermodynamics. It deals primarily with thermodynamic property relations, energy transfer, and mass, momentum, and energy balance principles. Laboratory experience will include computer simulation and analysis. Design experience will be integrated throughout the course and culminate in a design project.

MET 07301: Applied Thermal Energy II 3 s.h.
Prerequisite: MET 07201
This course advances student knowledge of thermodynamics, building on the content covered in Applied Thermal Energy I. It deals primarily with the second law of thermodynamics, internal/external flow, and steady flow devices. Students will be able to design systems for power production, propulsion, and heating/cooling. Design experience will be integrated throughout the curriculum and culminate in a design project.

MET 07311: Applied Fluid Mechanics 3 s.h.
Prerequisite: MET 07201
This course deals with general flow and with fluid flow in pipe systems. Topics covered in the area of general fluid flow include hydrostatics, laws of fluid motion, kinematics, dynamics, energy balance, and dimensionless groups. Topics covered in the area of pipe flow include incompressible flow, compressibility, pumps, viscosity, boundary layers, turbulence, and losses. The course includes appropriate laboratory experiments and computer applications.

MET 07312: Applied Heat Transfer 3 s.h.
Prerequisite: MET 07201
This course describes modes of heat transfer: conduction, convection (forced and natural), and radiation. It presents steady and unsteady state analysis of heat transfer, types of heat exchangers and heat exchanger design. Demonstrations and laboratories will by integrated throughout the course.

MET 07351: CNC Programming II 3 s.h.
Prerequisite: MET 07251
This course concentrates on three-dimensional Computer Numerical Control (CNC) Programming for machining centers using commercial, PC based Computer Aided Manufacturing (CAM) software. Major topics include standard 3D surface types and definitions, post processor theory, planar roughing of 3D surfaces, complex surfaces, and multiple surface machining.

MET 07360: Introduction to Mechanical Systems 3 s.h.
Prerequisite: MET 07201
This course introduces Electrical Engineering Technology students to basic concepts in statics, dynamics and the thermal/fluid sciences. Special emphasis is placed upon the design and analysis of systems relevant to electrical technicians including actuators, motors and other electromechanical devices. Heat generation and removal from electronic devices will also be given significant coverage.

ENGL 02101: Critical Methods I for English Majors 3 s.h.
Prerequisite: COMP 01111 or COMP 01105 (may be taken concurrently)
Critical Methods I is the first half of the required introductory sequence necessary for upper-level English coursework. Drawing from the three major literary genres (fiction, poetry, and drama), students will acquire the foundational skills and knowledge necessary for analyzing and writing critically about literary texts. This course is a prerequisite for Critical Methods II for English Majors (ENGL 02202).

ENGL 02110: Introduction to British Literature 3 s.h.
This course introduces essential critical methods for the study of literature in relation to major works and authors in the British literary tradition. This course fulfills the "Humanistic Literacy" requirement of the Rowan Core.

ENGL 02112: Readings in Asian Literature 3 s.h.
This course provides students with some knowledge of and sensitivity to the literary traditions of India, China, and Japan. The course includes selected ancient, modern, and contemporary works from each of these three Asian cultures. Similarities and differences among these cultures, as well as between Asian and Western cultures, will be explored. Such works as the Ramayana, Shakuntala, and the Analects of Confucius, poetry of Li Po, short stories by Lu Hsun, Japanese haiku, Noh plays and short stories by modern Japanese writers will be included.

ENGL 02113: Introduction to U.S. Literature 3 s.h.
This course introduces essential critical methods for the study of literature in relation to major works and authors in the American literary tradition. This course fulfills the "Humanistic Literacy" requirement of the Rowan Core.

ENGL 02116: Introduction to Global Literatures in English 3 s.h.
This course introduces essential critical methods for the study of literature in relation to major works of global literatures written in English. Though the choice of specific texts will vary depending upon the instructor, this course focuses on works of literature in English beyond those written in America and the British Isles. It fulfills the "Global Literacy" requirement of the Rowan Core.

ENGL 02123: Topics in Literature 3 s.h.
This course introduces essential critical methods for the study of literature in relation to a special literary topic. Topics (which may focus on a special theme, literary period, author, or genre) vary widely and will be announced each semester. This course fulfills the "Humanistic Literacy" requirement of the Rowan Core.

ENGL 02151: Readings in Shakespeare 3 s.h.
A general-education course, this class studies six to eight representative plays by Shakespeare, including examples of all four genres - comedy, tragedy, history, and romance. The course will consider closely character, theme, language, and theatrical values. This course may not be offered annually.

ENGL 02200: Gender, Sexuality, and Literature 3 s.h.
Prerequisite: COMP 01111 or COMP 01105 (may be taken concurrently)
This course considers the role literature plays in shaping, reflecting, and revealing cultural perceptions of gender and sexuality. Through assigned texts, students will explore the ways gender and sexuality have intersected with different historical periods, literary movements, cultural traditions, and other identity categories, including race and class. This course may not be offered annually.

ENGL 02202: Critical Methods II for English Majors 3 s.h.
Prerequisite(s): ENGL 02101 and COMP 01112 (may be taken concurrently); Field Restrictions: English majors, minors, LS: H/SS sequencers in English, and students in the Combined Advanced Degree Program (CADP) in English/MST
Critical Methods II for English Majors is designed to introduce students to various schools of literary theory. Students will read, discuss, and write analytically, incorporating both primary and secondary sources and demonstrating an understanding of their own and others' theoretical frameworks.

ENGL 02205: Adolescent Literature 3 s.h.
Prerequisite: COMP 01111 or COMP 01105
This course examines contemporary understandings of adolescence as a developmental state betwixt and between childhood and adulthood through literature that is about adolescents and their concerns. The class will explore texts adults believe suitable for adolescents that may or may not have been written with them in mind but that are regularly taught or given to young adults, as well as literature written especially for them (Y.A. Literature). Central to this course is the idea that adolescence is a culturally constructed category of identity that varies across regions, time, race, class, gender, and sexuality.

ENGL 02218: Multiethnic Literatures of the United States 3 s.h.
This course is designed to give English majors and minors, as well as students in American Studies, Africana Studies, and Liberal Studies: Humanities and Social Sciences, a foundation in some of the major texts and contexts of the ethnic American literary canon. Students will analyze fiction, non-fiction, poems, and plays by African American, Asian American, Native American, and US Latino/a writers to better understand how ethnic American literature contributes to larger cultural questions regarding race, ethnicity, indigeneity, class, gender, and sexuality in the United States. No prior coursework in ethnic American literatures or in ethnic studies is required.

ENGL 02228: Genre Studies: Short Fiction 3 s.h.
Prerequisite: COMP 01111 or COMP 01105 or HONR 01111
This survey studies representative works of short fiction written in English from several periods and cultures. It focuses on the conventions of short fiction as a genre of literature.

ENGL 02231: World Mythologies 3 s.h.
Prerequisite: COMP 01111 or COMP 01105 or HONR 01111 (may be taken concurrently)
This course provides an introduction to a variety of mythologies, which may include Mesopotamian, Egyptian, Indian, Norse, Irish, Native American, and Greek and Roman mythologies. This course analyzes the narratives, characters, and themes in those mythologies, as well as their influences on British, American, and global Anglophone literatures.

ENGL 02234: Genre Studies: Drama 3 s.h.
Prerequisites: COMP 01111 or COMP 01105
The survey studies representative plays written in English from several periods and cultures. It focuses on the conventions of drama as a genre of literature.

ENGL 02235: Genre Studies: Poetry 3 s.h.
Prerequisite: COMP 01111 or COMP 01105
This survey covers the conventions, history, and formal development of poetry as a literary genre, requires students to have a command of poetry's basic elements (such as verse form, rhythm, and meter), and considers a wide range of poems written in English. This course may not be offered annually.

ENGL 02270: The English Novel 3 s.h.
Prerequisite(s): ENGL 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This upper-level elective offers a historical survey of the English novel as it has developed since its rise in the eighteenth century. Students in this course will consider a series of representative works in relation to their social and historical contexts, and in conjunction with narrative theory. This course may not be offered annually.

ENGL 02285: The American Novel 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or AMST 13301 and ENGL 02313 and ENGL 02315
This course focuses on a representative selection of U.S. novels. Students will explore the formal and thematic elements of the genre associated with romance, realism, naturalism, modernism, postmodernism, fantasy, etc. They will investigate the novelistic techniques used to comment upon recurrent themes in American literature, such as economic opportunity, individualism, liberty, slavery, immigration and colonialism, the frontier, violence, religion/spirituality, nature, urbanization, to name just a few. This course will also examine how race, gender, class, and sexual orientation are central to constructions of a national identity and literary tradition.

ENGL 02301: Literary Study Off-Campus 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02202
This course permits students to study literature off-campus and abroad under faculty supervision. Travel and program costs are borne by the students.

ENGL 02305: Contemporary Children's Literature for Non-Majors 3 s.h.
This course will introduce students to the critical evaluation of contemporary texts written for children between the late-twentieth century and the twenty-first century. Designed for non-English majors, the course explores how picture books, early readers, poetry, and chapter books represent social categories that include race, class, and gender, in the process considering the relevance of children's literature to modern society.

ENGL 02309: British Literature I 3 s.h.
Prerequisite: COMP 01112
This upper-level course surveys key developments in British language and literature from the early medieval period through the 18th century. Students in this survey will consider a series of representative works in relation to their specific social and historical contexts.

ENGL 02311: British Literature II 3 s.h.
Prerequisite: COMP 01112
This upper-level course surveys key developments in British language and literature from the late eighteenth century to the present, examining texts by Romantic, Victorian, modernist, and postcolonial writers. Students in this survey will consider a series of representative works in relation to their specific social and historical contexts.

ENGL 02313: US Literature I 3 s.h.
Prerequisite: COMP 01112
This course surveys American literature from its colonial roots to the age of Romanticism in the mid-nineteenth century. Students will explore the emergence of a national literary tradition and the debate over a collective American identity. We will discuss texts that advocate for the ideals of liberty and individualism within a historical context that includes Native dispossession, a racist slave system, and oppressive gender inequalities.

ENGL 02315: US Literature II 3 s.h.
Prerequisite: COMP 01112
This course surveys American literature from the Civil War to the present. Students will engage examples of literary realism and naturalism in the context of industrial expansion and increased immigration. They will explore the radical experimentation of modernist writers between World War I and II as well as the explosive range of styles, voices, and ideas associated with the postmodernism of the late 20th century.

ENGL 02317: Children's Literature: Texts and Contexts 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course will introduce students to a range of literature written for children from a wide variety of time periods, cultures, and genres. Students will place literary works in historical and cultural contexts to analyze how changing constructions of childhood and adulthood shape the texts children read.

ENGL 02322: Literature of the American Renaissance 3 s.h.
Preequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or AMST 13301 and ENGL 02313 and ENGL 02315
This course focuses on the literature of the American Renaissance (1830-1860). This study of works by writers like Cooper, Bryant, Irving, Poe, Emerson, Douglass, Thoreau, Hawthorne, Melville, Longfellow, Whitman, Stowe, Jacobs, and Dickinson will cover the three major characteristics of the period: the movement from classicism to romanticism in the early writers; the development of literary nationalism, and an increasing interest in exploring what it means to be an American; and, finally, the beginnings of literary realism with the approach of the Civil War. This course may not be offered annually.

ENGL 02324: American Realism and Naturalism 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or AMST 13301 and ENGL 02313 and ENGL 02315
Students will examine U.S. fiction produced between 1865 and 1914, studying its rejection of popular romanticism and its advocacy of a representational style concurrent with an increasingly urban, industrial society. This course may not be offered annually.

ENGL 02327: Modern and Contemporary American Poetry 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or AMST 13301 and ENGL 02313 and ENGL 02315
This course will examine a variety of American poets from the beginning of the twentieth century to the present day. This course may not be offered annually.

ENGL 02330: Classical Literature in Translation 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course covers works by authors such as Homer, Aeschylus, Sophocles, Euripides, Plato, Virgil, Horace, and Ovid, whose ideas provide the foundation for much of Western intellectual history. This course may not be offered annually.

ENGL 02340: Literary Theory 3 s.h.
Prerequisite(s): Comp 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
Literary Theory introduces students to key texts from a wide range of theoretical schools. The course looks at the historical development of theories (from New Criticism to deconstruction, from feminism to gender and queer theories, etc.) to see how they relate to, respond to, and challenge each other. Students will work to understand key concepts from each theory, use the theories to interpret literature, and recognize the theoretical assumptions used by other literary scholars. This course may not be offered annually.

ENGL 02345: Shakespeare I 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or COMP 01112 and THD 07201 and THD 07202
This course surveys the major plays of Shakespeare's career, including representative plays from each of the major Shakespearean genres (tragedy, comedy, history, romance) with an emphasis on their historical, formal, and theoretical contexts. Engaging with both traditional and emerging critical approaches, this course examines Shakespeare's plays with a special emphasis on performance and adaptation from the early modern era through the twenty-first century.

ENGL 02354: African American Literature I 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or AMST 13301 and ENGL 02313 and ENGL 02315 or COMP 01112 and AFST 01104
This upper-level survey course examines African American literature from its beginnings in the colonial period through the Harlem Renaissance. We will engage in close readings of seminal vernacular, autobiographical, poetic, creative, and critical tests, exploring the relationship between literary expression and the highly charged American social, cultural, and political histories that form its context.

ENGL 02355: African American Literature II 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or AMST 13301 and and ENGL 02313 and ENGL 02315 or COMP 01112 and AFST 11104
This upper-level survey course examines themes and issues commonly found in African American literature published since the Harlem Renaissance. We will analyze such theories of racial consciousness as invisibility, Black Power, and the Black Aesthetic, bearing in mind how certain historical, political, social, and cultural factors influenced the literature. While understanding the complex notions of race will be our focus, we will also consider how (or if) racial identity blends with other key components of the self such as gender, class, and nationality.

ENGL 02360: Asian American Literature 3 s.h.
Prerequisites: (ENGL 02101 AND Corequisite ENGL 02202) OR (AMST 13301 AND ENGL 02313 AND ENGL 02315) OR (INTR 01136 OR ENGL 02112 OR POSC 07350)
This course is a survey in Asian American literature from the late nineteenth century to the present. We will focus on major trends, writers, and works, and students will have the opportunity to read selections from a wide range of genres, including fiction, non-fiction, poetry, and drama. As this course is multiethnic in scope - for instance, featured writers may draw from US and Chinese, Japanese, Filipino, Indian, Korean, and Vietnamese literary traditions - students will be encouraged to discover points of commonality among the texts in addition to understanding the ways each literary contribution is rooted in specific cultural, historical, and political contexts. No prior coursework in Asian American literature or in ethnic studies is required.

ENGL 02362: Native American Literature 3 s.h.
Prerequisite: COMP 01111 or COMP 01105 or HONR 01111
This course is designed to introduce students to the major themes and writers of the Native American literary tradition. Students will read texts within historical contexts that involve threats of dispossession and genocide as well as resistance and survival. They will learn how diverse Native writers draw upon tribal traditions to advocate self-determination and sovereignty. Texts will include trickster tales and creation stories; oratory and autobiography; poetry, short fiction, and novels. No prior coursework in Native American literature or ethnic studies is required.

ENGL 02365: U.S. Latino/a Literature 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or AMST 13301 and ENGL 02313 and ENGL 02315 or COMP 01112 and AFST 01104
This course surveys US Latina/o Literature from colonization to the present. Students will explore topics such as assimilation and the myth of the melting pot, immigration, and geographical and metaphorical borderlands with an eye toward understanding a number of questions, including: What does it mean to be a "Latina/o" in the United States today? How does gender, class, race, ethnicity, sexuality, and the language(s) one uses to communicate, impact the representation of identity in literary texts? Knowledge of Spanish is not required to take this course, nor is having taken prior coursework in US Latina/o literature or in ethnic studies.

ENGL 02392: Independent Study (English) 1 to 6 s.h.
Prerequisite: COMP 01112 and ENGL 02101 and ENGL 02202
The course gives students an opportunity to study independently in order to strengthen their background in a particular area of literary studies.

ENGL 02410: Internship in English 3 s.h.
Prerequsite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course provides the opportunity for students majoring in English to apply the skills they have developed in the course of their studies in a supervised work situation. Students will create a portfolio, keep journals, and meet with the faculty internship coordinator regularly. This course may be utilized within the 24-hour free elective distribution only.

ENGL 02417: Special Topics in Literature 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course focuses on significant literary works, themes, periods, writers, or genres not regularly covered in the upper-level electives. Repeatable when topics vary. This course may not be offered annually.

ENGL 02423: The American Novel 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or AMST 13301 and ENGL 02313 and ENGL 02315
This course focuses on a representative selection of U.S. novels. Students will explore the formal and thematic elements of the genre associated with romance, realism, naturalism, modernism, postmodernism, fantasy, etc. They will investigate the novelistic techniques used to comment upon recurrent themes in American literature, such as economic opportunity, individualism, liberty, slavery, immigration and colonialism, the frontier, violence, religion/spirituality, nature, urbanization, to name just a few. This course will also examine how race, gender, class, and sexual orientation are central to constructions of a national identity and literary tradition.

ENGL 02424: American Drama 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or COMP 01112 and THD 07201 and THD 07202 or AMST 13301 and ENGL 02313 and ENGL 02315
This course focuses on canonical and non-canonical American plays from the 20th and 21st centuries. Students will examine the formal elements of American drama, developing their understanding of how directorial choices impact thematic meanings when a script is translated from the page to the stage. The plays themselves will cover a wide range of topics, including family and home, love and death, race and opportunity, gender and cultural expectations, violence and history, nation and the individual, and more.

ENGL 02425: Contemporary Literature 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This upper-level elective focuses on recent developments in contemporary literature. Students in this course will consider a series of representative works in relation to their social and historical contexts and in conjunction with literary theory. This course may not be offered annually.

ENGL 02430: Anglo-Saxon and Medieval Literature 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course studies the foundations of English language and literature from its beginnings through the fifteenth century, proceeding from the relatively limited selection of Anglo-Saxon poetry and prose to the profusion of literary genres extant in the Middle Ages. Although almost all texts will be read in translation, some attention will be devoted to understanding the major characteristics of the Anglo-Saxon language and Middle English. Selections from continental writers of the period may also be included. This course may not be offered annually.

ENGL 02440: Chaucer 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course studies the poetry of Chaucer, the language that he used, and to the times in which he lived. This course may not be offered annually.

ENGL 02441: English Renaissance Literature 3 s.h.
Prerequisite(s): ((COMP 01112 or HONR 01112 or ENGR 01201 or ENGL 01112) and ENGL 02010)) or ENGL 02202 (may be taken concurrently)
This course features a wide variety of authors and genres from the sixteenth and early seventeenth centuries, considered within the rich context of early modern ideas and discoveries. This course may not be offered annually.

ENGL 02445: Shakespeare II 3 s.h.
Prerequisite(s): (COMP 01112 and ENGL 02101 and ENGL 02345 and ENGL 02202 (may be taken concurrently) or COMP 01112 and THD 07201 and THD 07202 and ENGL 02345
This course is an in-depth exploration of the dramatic and non-dramatic works of Shakespeare. Building on the foundation of Shakespeare I, this course focuses on new and emerging critical approaches to the Shakespearean canon, and examines his works in the social, cultural, religious, and political contexts of early modern Europe.

ENGL 02460: British Literature: The Long Eighteenth Century 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course, intended for English majors and minors, studies poetry, non-fiction prose, and drama from the Restoration to Romanticism. This course may not be offered annually.

ENGL 02470: Special Topics in Multiethnic Literatures of the United States 3 s.h.
Prerequisite(s): ENGL 02101 or ENGL 02202 (may be taken concurrently) or (AMST 13301 and ENGL 02313 and ENGL 02315) or ((COMP 01112 or HONR 01112 or ENGR 01201 or ENGL 01112)and AFST 01104))
This course is designed to give students an opportunity to study in-depth, at an advanced level, key texts and contexts of ethnic American literary canons. The "special topic" of individual courses, which will vary each semester, may be thematic or generic in scope, and may draw from African American, Asian and Pacific American, Latino/a, Native American, and other ethnic American literary and cultural traditions.

ENGL 02471: English Romanticism 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202(may be taken concurrently)
This course studies the major works of the turbulent English Romantic period, with particular attention to developments in poetry and narrative. It may not be offered annually.

ENGL 02472: Victorian Literature 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course focuses on major works of English poetry, fiction, and nonfiction narrative of the Victorian period in Britain (roughly 1830 to 1900). It may not be offered annually.

ENGL 02473: Global Modernisms 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course focuses on major works of twentieth-century British and Irish literature, with particular attention to its social and historical contexts. It may not be offered annually.

ENGL 02475: Special Topics in Global Literatures in English 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently) or COMP 01112 and AFST 01104
English is a global language: it is used for business and diplomacy as well as to write poetry, novels, and plays throughout the world. In this course we will read works of literature written in English that represent diverse perspectives and literary traditions. Students will gain an in-depth understanding of literary cultures outside of North America and Europe and the way they intersect with colonial history, globalization, and the dynamics of cultural exchange. The changing topic and texts will be chosen by faculty and may cover the literature of Africa, Asia, Latin America, and/or the Caribbean. This course may not be offered annually.

ENGL 02482: Modern European Literature 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02101 and ENGL 02202 (may be taken concurrently)
This course considers continental literary movements of the twentieth century, from realism to existentialism. It may not be offered annually.

ENGL 02499: Senior Seminar - WI 3 s.h.
Prerequisite(s): COMP 01112 and ENGL 02202 and 18 credits within the major
This writing-intensive capstone course is required of all English majors in their senior year. In this course, students will have the opportunity to demonstrate and apply the cumulative skills and knowledge they have accrued in the field of literary studies. Each seminar, capped at no more than 15 students, will engage in intensive study of a particular topic in the professor's area of scholarly expertise. The course emphasizes individual guidance, class discussion, sophisticated research techniques, and the writing of a major analytical paper that represents a significant contribution to the critical conversation on the seminar's topic.

ENGL 05301: American English Grammar 3 s.h.
This course emphasizes traditional grammar and seeks to give students a practical understanding of the structure of contemporary American English grammar.

EVSC 01101: Planet in Peril: Environmental Science in the 21st Century 3 s.h.
In this multidisciplinary course students will examine basic scientific principles underlying environmental problems such as climate change, sea level rise, biodiversity loss, and environmental pollution among many others. Reasons for these problems, as well as possible solutions will be explored. Environmental concerns in New Jersey and the mid-Atlantic region will be highlighted but national and global examples will also feature prominently. In addition, students in this course will learn some of the basic skills necessary for scientific inquiry, including the scientific method, critical thinking, and evaluating data to draw valid scientific conclusions.

EVSC 01110: The Environmental Experience 1 s.h.
In this gateway field course, students will gain an appreciation for and learn about the local environment through field experiences. As an outdoor laboratory course, students will be exposed to the physical and living environmental systems of southern NJ, including pine barrens, temperate forest, and coastal and aquatic systems. The course is conducted over 7 weeks in 5 hours session; attendance is mandatory. It is open only to Environmental Science majors.

EVSC 01115: Environment in the Headlines 1 s.h.
Everyday we read alarming headlines about environmental threats. In this course, students will focus on a few of the environmental issues making the news. Students will delve into the science behind the issues, and investigate possible solutions to the issues. They will also explore how issues are presented, and learn to separate scientific fact from fantasy.

EVSC 01120: Oceans in Crisis 3 s.h.
Oceans cover two thirds of Earth's surface, and are inextricably linked with modern human civilization. Yet human activities are rapidly changing our oceans at a global scale in ways that make it more difficult for people to use them. Students in this course will gain an overview of the many human-caused environmental problems that face Earth's oceans including but not limited to warming, acidification, over-fertilization, pollution, drilling and mining, and overfishing. To place these problems in context, students will also gain a basic understanding of how oceans function.

EVSC 01121: Global Environmental Change 3 s.h.
Humans are the most significant agents of environmental change on the Earth and our activities have impacted the Earth's ecosystems in many ways. In this introductory-level science course, students will learn how human demand for resources such as space, clean air and water, productive farmland, energy, and raw materials have altered the health of ecosystems and their ability to positively influence humans and other organisms. A unifying theme of the course is ecosystem services and the degree to which healthy intact ecosystems are able to provide these services to human societies. In addition, students in this course will learn some of the basic skills necessary for scientific inquiry, including the scientific method, critical thinking, and evaluating data to draw valid scientific conclusions.

EVSC 01122: Future of Food 3 s.h.
21st century agricultural has moved far from the earliest forms of cultivation. This introductory level science course explores the challenges of modern agriculture, including production, delivery, sustainability, nutrition, and resilience to changing climate. Students will explore the natural systems involved in agriculture (soil, water, climate, crops, pests) and their relationship to food production. The course will focus on applied learning, including the application of real data to gain practice problem solving, and critical thinking. A semester long research project on an assigned region allows students to apply what they have learned in the semester.

EVSC 01202: Environmental Science Research Methods and Data Analysis 4 s.h.
Prerequisite(s): STAT 02260
In this course students will build upon basic statistical concepts introduced in Statistics I with applications to the environmental disciplines. Emphasis is placed on developing valid sampling approaches, hypothesis testing, experimental design, and analysis of environmental data. A variety of parametric and non-parametric statistical approaches will be covered. Methods used to collect environmental data from the field will be introduced. Computer software will be used regularly to manipulate and analyze data and present results.

EVSC 01210: Foraging for Edible Plants 3 s.h.

In this course, students will explore the historical and contemporary reasons why humans forage for edible plants. There will be discussions about modern diets in a global agricultural world, and common pervasive myths about the dangers of foraging for wild plants. Students will learn how to identify species of edible plants, and recognize inedible/poisonous plants of the Eastern United States, with a heavy emphasis on plant species of the Mid-Atlantic (NJ/DE/PA) area. Students will learn in both classroom and field settings, with a strong emphasis on field recognition of edible plants, and how to forage safely and sustainably. Students will become familiar with ethical foraging methods. This course is suitable for all majors.

EVSC 01220: Global Climate Crisis 3 s.h.

Prerequisite(s): STAT 02260 OR STAT 02280

Anthropogenic climate change has created an unparalleled environmental crisis for our planet. Scientific evidence tells a sobering story of the ways in which climate change impacts are already being felt around the globe, and provides dire warnings about the ways in which our planet and modern civilization will be affected under future climate change in the absence of significant action to reduce greenhouse gas emissions. The current climate crisis is a multi-faceted problem, with no easy solutions—but the students of today are the problem solvers of tomorrow. Students in this course will 1) gain an understanding of the science behind climate change 2) discover the impacts of climate change, while learning about possible adaptation and mitigation strategies, and 3) develop the skills needed to further discussion of this important issue and possible ways to address it.

EVSC 01225: Global Field Study 0 to 6 s.h.

This course combines classroom-based and field-based instruction to introduce students to environments beyond campus. This intensive but unique learning experience helps students make the connection between lecture and environmental practice in a range of ecosystems and physical environments.

EVSC 01290: Special Topics in Environmental Science 3 s.h.

Prerequisite: EVSC 01115

This course provides extended study on selected topics in Environmental Science. Prerequisites are determined by the nature of the topic.

EVSC 01305: Contaminants in the Environment 4 s.h.

Prerequisite(s): EVSC 01202 CHEM 06101 and STAT 02260

In this course students will gain familiarity with contaminant sources, their fate in the environment, transport through air/water/soil, and impact on humans and ecosystems. The physical and chemical properties of contaminants will be applied to explain their environmental behavior. Risk assessment and remediation examples will be used to demonstrate solutions to difficult environmental problems. Past environmental contaminant challenges, how these issues were resolved, and the emergence of new contaminants posing a threat to human and environmental health will be discussed. Labs will include benchwork, fieldwork, and data science applications to teach students important skills in sample/data collection, sample analysis, and data analysis. This course is suitable for science and engineering majors.

EVSC 01330: Scientific Computing and Analytics in Environmental Science 3 s.h.

Pre-requisites: EVSC 01202

Scientific computing is an essential skill for a wide variety of scientific disciplines, including many areas of Environmental Science. In this class, students will acquire the expertise needed for efficient scientific computing in the context of environmental science. These skills will include the basic "ETL--Extract, Transform, and Load" abilities highly sought after by today's data-driven businesses and industries. Students will learn how to extract the necessary data for use in solving a problem, transform that data by performing statistical analyses on it, and load that data into other formats such as figures or databases. This course will focus on developing these skills while placing particular emphasis on techniques and tools most frequently needed within the environmental sciences. Due to the nature of this course and the subject material, students will need to have access to a laptop that is not a Chromebook that they can bring with them to lectures to complete course work.

EVSC 01350: Field Methods in Environmental Science 4 s.h.

Prerequisite: EVSC/ENST 01202; EVSC 01110 is recommended

In this course students will learn technical skills for analyzing environmental samples using a wide range of field and laboratory instrumentation. Samples analyzed will originate from a variety of environments including terrestrial, aquatic, atmospheric, and marine systems. Methods for sample analysis will include DO/pH/salinity probes, microsensors, passive air samplers, elemental analyzer, Inductively Coupled Plasma-Mass Spectronomy (ICP-MS). Preparation of instrument calibration curves will be presented as well. Data science techniques will be introduced to identify correlations and trends in collected data. The interpretation of data will be performed in the context of human influence on environmental systems by measuring parameters such as (temperature, pH, salinity, nutrients, etc.). Students will present the results of their analyses in professional EPA-style technical reports and presentations from individual and group projects.

EVSC 01379: Soil Science and Global Soil Resources 3 s.h.
Prerequisite: CHEM 06101; GEOL 01101 is recommended
Soils are the foundation of terrestrial life and the interface between human activity, food production, and Earth system processes. In this course students will learn about the physical, chemical, and biological characteristics of soil, including soil classification and distribution. Through the exploration of soil as a global resource that provides many vital ecosystem services, students will learn how soils function in terms of plant growth, nutrient sources and sinks, the global carbon cycle and other biogeochemical cycles, ecology, and water purification. This course is suitable for science and engineering majors.

EVSC 01380: Principles of Atmospheric and Climate Science 4 s.h.
Prerequisites: (PHYS 00210 OR PHYS 00220) AND CHEM 06100 AND STAT 02260
Students are introduced to the composition and structure of the atmosphere, clouds and weather, thermodynamic processes, solar and terrestrial radiation, and motion. The physical processes controlling climate of the atmosphere and surface are emphasized, along with the factors affecting climate change.

EVSC 01381: Sea-Level Change: Past, Present, and Future 3 s.h.
Pre-requisite: EVSC 01220 or GEOL 01131
Throughout Earth's history, sea-levels have continually changed. Today and into the future, we expect sea-levels to continue to change due to the warming of our planet caused by anthropogenic climate change, leading to potential catastrophic effects for coastal communities around the world. It is thus more important than ever that we have accurate scientific projections of future sea-level change. In this course, students will 1) gain an understanding of the mechanisms driving the complex spatio-temporal evolution of sea-level change from the geological era to the instrumental era, and into the future 2) learn about methodologies used to construct past sea-level change and project future sea-level rise and 3) acquire the skills needed to discuss sea-level rise challenges and solutions with a broad range of audiences.

EVSC 01382: Understanding and Analyzing Climate Change Impacts 4 s.h.
Pre-requisite: (STAT 02260 or STAT 02280) and MATH 01130 and (EVSC 01220 or GEOL 01131) and EVSC 01380
As human-produced greenhouse gas emissions have grown during the anthropogenic era, the temperature of our planet has increased, and the impacts of a changing climate have escalated. These impacts, ranging from wild fires to sea-level rise, and from harmful algal blooms to more extreme storms, are already being felt around the world today, and stand to become more severe without reduction of greenhouse gas emissions. Given the potential for such events to alter the world as we know it, we must strive to understand the connection between these events and a changing climate. Students in this course will 1) discuss and fully understand the wide variety of climate impacts that affect our world today 2) gain an appreciation for the challenges associated with projecting the impacts of climate change in the future and 3) develop essential scientific programming and statistical analysis tools to analyze and assess climate impacts over time.

EVSC 01385: Oceans 4 s.h.
Pre-requisite: (PHYS 00210 or PHYS 00220) AND CHEM 06101 AND GEOL 0110 AND BIOL 01204
This course introduces students to fundamental aspects of ocean science. Students will gain an understanding of the structure and function of oceans within the broader Earth system, and the physical, chemical, geological, and biological processes that contribute to ocean function. Students will also learn about the process of ocean science and human impacts on marine systems.

EVSC 01386: Estuaries 3 s.h.
Pre-requisites: (PHYS 00210 or PHYS 00220) AND CHEM 06101 AND GEOL 01101 AND BIOL 01204
Estuaries sit at the interface between land and sea and are zones of mixing between rivers and seawater. This course introduces students to estuarine science. Students will gain an understanding of the physical structure of estuaries, the physical processes that govern water mixing and exchange, and the chemical and biological processes that control the composition and productivity of estuarine waters. Students will also gain an appreciation for the complex interaction between human and natural processes within and around estuaries. This course includes a field trip to the New Jersey coast.

EVSC 01410: Environmental Science Clinic 3 s.h.
Prerequisite: EVSC 01305
Environmental Science Clinic offers a project-based approach. Students apply knowledge gained through their previous coursework to solve a particular research problem. Students have the opportunity to work in class individually or in teams. Students may also work outside of the classroom in internship experiences.

EVSC 01411: Independent Research in Environmental Science 3 s.h.
Prerequisite(s): Permission of Instructor
Students will identify an Environmental Science faculty member to supervise an independent research project. Students will spend roughly the equivalent amount of time working on a research project as required for a typical 3-credit course. Student may take Research in Environmental Science up to 3 times. Only two may count for upper level electives.

EVSC 01420: Environmental Science Senior Seminar 3 s.h.
Prerequisite: EVSC 01305
As a capstone experience, the Senior Seminar is intended to be an intensive treatment of a particular topic. Assignments include reading of peer-reviewed literature and books, literature review, presentations of the literature, development of white papers, and research day presentations.

EVSC 01425: The Shaping of Earth Systems 3 s.h.
Prerequisite: CHEM 06101
This course provides an introduction and investigation of Earth's environmental systems using geological, biological, oceanographic, and atmospheric concepts. Major feedbacks between the geosphere and biosphere will be a core theme to understand climatic processes and biogeochemical cycles on geological timescales. Particular emphasis will be placed on the evolution of organisms and cycling of elements. Global datasets will be introduced as tools for investigating present day changes to Earth's biogeochemical and climate systems. This course is suitable for science and engineering majors.

EVSC 01430: Radioactivity in the Environment 3 s.h.
Pre-requisites: CHEM 06101
Radioactivity (both natural and human-sourced) provides powerful insights into creation of the earth, atmosphere, and oceans, and into the processes that control the cycling of elements within the environment. This course will cover the basics of isotope geochemistry, with a focus on the properties that make isotopes useful tools in environmental science. Students will learn how isotopes can be used to answer various environmental questions, such as: How old is the Earth? How old is a fossil? How quickly do elements move through the atmosphere and ocean? This course will also include an overview of nuclear energy and anthropogenic releases of radioactivity, with a focus on how anthropogenic inputs have been used to improve our understanding of the environment.

EVSC 01435: Aquatic Biogeochemistry 4 s.h.
Prerequisite: EVSC 01202, MATH 01131, BIOL 01204, and CHEM 06101
In the iconic words of Gill from Pixar's Finding Nemo, "all drains lead to the ocean". But first that wastewater flows through a diverse array of aquatic environments such as ponds, lakes, streams, rivers, wetlands, and estuaries. What happens to it along the way? How does its chemistry change and how does this influence the plants and animals that live there? Aquatic biogeochemistry, the study of the chemical, biological, and physical processes that control the composition of the aquatic environment, seeks to answer these questions. In this class, you will examine the cycling of elements like oxygen, carbon, nitrogen, and phosphorus that are important to all living things and learn about the microbial processes that drive these cycles. This course will consist of a mixture of lectures, laboratory-based activities, and field excursions to a range of aquatic ecosystems from stream and lakes near campus out to the estuaries and bays near the coast. Through these experiences, you will have the opportunity to participate in cutting edge research in environmental science.

EVSC 01490: Advanced Special Topics in Environmental Science 3 s.h.
Prerequisite: CHEM 06101
This course provides extended study on selected topics in Environmental Science. Prerequisites are determined by the nature of the topic.

ENGR 01395: Applied Product Development 1 s.h.
Pre-requisites: (ENGR 01303 or ENGR 01403 Concurrently) and Instructor Permission
The Rowan College of Engineering Product Development Center (PDEC) is designed to support internal research and the external product development efforts of Rowan University stakeholders. For those students participating in Junior/Senior Engineering Clinic with the PDEC or other projects related to product development, this course supplements those clinic experiences by implementing previously learned skills in product development and providing further insights in ancillary business and engineering skills required to commercialize a product in a real-world context. Course should be taken in conjunction with Junior or Senior Engineering Clinic, and may be taken up to 2 times for credit.

ENGR 01496: New Product Development 3 s.h.
This course introduces engineering students to the process of new product development and the skills necessary to manage the various activities required to produce a product from concept to commercialization. Topics include product development strategies, product development platforms, and project management techniques.

XEED 12400: Engineering Entrepreneurship Clinic Consultant 1 s.h.
Prerequisites: ENGR 01303 AND ENT 06240 AND ACC 03210 AND MKT 09200
This course provides a formative experience for Engineering Entrepreneurship students to apply their technical and business knowledge, skills, and abilities (KSAs) to real-world, meaningful consulting experiences. The course will include the development of a clear and concise need/value statement for both the student and the client; problem statement identification/clarification; problem/solution research; the application of KSAs to real-world problems; consultations with the client, professional experts, and other students/faculty; and the delivery of a final written artifact and oral presentation to both the client and other course participants.

ENST 94101: Planet in Peril: Environmental Science in the 21st Century 3 s.h.
In this multidisciplinary course students will examine basic scientific principles underlying environmental problems such as climate change, sea level rise, biodiversity loss, and environmental pollution among many others. Reasons for these problems, as well as possible solutions will be explored. Environmental concerns in New Jersey and the mid-Atlantic region will be highlighted but national and global examples will also feature prominently. In addition, students in this course will learn some of the basic skills necessary for scientific inquiry, including the scientific method, critical thinking, and evaluating data to draw valid scientific conclusions.

ENST 94102: Human Nature: Intro to Environmental & Sustainability Studies 3 s.h.
This course examines relationships between human society and the natural environments that sustain our lives. Embracing an interdisciplinary perspective, this course offers students a foundation in the exciting field of environmental and sustainability studies.

ENST 94201: Sustainability Assessment 3 s.h.
Prerequisite(s): STAT 02260 and ENST 94101 and ENST 94102
"Sustainability" is a popular term these days. But, where does it come from, and how do we know if we have achieved it? In this course, we examine the origins and historical development of the sustainability concept. We also introduce approaches for setting sustainability goals, measuring progress towards sustainability outcomes, and managing so-called "sustainability transitions". This course may not be offered annually.

ENST 94202: Environmental Science Research Methods and Data Analysis 4 s.h.
Prerequisite(s): ENST 94101 and STAT 02260
In this course students will build upon basic statistical concepts introduced in Statistics I with applications to the environmental disciplines. Emphasis is placed on developing valid sampling approaches, hypothesis testing, experimental design, and analysis of environmental data. A variety of parametric and non-parametric statistical approaches will be covered. Methods used to collect environmental data from the field will be introduced. Computer software will be used regularly to manipulate and analyze data and present results.

ENST 94301: Environmental Ethics 3 s.h.
This is a multidisciplinary course that addresses ethical issues and concerns regarding the environment; the relationships between individual, society and the natural environment; the importance of common attitudes and prevailing world-views for understanding and responding to environmental challenges; and the need for changes in those attitudes and world-views. Students will be encouraged to think about the profound ethical, political, economic, religious, scientific, and technological implications of these environmental challenges.

ENST 94302: Technology and the Environment 3 s.h.
Prerequisite: ENST 94102
This course examines the relationships between technology and both natural and human environments. We will consider multiple spatial and temporal scales ranging from huge infrastructure projects like dams and the sweeping environmental impacts they introduce to the frontiers of genetic modification, working on individual cells. The format of the course emphasizes discussion, active learning, multimedia analysis, critical & analytical writing, and conducting a research investigation into a topic of your choice related to the class. Students will develop fluency in the critical assessment of technologies, the policies and practices creating them, and the impacts they make on the human environment relationship.

ENST 94303: Environmental Advocacy 3 s.h.
Prerequisite: ENST 94102 or permission of the instructor
In this course, we explore different ways of "doing something about the environment," including analysis of environmental movements in the US and abroad; understanding the functions of government agencies that have an environmental mission; and considering the relationship between civil litigation and environmental policy and management. In this course, we consider these issues as a means to understand the development and operation of environmental interest groups ranging from non-profits to professional lobbying firms, with the intent of building foundational skills needed to be successful in a career focused on environmental advocacy.

ENST 94400: Environmental Impact Assessment 3 s.h.
Prerequisites: Must have completed any 4-credit lab course as well as two other courses housed within the Department of Geography, Planning & Sustainability
This is a three-credit, senior-level course designed to introduce students to a systematic process for predicting and evaluating the significant environmental consequences of a proposed action or undertaking. The range of environmental impact assessments and techniques including infrastructure projects, such as power plants, highways, pipelines, dams, mines, airports, incinerators and landfills will be explored. Assessment processes have also been used to consider the implications of new technologies, plans, and policies that may result in significant social, economic and biophysical effects. Finally, the course focuses on how assessment processes and techniques are designed or should be designed to be effective, efficient and fair.

ENST 94401: Senior Seminar in Environmental & Sustainability Studies-WI 3 s.h.
Prerequisite: ENST 94121 and (COMP 01112 or HONR 01112 or ENGR 01201)
Students participate in planning a research project, collecting data, and preparing a report suitable for publication. Research topics are selected according to student interests.

ENST 94402: Seminar In Environmental Studies II 3 s.h.
Students participate in planning a research project, collecting data, and preparing a report suitable for publication. Research topics are selected according to student interests.

ENST 94403: Independent Study - Environmental Studies 1 to 6 s.h.
This course provides individual enrollment semester hours in directed study and/or research under the supervision of a faculty member. Topics will vary.

GEOG 16100: Earth, People, And The Environment 3 s.h.
This course provides a broad survey of the geographic approach to knowledge about the world and the field of geography. The course introduces the natural order of the physical environment, human modification of environments, organization of society, and regional studies. The course places particular emphasis on contemporary environmental problems and the role of geography in helping to understand and address local, regional, and global issues.

GEOG 16101: Sustainability 101 1 to 3 s.h.
Modern global industrial civilization has reached a crossroads with the planetary limits of the global ecosystem including climate change, environmental contamination and mass species extinction with profound implications for the future quality and viability of life. This course examines the roots of unsustainable human behavior and the trends leading toward ecological overshoot. Students will learn about the emerging responses to these challenges and the multiple initiatives across sectors aimed at shifting humanity to a sustainable mode of existence. The course will explore the prospects for a Sustainability Revolution across geographies and scales and extrapolate future possible scenarios that will define the fate of the earth and the quality of life for future generations. The course is organized into 3 independent modules allowing the number of modules covered to reflect the number of credits the course is offered in a given semester.

GEOG 16110: Cultural Geography 3 s.h.
This course focuses upon the varied and changing cultural environments of the world. Through a synthesis of data from many disciplines (i.e., anthropology, ecology, earth sciences, history, etc.), major cultural differences and areal patterns are identified and analyzed.

GEOG 16130: Earth Sciences Laboratory I 4 s.h.
Intended to develop an understanding of the physical factors of the Earth as human habitat and human adjustments to them, this course emphasizes the analysis of world distributional patterns of landforms, climate, vegetation, soils, and water features, and causes of relationships of these patterns. The integrated laboratory components provide student participation and experiences in observing, measuring, gathering data, analyzing underlying principles in such sub-fields as geomorphology, climatology, pedology, remote sensing, hydrology, geology, and mapping sciences. Students will be exposed to field techniques during one mandatory Saturday field trip. This course fulfills the Rowan Core Scientific Literacy.

GEOG 16131: Principles Of Earth Science 3 s.h.
This course examines the basic concepts of astronomy, meteorology, geology and the principles derived from these concepts.

GEOG 16133: Meteorology 4 s.h.
This course studies the basic principles of meteorology, acquainting students with the physical principles underlying weather phenomena. Students use weather instrumentation in weather observations and analyze weather maps and observe and record daily weather changes.

GEOG 16140: World Regional Geography 3 s.h.
A survey of the entire world that uses the regional approach to geographical analysis, this course provides students with a basic foundation of geographic knowledge and concepts applicable to the contemporary world. It stresses resource distribution, environmental characteristics, population problems, food and water supplies, cultural variations and developmental strategies.

GEOG 16160: Intro To Mapping And Geographic Information Sciences 3 s.h.
This course provides the student with the conceptual tools required for intelligent and critical use, interpretation and analysis of maps. In addition, the course furnishes the student with an introduction to and overview of the mapping sciences. Students learn the concepts, methods, and techniques common to the several branches of the mapping sciences and are introduced to cartography, satellite remote sensing, computer-assisted cartography, and geographical information systems. Because of its increasing importance, special emphasis is placed on geographical information systems. This course fulfills the Rowan Core Artistic Literacy.

GEOG 16240: US & Canada 3 s.h.
A regional study of the United States and Canada in terms of the areal distribution of physical features, population patterns and economic activities, this course stresses an analysis of the forces stimulating change within the regional patterns.

GEOG 16241: Geography Of New Jersey 3 s.h.
A systematic and regional approach to the geography of this, the most densely populated state, this course analyzes the physical environment and cultural milieu in terms of their complex interactions. The course highlights problems of resource utilization and environmental concerns.

GEOG 16250: Selected Topics In Geography And Environment 1 to 3 s.h.
This course is designed to introduce students to emerging topics in Geography and Environmental Studies. The content will vary based on the topic chosen by the instructor. However, a given topic will not be repeated sooner than 3 years. Consent of the instructor is necessary, and prerequisites are determined by the nature of the topic.

GEOG 16260: Fundamentals of Geographic Information Systems (GIS) 4 s.h.
Prerequisites: GEOG 16160
Fundamentals of Geographic Information Systems introduces students to the concepts and applications associated with creating, maintaining, analyzing, displaying, and interpreting geospatial data. Through the completion of activities and assignments, students gain experience with the fundamental tools for geospatial analysis, coupled with the knowledge of how best to apply them to real-world issues in the natural and human landscapes.

GEOG 16261: Cartography 3 s.h.
Prerequisite: GEOG 16160
This course studies the elements of cartography with emphasis on the map as a basic form of communication. It explores contemporary design concepts and various graphic techniques. Students create cartographic compositions using the latest in geographical information system and cartographic software using the facilities of the department's computer teaching laboratory.

GEOG 16290: History & Methods of Modern Geography 3 s.h.
Prerequisite: Any two of the following courses: GEOG 16100,GEOG 16110,GEOG 16130,GEOG 16140, GEOG 16160
This course provides the theoretical foundation to the field of geography. It explores the different bodies of thought and methodological practices which have shaped the character of geography from the late 19th century to the present. This exploration will cross the traditional sub-disciplinary divisions of human geography, physical geography and GIScience, examining the ways in which all three have been woven together and pulled apart by broad intellectual trends in the discipline. When the course is finished, students should be able to place their own research into disciplinary context, and gain a useful perspective on the similarities and differences between contemporary geographic subfields, and their methods, as contingent, historical products.

GEOG 16301: Natural Resources, Capitalism, and Society 3 s.h.
Prerequisite(s): GEOG 16290 or ENST 94102 or ECON 04101 or ECON 04102 or POSC 07200
This course is a survey of world patterns of economic development, including the distribution patterns of population, natural and agricultural resources, and manufacturing and service endeavors. Emphasis is placed on spatial variations in types of economic organization and patterns of land and resource utilization. This course may not be offered annually.

GEOG 16302: Urban Geography 3 s.h.
A study of the geographic principles related to the distribution, growth, function, structure and regional setting of urban centers, this course emphasizes spatial aspects of contemporary urban problems in the U.S.

GEOG 16303: Political Geography 3 s.h.
Studying political units as spatial phenomena, this course focuses upon the wide range of geographic factors affecting past and present variations of world political organizations and the interrelationships of regional political units. It analyzes "Geopolitik," "The Heartland Theory," and other political-geographic concepts, as well as selected problem areas. This course may not be offered annually.

GEOG 16304: Population Geography 3 s.h.
This course provides a spatial analysis of population parameters as they exist in the contemporary world, examining demographic, cultural and economic variables and how they affect certain population groups. This course may not be offered annually.

GEOG 16307: Transportation Planning and Policy 3 s.h.
This course provides an introduction to transportation planning and policy in the 21st Century United States context. The course examines all aspects of the modern transportation system, from questions of accessibility and financing to equity and sustainability. Students will acquire a comprehensive knowledge of how transportation systems work and how our society will need to improve them in the near future.

GEOG 16308: Sensing the Sustainable City 3 s.h.
This course explores the role of sensory experience in environmental design, planning, and practice. Beginning with the assertion that sustainable cities must be designed for people (not cars), this course carefully examines the human dimension in the making of healthy, happy, and just human habitats. Timely topics in sustainable urbanism will be examined through the senses, including, for example, biophilia, walkability, happy cities, green aesthetics, and universal design.

GEOG 16312: Cultural Landscapes 3 s.h.
This course explores how various physical landscapes reflect and exemplify the values, beliefs and ideas of a particular culture. It traces the transition of spaces to places, looks to the past for clues as to the relationship societies have had with the land, and examines the role of planning in building representative communities today. The course also considers the visual aspect of a cultural landscape, and how its message is captured and processed both by our senses and by our technology.

GEOG 16321: Geography of Beer 3 s.h.
Beer is the world's most consumed alcoholic beverage and each beer's unique flavor is impacted by both the physical environment from which the ingredients come, as well as the people who made it. Through lecture, readings, discussions, field-trips, and a case study final project, students in Geography of Beer will learn foundational principles of physical geography that influence food and beverage production, as well as the cultural and economic aspects of society that drive the production of certain food and beverages in particular places.

GEOG 16331: Geography of the National Parks 3 s.h.
This travelling geology course introduces students to the geology, and along the way geography, of the western United States using national parks and national monuments as field laboratories. Students will learn the basics of western geology while visiting some of the most spectacular natural regions in the world including Death Valley, the Grand Canyon, Yellowstone, Grand Teton, Crater Lake and Yosemite National Parks.

GEOG 16332: Geomorphology 3 s.h.
Prerequisite: GEOG 16330 OR GEOL 14100
A study of the evolution of land forms, this course examines the processes and physical factors which determine the development of the various types of landscape throughout the world by using case studies.

GEOG 16334: The Geography of Natural Disasters 3 s.h.
There are thousands of examples in which the forces of nature have suddenly claimed human lives and destroyed manmade constructions on a large scale. This course will introduce the nature, causes, risks, effects, and prediction of natural disasters including earthquakes, volcanic eruptions, landslides, subsidence, global climate change, severe weather, coastal erosion, floods, mass extinctions, and meteorite impacts. It will cover geologic principles and case histories of natural disasters and human responses (societal impact, mitigation strategies, and public policy).

GEOG 16335: Field Studies In Geography 3 s.h.
This course provides students with field research skills necessary to geographic research. It emphasizes techniques of field observation and recording, using a combination of lecture-discussion and field practice. This course may not be offered annually.

GEOG 16338: Climatology 3 s.h.
A study designed to develop an understanding of the elements and controls associated with various climatic phenomena, this course examines the consequences of climatic variations and interrelationships with other physical and cultural environmental features. It focuses on the physical and applied aspects of climatology. This course may not be offered annually.

GEOG 16342: Geography Of Europe 3 s.h.
An intensive study of the physical and cultural characteristics of the European continent and the individual countries of which it is comprised, this course examines such topics as regional integration, international problems, changing patterns of economic development, political stability and shifting population patterns. This course may not be offered annually.

GEOG 16343: Geography Of Asia 3 s.h.
This course examines the major environmental features of Asia, stressing problems of population pressure and land utilization. The course studies individual culture realms and selected countries intensively. This course may not be offered annually.

GEOG 16344: Geography Of Latin America 3 s.h.
This course studies the physical and cultural bases of Latin America's geographic patterns, giving special emphasis to problems of resource development, population trends, and economic activity. This course may not be offered annually.

GEOG 16345: Geography Of Africa 3 s.h.
An analysis of the diverse environmental factors, cultural groupings and national states comprising the African continent, this course emphasizes the problems of resource development and political stability of the newly emerging nations. This course may not be offered annually.

GEOG 16346: Geography of Russia and Its Neighbors 3 s.h.
This course studies in depth the geography of the former Soviet Union by focusing on regional variations in population distribution, cultural and ethnic inputs and physical environmental constraints. It emphasizes the respective roles of past centralized planning under Communist doctrine, practical experiences and resource distribution as they influenced economic development and, in effect, changed the geography of the area to a major degree in the 20th century. It further examines the consequences of the break-up of the U.S.S.R. on the 15 separate countries. This course may not be offered annually.

GEOG 16347: Geography Of The Middle East 3 s.h.
This course is a survey of the physical environmental factors as they affect the patterns of settlement, land utilization and economic development of the regions and individual countries that comprise the Middle East. This course emphasizes the geographic bases for the current Arab-Israeli dispute. This course may not be offered annually.

GEOG 16350: Quantitative and Qualitative Methods 3 s.h.
This course introduces quantitative and qualitative techniques designed especially for analysis of spatial patterns and distributions. Students will learn a variety of inferential statistical methods, including basic elements of sampling, analysis of variance, and probability. Students will also learn how to combine knowledge learned from these methods with qualitative methods such as interviews, focus groups, and observation.

GEOG 16355: Foundation In Geographic Knowledge-WI 3 s.h.
This course will develop a deep and fluent understanding of geography and its evolution in America's intellectual and educational landscape. It will focus on the themes and essential elements in geography education with the goal of facilitating students' understanding of geography's evolutionary history and the relationships between geographic phenomena and other programs and disciplines. Students will learn how to include geographic thinking to solve real-world problems. The course may not be offered every semester.

GEOG 16360: Applications of Geographic Information Systems 3 s.h.
Prerequisite(s): GEOG 16260
Applications of Geographic Information Systems builds upon the foundational concepts introduced in pre-requisite courses to examine the concepts and techniques of advanced geospatial analysis. Building upon a series of techniques, coupled with real-world applications, students employ geospatial data and methods to complile, analyze, visualize, and interpret results, as well as examine critical issues related to data management and maintenance. The course is intended to prepare the student for both the professional GIS workforce and advanced research with GIS.

GEOG 16361: Geovisualization 3 s.h.
Prerequisite: GEOG 16160
This course explores geovisualization and related GIS and cartographic techniques. Geovisualization communicates geospatial information in ways that allow for data exploration and decision-making processes. Techniques covered include temporal modeling of processes over time and 3D fly-thru of virtual terrain. The techniques are applied to real-world problem solving in fields such as environmental modeling, planning, archeology, crime mapping and natural resource management.

GEOG 16365: Geospatial Measurement and Environmental Modeling 3 s.h.
Prerequisite: GEOG 16160
This course introduces advanced techniques in the GIS data manipulation, geostatistics and geospatial modeling. The fundamental theories behind the analytical and modeling techniques are covered in detail. The theoretical knowledge will be enforced by a series of intensive computer exercises using real data sets. It covers descriptive and predictive GIS modeling techniques, including logit modeling (logistic regression), spatial statistics, geo-statistics, environmental diversity indices, Boolean logic, and map algebra.

GEOG 16370: Drones, Planes, and Satellites 3 s.h.
Prerequisite: GEOG 16160
This course introduces students to techniques of spatial analysis using satellite imagery and aerial photography. It intersperses practical exercises in photo interpretation and digital image processing with demonstrations that include a wide range of photographic and non-photographic source material, including infra-red thermal and micro-wave images, digital orthographic photos as well as LANDSAT and other satellite platforms.

GEOG 16375: Remote Sensing Of The Environment 3 s.h.
Prerequisite: GEOG 16260
This course emphasizes the integration of remotely sensed data into geographic information systems (GIS). It includes applications of advanced remote sensing techniques and data processing for use in environmental planning and land resource management. This course may not be offered annually.

GEOG 16388: Risks, Hazards, and Air Disasters 3 s.h.
Perhaps no other industry has been forged so directly by tragedy. Gut-wrenching disaster investigations have yielded an industry that is statistically exemplar today, but is still subject to the same lens. This course is designed to explore where air accidents are most likely to occur and why this is so. Factors including altitude, runway orientation, weather, language and customs, delays, and pressure to "complete the mission" are often involved. There are an average of 7 human mistakes that culminate in disaster, and the stresses caused by these factors are believed by experts to play a major role in the accident chain of events. The course will also review accident causation models and employ case studies from the National Transportation Safety Board (NTSB) Aviation Accident Reports and those from international agencies.

GEOG 16390: Geography Research Clinic/Studio 1 to 6 s.h.
This course presents a project-based experience for students working with a faculty mentor. Modeled on the engineering clinic and a traditional planning studio, students apply knowledge gained through their previous coursework to solve a particular research, policy or planning problem. Projects will be solicited from local agencies and businesses and students will work as individuals or within teams to provide viable solutions.

GEOG 16391: Directed Geographic Field Experiences 3 s.h.
This course offers an introduction to geographic field research methods, class field trips to places chosen by instructor and students. Students will complete a field research project taken on a topic chosen in consultation with the instructor. This course may not be offered annually.

GEOG 16462: Web-Based GIS Mapping 3 s.h.
This course introduces web-based mapping technologies and applications. Students will gain the skills of creating their own map services which can then be used to create custom web-based maps. The course will focus on both open-source and commercial software packages to produce mapping and data services. Students will also explore the client-side offerings to produce mapping applications. The course culminates in a final web mapping project.

GEOG 16489: Research Seminar in Geography 3 s.h.
Prerequisite(s): COMP 01112 and GEOG 016290
Students participate in planning a research project, collecting data and preparing a report suitable for publication including cartographic materials. Research subjects are selected according to student interest. This course is regularly offered and may be available as a hybrid or online format.

GEOG 16490: Undergraduate Research Seminar In Geography-Wi(Senior Seminar) 3 s.h.
Prerequisites: COMP 01112 and GEOG 16290
Students participate in planning a research project, collecting data and preparing a report suitable for publication including cartographic materials. Research subjects are selected according to student interest. This course is regularly offered and may be available as a hybrid or online format.

GEOG 16491: Independent Study in Geography 1 to 4 s.h.
Students have an opportunity to pursue individual specialized topics under the guidance of a staff member. This course may not be used as a substitute for a course offered by the department.

GEOG 16553: Workshop In Geography 1 to 3 s.h.
This course is designed for in-service teachers who wish to further develop their competencies in new teaching techniques and technologies in geography, including computer-assisted instruction and computer cartography. Contemporary geographic topics will be explored within a regional context of each major world region. Students will actively participate in applying new concepts, current data, and innovative techniques in geography by designing and presenting sample lessons at their grade level. (Summer only)

GEOG 16561: Cartography 3 s.h.
Prerequisite(s): GEOG 16560 or GEOG 16160 or permission of the instructor
This course studies the elements of cartography with emphasis on the map as a basic form of communication. It explores contemporary design concepts and various graphic techniques. Students create cartographic compositions using the latest in geographical information system and cartographic software using the facilities of the department's computer teaching laboratory. This course is targeted toward graduate students.

GEOG 16565: Geographic Information Systems (GIS) Topics And Applications 3 s.h.
Geographic Information Systems (GIS) Topics and Applications provides an extended exploration into geospatial science and analysis at the graduate level. Students develop advanced GIS skills through a project-based approach culminating in a final project and presentation. The course deepens the understanding of raster and vector data structures as well as the ability to work with computational algorithms used in GIS analysis. Students learn through lectures, demonstrations, computer laboratory sessions and a project paper and presentation.

GEOG 16591: Independent Study in Geography 3 s.h.
This course provides individual enrollment semester hours in directed study and/or research under the supervision of a faculty member. Topics will vary.

PLAN 31100: Earth, People, Environment 3 s.h.
This course provides a broad survey of spatial and place-based approaches to knowledge about the world and the place of humans within it. The course introduces the natural order of the physical environment, human modification of environments, organization of society, planning and regional studies. The course places particular emphasis on contemporary environmental problems and the role of spatial and place-based perspectives in helping to understand and address local, regional, and global issues related to the environment.

PLAN 31280: Foundations of Planning 3 s.h.
This course provides students with a conceptual foundation to the field of planning. Topics include the history and development of planning, the politics of planning, planning analysis and implementation, urban design, environmental planning and planning implementation process and management. Particular emphasis is placed on the current trends in the field including ecological based planning, redevelopment and sustainable communities.

PLAN 31340: Introduction to Historic Preservation 3 s.h.
This course introduces students to the practice of historic preservation as undertaken by urban and regional planners. Students learn about different philosophical approaches to preservation, as well as cultural awareness of different types of and needs for preservation. Students learn the legal and regulatory aspects of historic preservation, as well as how to gather information about historic properties, buildings, and other spaces in order to advance preservation efforts. Preservation technologies are examined, as are efforts to advance goals of sustainability within preservation.

PLAN 31350: Quant & Qual Methods 3 s.h.
This course introduces quantitative and qualitative techniques designed especially for analysis of spatial patterns and distributions. Students will learn a variety of inferential statistical methods, including basic elements of sampling, analysis of variance, and probability. Students will also learn how to combine knowledge learned from these methods with qualitative methods such as interviews, focus groups, and observation.

PLAN 31377: Airport Planning, Systems Design, and Management 3 s.h.
The course and text are focused on major commercial airports that have annual passenger counts exceeding 1 million. We will also explore a handful of smaller regional airports and military facilities that play (or can play) a supporting role when conditions or events dictate alternatives to the major commercial facility such as Gander, Newfoundland played during the 911 terror attacks.

PLAN 31380: Planning History, Theory, & Ethics 3 s.h.
Prerequisite: PLAN 31280
This course provides a chronological review of the major theoretical trends that have shaped the field of planning, including a review of theories that define what planning is and the ethics that inform current planning practice.

PLAN 31381: Introduction to Smart Cities and Society 3 s.h.
What makes a community smart, sustainable, and healthy? What technological advancements or trends do we need to be aware of while designing smart cities? How do smart cities create data using sensors to combat the causes and effects of pollution and climate change? What are the consequences of smart city initiatives on environmental sustainability, social equity, and quality of life? How do smart city planners engage the public in their decision-making process? What are the challenges or opportunities of smart city planning and implementation? What are the major critiques? This course uses a social science lens to address these questions and review the emerging digital technologies applied in smart city design, management, and governance, within the context of both the Global North and Global South. The course content is appropriate for future planners, geographers, policymakers, and relevant professionals.

PLAN 31383: Metropolitan/Regional Planning 3 s.h.
Prerequisite: PLAN 31280
This course studies the philosophy, history, techniques, and problems of metropolitan and regional planning. Although it focuses on large scale-planning in the United States, the course makes some comparative analysis of planning in other countries. It emphasizes geographic techniques in regional analysis, as well as the roles of federal, state, and local agencies in planning. Students learn and use simulation and gaming techniques in the preparation of regional plans. This course may not be offered annually.

PLAN 31384: Water Resources Planning 3 s.h.
Prerequisite: PLAN 31280
This course explores water management planning and the public decision making process in metropolitan areas. Topics covered include analysis of systems, resources and issues affecting water supply and treatment.

PLAN 31385: New Jersey Applied Planning Practice 3 s.h.
Prerequisite: PLAN 31280
This course will cover planning in New Jersey, its legal basis and how it is practiced. It will cover the specifics of the local planning boards, zoning board of appeals, master planning, planning procedures and processes. Topics such as affordable housing, regional planning coordination, smart growth, and physical design will be addressed.

PLAN 31386: Land Use And Conservation 3 s.h.
Prerequisite: PLAN 31280
This course examines people's changing perceptions of the economic use potential of land focusing on how land is a combination of physical, economic, political and cultural interactions. The course explores the basics of land use law, property rights, land use conflicts and the various avenues for land conservation and open space preservation.

PLAN 31387: Food Systems Planning 3 s.h.
This course explores the food supply chains within the US that bring food from the field to the table and describes the ways that planners are utilizing traditional planning tools to build more sustainable and resilient regionally based food systems. Students will compare both conventional and alternative supply chains identifying the benefits and limitations of both, as well as examine the policy and programmatic initiatives taken by planners to maximize these benefits and minimize these limitations. Additional topics include land conservation, food access, urban agriculture and economic development.

PLAN 31389: Environmental / Sustainable Planning 3 s.h.
Prerequisite: PLAN 31280
Environmental/Sustainable Planning addresses the advances and trends that are occuring related to environmental and sustainability issues within the field of planning from a local to global perspective. The course will explore some of the national trends of environmental and sustainable planning focusing on programs such as the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) programs for fostering green building and smart growth development. The course will also cover some specific New Jersey environmental planning issues such as the Pinelands, open space preservation and smart growth initiatives.

PLAN 31390: Planning Clinic 1 to 6 s.h.
This course presents a project-based experience for students working with a faculty mentor. Modeled on the engineering clinic and a traditional planning studio, students apply knowledge gained through their previous coursework to solve a particular research, policy or planning problem. Projects will be solicited from local agencies and businesses and students will work as individuals or within teams to provide viable solutions.

PLAN 31486: Community Planning, Engagement, and Design 3 s.h.
Prerequisite: PLAN 31280
This course introduces various planning methods applied in community planning, community engagement, and community design activities by using a Diversity, Equity, and Inclusion (DEI) framework. The course content focuses on spatial or physical planning topics such as the design, arrangement, appearance, and functionality of building sites, neighborhoods, towns and cities, as well as the shaping and uses of safe public spaces. The course also explores sustainable design principles, techniques, and practices related to spatial or physical planning. Students explore design elements at both macro and micro scales and learn to incorporate those elements in workable urban design projects and community plans.

PLAN 31490: Research Seminar in Planning-WI 3 s.h.
Prerequisite(s): COMP 01112 and PLAN 31350 and PLAN 31351
Students participate in planning a research project, collecting data and preparing a report suitable for publication including public outreach materials. Students learn how to develop a problem statement, conduct a literature review, create and implement a pilot study, analyze data, and communicate results. Research subjects are selected according to student interest. This course is regularly offered and may be available as a hybrid or online format.

PLAN 31495: Planning Studio-WI 3 s.h.
Prerequisites: GEOG 16.160 AND PLAN 31.280 AND PLAN 31.385 AND PLAN 31.486
Undergraduate planning students produce a "plan" in this studio course. Under direct supervision of planning faculty, students undertake a planning project in collaboration with a local, regional, national, or international client. Working in small groups, students apply their relevant knowledge and skills gained from previous coursework. As appropriate, students engage community stakeholders and assess their interests. The final product of this studio course is a professional-level plan or a policy report.

GEOL 01101: Physical Geology 4 s.h.
This course introduces the fundamental concepts of the physical Earth through geology. Within this course students explore the physical features of the Earth's surface and interior and the geological processes leading to their constant change. Topics include plate tectonics, mountain building, volcanism, earthquakes, weathering and erosion, and the internal structure and materials that make up the Earth. Laboratory exercises provide a practical understanding of physical geology through solving problems based in geology. The course will have a field trip to Edelman Fossil Park. The course is suitable for all students.

GEOL 01102: Earth Through Time 4 s.h.
In this course we examine the history of Planet Earth as it is recorded in the geological record. The course emphasizes geological time and the evolution of the Earth and its organisms over time. We explore the fundamental processes that have shaped the Earth and the various lifeforms that have inhabited it. The laboratory component emphasizes principles of geological interpretation involving visualization of time from a geological perspective and experiential learning about the forms that have inhabited Earth in the past. The course will have at least one field trip to the Edelman Fossil Park.

GEOL 01105: Selected Topics in Geology 3 s.h.
The content of this course varies to reflect the role of geology in society, both past and present. A limited number of topics are selected from the following: Planetary science, space exploration, climate change, applied geology, earthquakes and volcanoes, paleontology (both invertebrate and vertebrate), mineral and energy resources within geology, geological hazards, geology and the environment, geology and society. Students will explore the fundamental principles and emerging topics in geology and their relationship to the human experience and society. The course is suitable for all students.

GEOL 01110: Dinosaurs and Their World 3 s.h.
An introduction to the "terrible lizards" that ruled our planet for over 150 million years. Emphasis will be placed on the scientific method and its applications to the study of dinosaurs. Topics will include dinosaur evolution, interrelationships, extinction, and the evolution of those dinosaurs still among us (birds). This course is suitable for all majors.

GEOL 01111: Edelman Fossil Park Experience 4 s.h.
During laboratory experiences and field trips to Jean and Ric Edelman Fossil Park at Rowan University, students will be introduced to the principles of geology through laboratory and field experiences. Students will learn techniques involved in fossil excavation, identification, preparation, and field data collection. Students will also assist with ongoing STEM education outreach efforts. Through this class, students will experience science as a process from discovery to dissemination. This course is suitable for all majors including exploratory studies.

GEOL 01112: Motion of Life 3 s.h.
This course will provide an introduction to the concepts and principles of evolution through the study of motion: learn how evolution resulted in fish that walk, descendants of Velociraptor that fly, and apes that stand upright. This course connects the evolutionary history of animals with their unique traits, locomotion styles, and influences on human engineering and design. Topics covered will include the relationship between form and function in extinct and modern animals, how evolutionary history influences this relationship, and the relevance of these topics to other fields ranging from biomechanics to exercise science. The course is suitable for all majors.

GEOL 01120: Earthquakes and Volcanoes 3 s.h.
Earthquakes and volcanoes are major geologic phenomena that provide insight about the nature of the Earth hundreds of kilometers beneath our feet. This course offers a broad overview of the geologic principles that govern earth processes at tectonic plate margins. Students will learn about architecture, processes, and evolution of plate margins from the mantle to the crust. By the end of the course, students will be able to use observations on the Earth's surface to predict deep Earth processes associated with earthquakes and volcanoes. An emphasis will be placed on the impact of these phenomena on civilization from a historical and a planning perspective.

GEOL 01131: Earth in Transition: The Science of Global Climate Change 3 s.h.
This course provides a scientific foundation for understanding one of the most significant and complex issues facing the planet today: global climate change. It utilizes scientific evidence, theory, and inquiry to explore the fundamental physical processes that drive the climate system; the human fingerprint on climate and our Earth more broadly; and the state of the science regarding how climate has changed over the recent past and how it will continue to do so into the future. The impacts of climate change will be investigated, including assessments of warming in Earth's atmosphere and oceans, rising sea level, variations in precipitation, changes to biological and ecological systems, and finally the potential consequences of this change for global society, as well as the potential solutions. This course is suitable for all majors.

GEOL 01133: Climate, Catastrophes, Civilizations and Collapses 3 s.h.
This course explores how the Earth system processes that shape our physical environment can – via gradual or sudden environmental change – stress human societies and cause them to collapse. In this course, we will examine the physical basis of earth system processes that adversely affect human societies, including seismic events, geological hazards, and climate variability. We will utilize scientific evidence and inquiry to critically assess case studies of past societies that attempted to cope with environmental changes. How those societies had adapted to their environment, the environmental changes that occurred, and the response of those societies to these stressors will be examined. We will use the concepts of environmental vulnerability, resilience and societal collapse to examine the role environmental change has on society, how it relates to other stressors, and how failures to identify, plan, or adapt to environmental hazards can lead to a society's collapse. This course is suitable for all majors.

GEOL 01136: Water Planet: Exploring the Hydrosphere 3 s.h.
The defining feature of our Planet is the deep blue of the world's oceans, covering over 70% of the Earth surface area to depths of up to 10 kilometers (5 miles). Despite centuries of exploration, humans have only visited an estimated 5% of the ocean's vast domain. In this course, we examine this fundamental and defining feature of planet earth – the oceans. We will chart the history of modern ocean exploration and examine what we know about the oceans, ocean currents, and physical forces that drive them. We will discuss the influence of the oceans on rainfall, drought, and climate, and the processes that occur at the interface of the oceans and land at our coastlines with emphasis on the coast of New Jersey. The effect that the ocean has had on human society, acting as both barrier and highway for trade and migration will be explored, and we will examine how changes in ocean properties under future climate conditions may alter our relationship with the oceans. This course is suitable for all majors including Exploratory Studies.

GEOL 01150: Voyager: The Exploration of Space 3 s.h.
The course encompasses how humans have explored space through the 20th and 21st centuries, covering both robotic and human missions. The course looks at the past, present, and future proposed missions with an emphasis on the study of planetary bodies. The course material will provide students with an in-depth appreciation of the relationship between the physical sciences, engineering, and social sciences through the human desire to explore. Students will engage in processing of real data from space missions and potentially contribute to active missions through this process. This course is suitable for all majors.

GEOL 01201: Mineralogy and Petrology 4 s.h.
Prerequisite: GEOL 01101 with Concurrent Enrollment Allowed
Within this course students investigate the nature of Earth materials starting with the foundation material, minerals, through exploring systematic mineralogy, mineral chemistry and optical theory as applied to mineral identification in thin section. The course introduces students to the rock cycle, sedimentary, metamorphic and igneous rocks. In the course explore how minerals and rocks are recorders of processes that shape the Earth and other planetary bodies. Laboratory exercises are focused on developing practical knowledge of how to identify minerals and rocks as hand samples or thin sections. Field experience is an integral part of the course.

GEOL 01210: Invertebrate Paleontology 4 s.h.
Prerequisite: GEOL 01101 with Concurrent Enrollment Allowed
The course will cover principles of invertebrate paleontology. In this course students will explore the fundamentals of phylogenetic systematic, paleoecology, and the fundamentals of biomarkers in geologic time. The course provides hands-on learning experience where students apply what they are learning in lecture to the identification of invertebrate fossils, starting with the Cambrian radiative explosion through to the recent past. Laboratory and field experience are an integral part of the course.

GEOL 01230: Paleoclimatology 4 s.h.
Prerequisite(s): GEOL 01101 and GEOL 01131
Earth's climate has been in a state of flux for its entire 4.6-Billion-year history. Only recently have humans evolved and become a leading driver of change. The scientific understanding of human's role is derived in large part from an understanding of past, natural climate variability reconstructed from geological and other paleoclimatological records. Utilizing evidence, hypotheses, and theory derived from these climate archives, this course explores the mechanisms of natural climate variability, timescales of change, and impacts of global change through Earth's history. It concludes with looking at where we are today in relation to the rich paleoclimatic record of global change. This course includes a closely

linked laboratory session incorporating applied analysis of climate and paleoclimate datasets.

GEOL 01240: Introduction to Field Methods in Geology 4 s.h.
Prerequisite: GEOL 01101 with Concurrent Enrollment Allowed
Introduction to Field Methods in Geology covers the principles of geological data collection and analysis through applied field investigation. This course provides a survey of the fundamental methods in geological field analysis, including field measurement, sampling, and mapping techniques. The course includes a weekly laboratory session and will include outdoor field trips.

GEOL 01250: Ocean-Atmosphere Interactions 4 s.h.
Prerequisite(s): GEOL 01101 and GEOL 01102 and PHYS 00150 or PHYS 00210 or permission of instructor
The exchange of energy and water between the ocean and atmosphere drives large-scale weather patterns, influences local climate, and are fundamental components of large-scale climate phenomena such as El Nino and La Nina. In this course we will use scientific evidence and inquiry, understanding of physical principals and quantitative reasoning to explore the physical forces that drive ocean and atmospheric circulation. We examine how energy and water move and are exchanged in the ocean-atmosphere system, and how those interactions influence Earth's climate. This course will discuss the movements of air and water masses, major ocean currents, the effect of Earth's rotation on ocean and atmospheric movement, winds, weather and climate variability. This course is suitable for majors and minors in Geology and Geography, Planning and Sustainability (GPS).

GEOL 01301: Advanced Field Methods 4 s.h.
Prerequisite: GEOL 01240
This course builds off of GEOL 01240 and explores more detailed methods of field techniques in the geosciences. Students will learn how to map and correctly illustrate geologic formation and construct geological maps and interpret the geological history of the mapped areas. The course is both laboratory and field intensive. The course has a laboratory component.

GEOL 01303: Advanced Topics in Geology 3 s.h.
Prerequisite: GEOL 01102
The content of this course varies to reflect the role of geology in society, both past and present and difference from GEOL 01105 in that the subject material is covered at a more rigorous level than the first-year course. A limited number of topics are selected from the following: Planetary science, space exploration, climate change, applied geology, earthquakes and volcanoes, paleontology (both invertebrate and vertebrate), mineral and energy resources within geology, geological hazards, geology and the environment, geology and society. Students will explore the fundamental principles, advance science, and emerging topics in geology and their relationship to the human experience and society. This course is open to geology majors.

GEOL 01310: Paleontology Laboratory Techniques 4 s.h.
Prerequisite: GEOL 01102
Paleontology Laboratory Techniques provides an overview of the most common steps involved in laboratory research of fossils, including training in fossil preparation methods, how to identify fossil remains, specimen photography, scientific illustration, preparation of histologic slides, how to create molds and casts of fossils, and curation techniques. The course also includes learning how to construct a research poster and give an effective oral presentation on research within the field of paleontology.

GEOL 01311: Vertebrate Paleontology 4 s.h.
Prerequisite: GEOL 01102
The course examines the evolutionary history of vertebrates, ranging from the origin of chordates in the Cambrian to the rise of dinosaurs, mammals, and hominids. Emphases are placed on the anatomical diagnoses of vertebrate clades and their phylogenetic relationships, as well as major milestones in vertebrate evolution such as the origins of terrestrial locomotion and flight. Lab exercises examine skeletal anatomy of vertebrates, functional adaptations, and the role of skeletons in discerning phylogenetic interrelationship of vertebrates.

GEOL 01312: Dinosaur Paleontology 4 s.h.
Prerequisite: GEOL 01102
This course examines the origin and evolutionary history of non-avian dinosaurs, including their extinction. Emphases are placed on the anatomical diagnoses of dinosaur clades and their phylogenetic relationships, the origin of birds, and functional adaptations exhibited by dinosaurs. Lab exercises will examine the anatomy of dinosaur bones, adaptations exhibited by dinosaurs, and the role of their skeletons in discerning their phylogenetic interrelationships.

GEOL 01313: Breathing Life into Fossils: The Science of Paleoart 4 s.h.

In this course, students will learn how scientists and artists combine anatomical studies of fossils, comparative anatomy, phylogenetics, geology, and art in order to accurately reconstruct life and environments through geologic time. Students will learn basic musculoskeletal and soft-tissue anatomy, plus taphonomy, sedimentology, and paleoecology. Students will also review the most recent research and findings concerning the reconstruction of ancient life. The course will involve reading literature, anatomical sketching, and utilizing knowledge gained to create a scientifically accurate depiction of extinct organisms.

GEOL 01320: Sedimentology and Stratigraphy 4 s.h.

Prerequisite: GEOL 01101

Sedimentary rocks record key information for helping to decipher Earth's history. Sedimentology is the study of sediments, their transport, and ultimate deposition. Stratigraphy is the analysis of the resulting sedimentary formations and the information these provide on past environments. This course encompasses the study of modern sedimentary processes, as well as the analysis and interpretation of sedimentary and depositional environments through the geological record. It is a hands-on learning experience encompassing lectures, laboratory analysis, and fieldwork.

GEOL 01321: Basin Analysis 4 s.h.

Prerequisites: GEOL 01201 and GEOL 01320

Sedimentary basins archive the record of rising and falling mountains, the migration of ancient oceans, and can even indicate changes in the composition of the Earth hundreds of kilometers below the surface. This course prepares students to integrate exposures of sedimentary rocks to make interpretations about regional subsidence mechanisms that form sedimentary basins and identify how these mechanisms evolve through geologic time. In the first half of the class, students will learn to distinguish the genetic properties of different sedimentary basins. The second half of the course will introduce techniques for analyzing these basins including measurements and observations of sedimentology, geochronology and thermochronology tools, geochemical evidence of paleoclimate conditions, and analytical modeling techniques. The course will include a major field-based project which will provide students with the opportunity to use the concepts from the course to analyze a basin from outcrop. Because sedimentary basins contain many resources including hydrocarbons, ores, and water, the course will integrate activities with that integrate applied problems in the fields of energy, sustainability, and resource management.

GEOL 01331: Climate Change and the Cryosphere 4 s.h.

Prerequisite: GEOL 01131 or GEOL 01101 or consent of instructor

In this course we explore the cryosphere, Earth's glaciers, ice sheets, ice caps, sea ice, snow, and permafrost. We investigate the cryosphere as an integrated component of global Earth systems, assessing how climate change impacts the cryosphere, and conversely, how cryospheric changes impact the broader earth system. This is a lab-based course in which we will analyze, observe and model cryosphere and climatic datasets and discuss emerging topics in the science of Earth's cold places.

GEOL 01340: Tectonics and Structural Geology 4 s.h.

Prerequisite(s): GEOL 01201 and GEOL 01240

The course introduces students to the science of how Earth material deform, broke, and are changed through gaining knowledge of the processes that produce these changes. The course focuses on the importance of plate tectonics with the practical application of tectonic forces on the geological rock system. The course has a laboratory component.

GEOL 01350: Advanced Petrology 4 s.h.

Prerequisite: GEOL 01201

The course completes a students required learning in minerals and rocks and picks-up where GEOL 01201 ends. Students receive more detailed knowledge of rocks with the course focused on the understanding in detail the of various rock types including gaining knowledge of phase diagrams. The course has a laboratory component. Field experience is an integral part of the course.

GEOL 01353: Geochemistry 4 s.h.

Prerequisite: GEOL 01201

In this course we explore the chemistry of geological materials and the importance of geochemical signatures with geologic systems for understanding the origins and evolution of minerals and rocks. In the course both practical and theoretical geochemistry is emphasized within low and high temperature geological systems. The course has a laboratory component that emphasizes the practical application of the science learned in lecture.

GEOL 01400: Practical Experience in Geology 3 s.h.
Prerequisite: Restricted to B.S. in Geology major only
To train future geologists in the B.S. degree program, a summer internship is required. This internship can follow a classic geology pathway through a departmentally approved field course through another university, or a departmentally approved internship such as a Research Experience for Undergraduates (NSF funded) offered by another university. Students in the B.S. degree program must take this course during the summer of their third year.

GEOL 01410: Taphonomy 4 s.h.
Prerequisite: GEOL 01102
All living organisms eventually succumb to the same end: death. Taphonomy is the study of everything that happens to an organism from the time of its death until its discovery as a fossil. This course explores the varied environmental, geologic, and biologic processes that act on organic remains after death, including how these processes can bias the fossil record or yield information about past ecosystems. The course has a laboratory component that compliments the lecture series.

GEOL 01411: Paleoecology 4 s.h.
Prerequisite: GEOL 01102
This course explores the ecological relationships of dinosaurs and other extinct organisms through paleontological evidence. Combining the fields of paleontology, geology, and biology, this course examines how paleontologists can reconstruct aspects of the inter- and intraspecific behavior of organisms in the past, including predator-prey relationships, sociality, migration, and parenting. Students will also learn methods for characterizing ancient ecosystem structures and apply these techniques to characterize the paleoecology of a fossil assemblage. The course has a laboratory component that compliments the lecture series.

GEOL 01412: Macroevolution in the Fossil Record 3 s.h.
Prerequisite: GEOL 01210
Change through time of populations of a species, called microevolution, has become accepted as scientific fact. But how do entire communities evolve? Macroevolution in the Fossil Record explores the evolution of taxonomic groups larger than an individual species over geologic timescales. Topics covered will include cladogenesis, causes and effects of mass extinctions, rates of speication and extinction, controls of biodiversity, and the roles of sex and body size in evolution, with an emphasis placed on examples of these processes in the fossil record.

GEOL 01413: Paleobiology 4 s.h.
Prerequisite: GEOL 01102
In this course, students will explore what scientists know about the biology of extinct organisms and the methods used to discern these insights. Topics covered will include areas of active paleontological research such as coloration, growth, gender, metabolism, and locomotion. Using primary literature, scientific debates within these areas will also be investigated and discussed. The course has a laboratory component that is a compliment to the lecture series.

GEOL 01421: Hydrogeology 4 s.h.
Prerequisite: GEOL 01320
Water is among Earth's most precious commodities. In the course, we explore the hydrologic cycle, as it pertains to water moving through rocks and sediment. Students will study aquifers and examine the effects of human activity on groundwater. The Edelman Fossil Park will serve as a living laboratory for this course. The course has a laboratory component that emphasizes the practical application of the science learned in lecture.

GEOL 01430: Climate Variability and Diagnostics 4 s.h.
Prerequisites: GEOL 01131 and CS 01104 and MATH 01130 and GEOL 01250 or consent of instructor
In this course, we explore global- and regional-scale atmospheric and oceanic variability, as well as observed and projected manifestations of anthropogenic forcing. This course emphasizes hands-on laboratory experience in applying diagnostic spatial and temporal analyses to a wide range of state-of-the-art observational (e.g., instrumental, satellite, reanalysis) and modeled climate data products.

GEOL 01435: The Ice Ages and Quaternary Geology 4 s.h.
Prerequisites: GEOL 01101 and (GEOL 01102 may be taken concurrently)
This course explores the intervals of Earth history dominated by large ice sheets focusing on the last two Epochs of Earth history, the Pleistocene and Holocene. These periods have featured large variations in climate, changes in ocean circulation, the growth and decay of continental ice sheet, the evolution and extinction of large mega-fauna, and the rise and eventual dispersal of a moderately clever tool using ape from the African plains. Topics covered include glacial and ice sheet processes and dynamics; terrestrial, lacustrine, and marine paleoclimate records of the Pleistocene and Holocene; glacial geomorphology and landforms; and the impact of glaciation on the carbon cycle, hydrologic cycle, fauna, flora and human evolution.

GEOL 01440: Geochronology and Thermochronology 3 s.h.
Prerequisite: GEOL 01201
Quantitative geochronology provides the boundary conditions for understanding the evolution of the Earth and other planetary bodies by providing the ability to calculate dates and rates of Earth and planetary events and processes. The utility of geochronology transcends the field of Geology and proves useful in fields such as archaeology, ecology, and marine science. This course will build a foundation in the processes of radioactive decay, trace element behavior, diffusion as well as differentiation and recycling in the Earth and solar system. Students will apply this fundamental material to derive and calculate dates from suites of chronometers from high (geochronometers) and low (thermochornometers) temperature systems. The course will investigate applications of these techniques in understanding tectonic, climatic, and erosional processes.

GEOL 01445: Glacial Geology 4 s.h.
Pre-requisites: GEOL 01102 and GEOL 01230
At their most basic level glaciers are simple systems responding to changes in temperature and precipitation (i.e. climate), and are therefore key to understanding Earth's climate system. In this course, students will explore the mechanisms and processes behind glacier movement and deformation, how glaciers interact with the surface of the Earth, and how glaciers both affect, and are affected by, changes in climate. Students will use this knowledge to then interpret past glacier activity recorded in the geologic record, what that information says about past changes in climate and sea level, and how it is relevant to understanding future climate change.

GEOL 01450: Senior Seminar in Geology 2 s.h.
Prerequisite(s): Enrollment in B.S. or B.A. in Geology
The course will teach students how to read scientific papers within geology, how to critically critic such papers, and how to express in writing and orally their thoughts on a research paper using precise language founded in science. Students learn how to conceptually construct viable research projects. One semester of this course is required for both B.A. and B.S. degree majors.

GEOL 01455: Cosmochemistry 4 s.h.
Understanding the make-up of the cosmos, including that of the Solar System, requires data from the disciplines of Astronomy and Geology. The contribution to understanding the chemistry of the cosmos from Geology comes from the study of planetary materials. In this course we explore the geology and chemistry, including prebiotic compounds, of the earliest time of Solar System formation through the investigation of planetary materials—meteorites and extraterrestrial samples returned by space mission. In the course we also explore how meteorites and returned samples provide ground truth data from remote sensing generated by observational Astronomy. Finally, some meteorites hold clues to the formation of elements in stars in the form of presolar mineral grains, which the course will explore in detail. The course has a laboratory component that emphasizes the practical application of the science learned in lecture. This course is open only to geology majors.

GEOL 01460: Current Research in Geology 2 s.h.
Prerequisite(s): Enrollment in B.S. or B.A. in Geology
To fulfill the objectives of this course students are required to attend the School of Earth and Environment colloquium series. This course is based on the colloquium series and students are required to write about the series through the instructions of the faculty instructor.

GEOL 01470: Research Experience in Geology 2 s.h.
Prerequisite(s): Restricted to B.S. or B.A. in Geology majors only and permission of instructor
The course provides students with research experience in geology as undergraduates. Student select a geology faculty mentor to conduct at least one semester of research. One semester of this course is required for both B.A. and B.S. degree majors, but two semesters is encouraged for B.S. majors.

GEOL 01471: Advanced Research Experience in Geology 2 s.h.
Pre-requisite: GEOL 01470
The course provides students with advanced research experience in geology as undergraduates. Student select a geology faculty mentor to advise them on a second semester of research. While GEOL 01.470 is required for both B.A. and B.S. degree majors, a second semesters by taking this course is encouraged for B.S. majors.

CMB 00682: Lab Rotation C-MS CMB 1 s.h.

CMB 00683: Lab Rotation D-MS CMB 1 s.h.

CMB 00690: Thesis Research/MCBN 7 s.h.
The Mentor or Mentor-of-Record is responsible for grading this Satisfactory/Unsatisfactory graded course. A student can enroll in this course only once.

CMB 00699: Master of Science Thesis Continuation 1 to 9 s.h.
After completing the number of thesis credits as defined by the M.S. program requirements and completing required coursework, students may register for Master of Science Thesis Continuation during each subsequent semester of thesis phase. Master of Science Thesis Continuation will carry a variable credit weight of 1-9 credits (5 credits are part-time status; 9 credits are full-time status). The student's mentor will be responsible for certifying that a student is working on his/her thesis on a part-time or full-time basis commensurate with the number of credits they are registered for in a semester. Students will be charged the Master of Science Thesis Continuation fee of $200 per semester for thesis continuation regardless of the number of thesis credits for which they are registered. The maximum number of semesters that a student can register for thesis research and thesis continuation is four (2 years). The grading for this course is Satisfactory/Unsatisfactory, which does not affect the grade point average.

CMB 00702: Molecular Biology of the Cell 4 s.h.
Prerequisite(s): MBS & MPI students by permission only
This course is the cornerstone of the CMB program graduate curriculum and is taken in the Spring semester of the student's first year of graduate study. There are four sections to this course: I. Introduction to the cell. This section includes evolutionary aspects of the cell, a study of small molecules, energy metabolism and biosynthesis, macromolecular structure and function. II. Molecular genetics, including protein function, genetic mechanisms, recombinant DNA technology, the cell nucleus, and the control of gene expression. III. Internal organization of the cell, including membrane structure, transport mechanisms, cell signaling, cell division and the mechanisms controlling the phases of the cell-cycle. IV. Cells in their social context, including cell junctions, cell adhesion, germ cells and fertilization, cellular mechanisms of development, differentiation and tissue formation, the immune system and specialized tissues.

CMB 00802: Experimental Design 2 s.h.
Thesis students only
This course covers generally how experiments are designed, interpreted and critiqued in biomedical sciences. The focus is on how research is approached, including the reasoning behind hypotheses, controls, interpretation, and presentation. Discussions will revolve around published work and theoretical issues. The course will consist of advance reading assignments followed by in-class discussion and several writing assignments. The goal of the course is to give students the vocabulary and thinking skills to read biomedical research literature critically, participate constructively in peer review, and to better approach research problems.

CMB 00803: Scientific Writing 2 s.h.
This course presents the fundamental principles of scientific writing. Topics include components of a research paper, elements of a grant proposal, posters and power point presentations. Students will write an Abstract of a research paper and a Specific Aims page of a grant proposal. Students will also complete frequent short homework assignments, deliver an oral presentation, and critique/edit each other's work. This course is required for all first-year CMB doctoral and masters students.

CMB 00804: Critical Readings in Molecular Cell Biology & Neuroscience 2 s.h.
This course focuses on a key skill for scientists: how to effectively read and interpret scientific papers. The course takes the format of a classroom discussion of primary scientific literature, moderated by faculty from SOM's two basic science departments. The students will read journal articles provided to them on Blackboard and discuss these articles in class, with an emphasis on evaluating experimental support for the paper's claims, rigor in data analysis and the use of different methods to communicate ideas in a research manuscript.

CMB 00805: Cell Culture and Stem Cells 2 s.h.
Master students by Permission of Instructor
This course will introduce the student to major theories and methods of analysis of cellular-level functions and behaviors that underlie normal development in multicellular organisms and pathologies such as cancer and tissue aging. The first part of the course focuses on the design and interpretation of experiments in mammalian cell culture, with a particular emphasis on the validity of cell culture models for studying biological processes in vivo. The second part covers the fundamentals of stem cell biology, transgenic technologies and emerging therapeutic applications of stem cells.

CMB 00806: Graduate Genetics 2 s.h.
Master students by Permission of Instructor
This course covers advanced topics in genetic analysis and genetic methods. Our focus will be on the techniques and logic common to all research subjects, from viruses to humans. Previous exposure to Genetics is helpful but not required. Students must attend lectures, read the textbook, solve problems and read papers before each class.

CMB 00808: Molecular Oncology 3 s.h.
Master students by Permission of Instructor
The goal of this course is to provide a comprehensive molecular description of the causes of both cellular transformation and tumor progression. The course is divided into 3 sections. The first examines the role of cell cycle regulators (transcription factors, oncogenes, tumor suppressors) on tumor initiation. The second part investigates how signal transduction pathways, epigenetics, and genomic stability impact tumor development. The third aspect of the course describes host-tumor interactions including the immune system, angiogenesis, metastasis and cancer stem cells.

CMB 00809: Department Seminar Series 1 s.h.
Prerequisite(s): Masters students must registered for Lab Rotation or Thesis Research in same semester
This course exposes students to presentations of ongoing research projects by faculty, graduate students, and visitors from off campus. To promote development of presentation skills, student performances will be commented upon by other students by means of an evaluation form; these comments will remain anonymous, but student participation in this activity will be monitored. Grading will be based upon attendance and participation and will be tracked by a sign-in sheet that will be provided; a grade of satisfactory requires 70% attendance. Usually, there will be two seminars per week, one on Tuesday and one on Thursday; however, depending upon scheduling and the availability of outside speakers these slots may not always be used. (It is the student's responsibility to check the schedule frequently on the Cell and Molecular Seminar Series webpage: http://www.rowan.edu/som/research/cellbiology/calendar.html for the latest information). Occasionally, there will be seminar presentations on days other than Tuesday and Thursday; while attendance is not required at these presentations, students who have missed other presentations may wish to attend these in order to achieve their 70% target. Assuming two days per week for 15 weeks, 70% attendance would correspond to 21 out of 30 scheduled dates. If fewer seminars are scheduled, the target number will decrease accordingly. It is the student's responsibility to inform the Ms. Lynn Robbins, Cell Biology, 856-566-6417, UDP2200/Stratford or email at robbinld@rowan.edu) if he/she will be absent from a seminar due to illness, vacation, or scheduled lab event no later than the week after the seminar so that they may receive an excused absence (which counts towards attendance) for a required seminar date. In the case of off campus visitors, a luncheon may be arranged for students at the discretion of the host. In this case, a small group of students (usually 5 to 6 students) will be invited by the host (or may request) to join the luncheon; attendance is voluntary. One of the students will be designated as a student ambassador. The role of the student ambassador will be to host the luncheon and to prepare a short biographical sketch for the visitor, citing publications or abstracts that are pertinent to their subject matter. The ambassador will send this to Ms. Robbins one week before the seminar; she will then distribute it to all students and faculty. Work-In-Progress (WIP) oral presentations are required for all PhD candidates (those who have passed their Qualifying Exam). The month for WIP oral presentations will be assigned by the GSBS office based on the graduate year of the PhD student. Doctoral students in their 7th or 6th year will be expected to present their WIP in January/February of the spring semester or September/October of the fall semester. These students will present early in the semester as role models for the younger PhD students. The 5th/4th and 3rd year PhD students will then present their WIP in March/April of the spring semester or November of the fall semester. Room reservations to secure SC290 are to be addressed to Ms. Lisa Stressman, Department of Cell Biology, stresslm@rowan.edu.

CMB 00810: Biomolecular Interactions 2 s.h.
Prerequisite(s): MBS & MPI students by permission only

CMB 00907: Laboratory Rotation DO/PhD - CMB 3 s.h.
Laboratory rotations are essential components of a student's education in the Cell and Molecular Biology program. These experiences introduce students to specific areas of cell and molecular biology, expose students to specialized techniques, and familiarize students with specific projects in the program in anticipation of choosing a research advisor. Students will be evaluated on their attendance, motivation and interest within the lab as well as their attendance and participation at lab meetings. Students are responsible for learning new techniques, asking questions and working semi-independently by the end of each lab rotation. Students are encouraged to select their laboratory rotations so as to acquire diverse research experiences. Three laboratory rotations must be completed in the Cell and Molecular Biology program prior to the selection of a thesis advisor. Each lab rotation will consist of 7 weeks. DO/PhD students are expected to perform 1 or 2 Summer Medical Research Fellowships (SMRF) while still being a 1st or 2nd year DO student prior to officially enrolling in the PhD program.

MBS 00602: Antimicrobial Drugs: Mechanisms of Action & Resistance 3 s.h.
Prerequisite: Microbiology recommended
This course covers the mechanisms of action, selectivity, and resistance to agents that are used to treat microbial infections, including bacterial, fungal, protozoal, helminthic, and viral infections. The course does not cover clinical aspects of Pharmacology but is focused on molecular mechanisms of action of antimicrobial agents. It is intended to complement the Principles of Pharmacology (MBS 00612) course which is more clinically oriented. There is no substantial overlap with other GSBS courses including Principles of Pharmacology and Microbiology. It is recommended that students complete Microbiology (MBS 00610) and Fundamentals of Biochemistry and Molecular Biology (MBS 00501) or comparable undergraduate courses prior to taking this course.

MBS 00603: Immunology 3 s.h.
Prerequisite(s): MBS 00501 and MBS 00502 with minimum grade of C
Students will learn the basic concepts of the immune response and its role in human health and disease. The underlying mechanisms that lead to immunosuppression, autoimmunity, and hypersensitivity will be explored. In addition, the role of the immune system in cancer development and treatment will be examined. An emphasis will be placed on applying the learned concepts to clinical case studies throughout the course.

MBS 00604: Cancer Chemotherapy 2 s.h.
Prerequisites: MBS 00501 AND MBS 00502
Over 30% of people in the USA are diagnosed with cancer in their lifetimes. A recent (November 2013) PubMed search for "cancer" finds over 2.8 million publications. This represents several times more papers on cancer than other widespread ailments including "diabetes" or "arthritis". This sheer volume of cancer information attests to the complexities of cancer. This course is designed clarify chemotherapeutic approaches, their underlying mechanisms, and how research can lead to new and effective cancer treatments.

MBS 00605: Developmental Biology 2 s.h.
Prerequisites: MBS 00501 AND MBS 00502
Developmental Biology has been an integral part of the Biological and Medical Sciences since their inception. Developmental Biology addresses many important concepts including differentiation, morphogenesis, growth, reproduction, regeneration, evolution, and environmental interactions. This course will introduce fundamental concepts in Developmental Biology and mechanisms that control these events.

MBS 00606: Essential Neuroscience 3 s.h.
This course focuses on the basic molecular and biochemical aspects of neuronal physiology, emphasizing mechanisms that underlie the major classes of neurological disorders. Students will be provided with a fundamental understanding of the gross anatomy and general functions of the central nervous system at the cellular and molecular levels. The course will introduce essential concepts and facts on how neuronal cells communicate with each other, with examples of how neurotransmitter dysregulation and metabolic malfunction lead to the development of mental disorders. The course instructors are research scientists who have expertise in clinical neuroscience and translational research. There will be invited speakers who specialize in various neurological and psychiatric diseases with complex or heterogeneous etiology, including Alzheimer's Disease, Parkinson's Disease, White Matter Disease, Neuroinflammation and HIV-associated Neurorocognitive Disorders, Autism & Pharmacotherapy of Drug Addiction and Alcohol Abuse. The major goals of the course will be to introduce Master students to translational neuroscience and to the pivotal role that neuroscience plays in understanding and treatment of human brain diseases. Lectures will be supplemented with handouts, references and PowerPoint presentations.

MBS 00609: Mechanisms of Disease 3 s.h.
Prerequisite(s): MBS 00501 and MBS 00502 ("C" grade or better in each course)
This course will provide students exposure to the pathology of major organ systems. *This course is only open to students in the Histopathology and Anatomical Sciences programs.*

MBS 00610: Microbiology 3 s.h.
This is an introductory Microbiology course taken in the Fall Semester of the student's first or second year of graduate study. It strikes an appropriate balance between microbiological fundamentals and medical/research applications. It also provides a foundation in microbiology for those students planning to pursue advanced degrees. There are three sections to this course: I. Fundamentals of Microbiology. This section includes a brief history, methods used to observe microorganisms, and a study of microbial cell anatomy, metabolism, growth and genetics. II. A survey of the Microbial World, including classifications of Eukaryotes, Prokaryotes, Viruses, Viriods, and Prions. III. Interaction between the Microbe and host, including principle of disease and epidemiology, mechanisms of pathogenicity, innate and adaptive immunity, immunology and antimicrobial drugs. Although this course assumes no previous study of biology chemistry, a basic understanding of DNA, RNA, and proteins is recommended.

MBS 00611: Pathophysiology of the Cardiovascular System 3 s.h.
Prerequisite: MBS 00503 ("C" grade or better)
Cardiovascular disease remains the number one killer in the United States. Despite the current successes in the treatment of acute myocardial infarction, the incidence of heart failure continues to increase as the population ages. This course will explore the underlying causes of heart disease and other cardiovascular diseases with an emphasis on normal physiology, pathophysiologic changes and current controversies. The course will cover selected topics of cardiovascular disease including: common cardiac arrhythmias, ischemic heart disease, acute coronary syndromes, atherosclerosis, hypertension, diseases of the peripheral vasculature and heart failure. The purpose of this course is to examine the underlying causes and the most current thinking as it relates to cardiovascular disease. The course will involve both lecture presentation and discussion of current literature.

MBS 00612: Principles of Pharmacology 3 s.h.
The modern discipline of pharmacology involves understanding how medications are used in the prevention, diagnosis and treatment of human diseases. The emphasis of this course is on mechanisms of drug action, therapeutic applications, adverse effects, contraindications and drug interactions. The overall mission of the course will be to introduce students to the basic principles of pharmacology and to familiarize them with classes of drugs and examples of specific drugs used frequently in the clinical setting.

MPI 00504: Topics in Molecular Pathology & Immunology 4 s.h.
This course provides the student with a factual understanding of key host/pathogen elements related to the development of human disease, in an introductory manner. The course will cover major human pathogens and their disease-causing mechanisms (Microbiology). In addition, the human immune system is presented in the context of host-defense against infectious and malignant disease (Immunology). Mechanisms of tumorigenesis and metastasis are explored (Cancer), as are the metabolic mechanisms underpinning diabetes, obesity and related disorders (Metabolic Diseases). Finally, shorter elements describe the creation, validation and standardization of new molecular diagnostic tools (Diagnostics); the critical (statistical) evaluation of experimental data (Statistics); important elements of high-throughput screening and early stage drug discovery (Drug Discovery); an introduction to the discovery, mechanism of action, and resistance to antimicrobial agents (Antimicrobial Agents); as well as a discussion of the genetics of cancer and other diseases (Medical Genetics). Upon completion of the course, students will have gained a broad overview of the theoretic and practical aspects of the subjects that underlie the laboratory courses they may take in the future.

MPI 00601: Techniques in Molecular Diagnostics 2 s.h.
This course is designed to allow students to master techniques routinely used in molecular diagnostics. Students will develop and apply these techniques in a laboratory-based setting. Methods include DNA and RNA isolation and quantification, protein expression, purification, and analysis, molecular cloning methods, diagnostic methods used for genetic testing, culture methods for growth of bacteria, yeast, and viruses, microscopic methods for diagnostic testing, etc. Students will select two techniques during the course to perform and master. The student will be required to write a short 4-5 page NIH type introduction on each method. In addition, the student will give an oral presentation on one of the techniques mastered. Upon completion of this course students will have acquired a basic mastery of a subset of methods routinely used in the molecular diagnoses of disease.

ATR 00105: Introduction to Healthcare in Sports Medicine 3 s.h.
This course focuses on the healthcare team and delivery systems. Students will learn about legal responsibilities, ethical issues, safety, infection control, communication, interpersonal behaviors, wellness, and disease as it pertains to Sports Medicine and providing optimal healthcare.

ATR 00210: Foundations in Sports Medicine 3 s.h.
Prerequisite: ATR 00105
This is the first course in a series that will provide students with foundational knowledge that will be useful in preparing them to apply to the Athletic Training Program. This course will teach students medical terminology, normal and pathological movement patterns, common medical emergencies, musculoskeletal anatomy and the psychological effects of injury and rehabilitation.

ATR 00220: Pathology and Evaluation of Orthopedic Injuries II 3 s.h.
Prerequisite(s): (ATR 00219 or PHED 35219) Corequsite: ATR 00239
This course provides an examination of the etiology, epidemiology, pathology and assessment of injuries and illnesses to the upper extremity, head, axial skeleton, chest, and thorax. Structural, functional and surface anatomy will be reviewed. In addition to didactic classroom time, students are also instructed, given time to practice and evaluated on pertinent athletic training psychomotor competencies and clinical proficiencies within a practical laboratory experience. There is an observational field experience associated with this class.

ATR 00339: Foundations in Sports Medicine II 3 s.h.
Prerequisite: ATR 00210
This is the second course in a series that will provide students with foundational knowledge that will be useful in preparing them to apply to the Athletic Training Program. This course will teach students principles of a systematic clinical evaluation, nutrition and its role in tissue healing, injury prevention and performance optimization, and therapeutic interventions.

ATR 00340: Foundations in Sports Medicine III 3 s.h.
Prerequisite: ATR 00339
This is the third course in a series that will provide students with foundational knowledge that will be useful in preparing them to apply to the Athletic Training Program. This course will teach students principles of prophylactic strapping and bracing, research methodology, and basic pharmacology. It will also cover the professional and dispositional requirements of the Professional Preparation component of the Athletic Training Program.

ATR 00341: Clinical Techniques in Athletic Training IV 2 s.h.
Prerequisite(s): (ATR 00340 or PHED 35340) Corequsite(s): ATR 00361
This course, designed for second semester seniors, will review and evaluate clinical proficiencies previously discussed in General Medical Conditions and Pharmacology and related topics relevant to previous course work. Students meet once per week in the Athletic Training Laboratory to practice and discuss topics pertinent to their clinical assignment. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites.

ATR 00347: Applied Biomechanics 3 s.h.
Prerequisite: HES 00346 with minimum grade of C-; Athletic Training students must earn minimum grade of C.
This course provides students with a foundation in the biomechanical concepts and applications that describe and govern human movement. Topics of the course will include, but are not limited to: friction, linear and angular motion, tissue mechanical properties, conservation of energy, work and power, fluid mechanics, stability and center of gravity, walking and running gait analysis. Topics are analyzed quantitatively through the use of modern biomechanical analyses including motion capture, electromyography, and force plates.

ATR 00358: Residency in Athletic Training I 3 s.h.
Prerequisite(s): (ATR 00220 or PHED 35220) and acceptance in the Professional Phase of the Athletic Training Education program Corequisite(s): ATR 00338
This clinical education course, designed for first semester juniors, will review and evaluate, within a clinical assignment, those clinical proficiencies discussed in previous and concurrent course work using a learning-over-time model. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites. During this course, the student will be formally evaluated by an Approved Clinical Instructor only. This course must be takend and successfully completed in conjunction with ATR 00338 Clinical Techniques in Athletic Training I before a student may continue to matriculate through the Athletic Training Education Program.

ATR 00359: Residency in Athletic Training II 3 s.h.
Prerequisite(s): (ATR 00338 or PHED 35338) and (ATR 00358 or PHED 35358) Corequisite(s): ATR 00339
This clinical education course, designed for second semester juniors, will review and evaluate, within a clinical setting, those clinical proficiencies discussed in previous and concurrent course work using a learning-over-time model. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites. During this course, the student will be formally evaluated by an Approved Clinical Instructor only. This course must be taken and successfully completed in conjuction with ATR 00339 Clinical Techniques in Athletic Training II before a student may continue matriculating through the Athletic Training Education Program.

ATR 00360: Residency in Athletic Training III 3 s.h.
Prerequisite(s): (ATR 00339 or PHED 35339) and (ATR 00359 or PHED 35359) Corequisite(s): ATR 00340
This clinical education course, designed for first semester seniors, will review and evaluate, within a clinical setting, those clinical proficiencies discussed in previous and concurrent course work using a learning-over-time model. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites. During this course, the student will be formally evaluated by an Approved Clinical Instructor only. This course must be taken and successfully completed in conjuction with ATR 00340 Clinical Techniques in Athletic Training III before a student may continue matriculating through the Athletic Training Education Program.

ATR 00361: Residency in Athletic Training IV 3 s.h.
Prerequisite(s): (ATR 00340 or PHED 35340) and (ATR 00360 or PHED 35360) Corequisite(s): ATR 00341
This clinical education course, designed for second semester seniors, will review and evaluate, within a clinical setting, those clinical proficiencies discussed in previous and concurrent course work using a learning-over-time model. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites. During this course, the student will be formally evaluated by an Approved Clinical Instructor only. This course must be taken and successfully completed in conjuction with ATR 00341 Clinical Techniques in Athletic Training III before a student may continue matriculating through the Athletic Training Education Program.

ATR 00405: Organization & Administration in Athletic Training 3 s.h.
Prerequisite(s): (ATR 00339 or PHED 35339)
This lecture/laboratory course is designed to meet the entry level competencies for the athletic training student in the area of organization and administration of athletic training. It covers liability, budgeting, athletic training facility design, insurance, administration of medical record keeping systems, data tabulation and interpretation, emergency transportation systems, athletic training facility management, impact of state and national governing body regulations, athletic injury insurance administration and communication, conflict resolution and mediation.
The senior level course is designed to meet educational competencies in pharmacology and general medicine for the undergraduate athletic training student. This course will focus on issues in pharmacology and general medicine pertinent to the allied health profession of athletic training. Issues such as the drug approval process, side effects of medications, general medical evaluation will be explored during this course,. There is a general medical clinical field experience with the athletic raining programs medical director associated with this course.

ATR 00430: Senior Seminar in Athletic Training 2 s.h.
Prerequisite(s): (ATR 00340 or PHED 35340)
This senior seminar is an examination of the individual's responsibility to promote athletic training as a profession, remain abreast of current theory and practice, disseminate health and athletic training information, and to enhance the professional growth of self and others.

ATR 00447: Therapeutic Modalities in Athletic Training - Laboratory Experiences 2 s.h.
Prerequisite(s): (ATR 00220 or PHED 35220) Corequisite(s): ATR 00475
This laboratory course is designed to teach teh psychomotor and clinical proficiency skills necessary to develop psychomotor skills relevant to the use of Therapeutic Modalities. This laboratory course must be taken and successfully completed in conjuction with Therapeutic Modalities in Athletic Training before a student may continue matriculating through the Athletic Training Education Program.

ATR 00475: Therapeutic Modalities for Athletic Training 3 s.h.
Prerequisite(s): (ATR 00220 or PHED 35220) and (ATR 00329 or PHED 35239)Corequisite(s): ATR 00447
This course focuses on the cognitive, affective and psychomotor competencies involved in developing appropriate therapeutic modality programs for the injured person. This course uses current research to discuss the theory and clinical applications of all potential modalities used in the athletic training room. This course implements a problem-solving approach for the return of functional integrity to the injured person through the use of therapeutic modalities. A laboratory experience is part of this class.

ATR 00476: Therapeutic Exercises in Athletic Training - Laboratory Experiences 2 s.h.
Prerequisite(s): (ATR 00475 or PHED 35475) Corequisite(s): ATR 00478
This laboratory course is designed to teach the psychomotor and lcinical proficiency skills necessary to develop psychomotor skills relevant to the use of Therapeutic Excercies. This laboratory course must be taken and successfully copleted in conjunction with Terapeutic Excercies in Athletic Training before a student may continue matriculating through the athletic Training Education Program.

ATR 00477: Psychosocial Aspects of Physical Activity 3 s.h.
Prerequsite(s): PSY 01107 and (HES 00370 or PSY 05320)
Psychosocial Aspects of Physical Activity (ATR00477) course is designed for students in the Psychology of Sport and Exercise Minor and Certificate of Undergraduate Study (CUGS) Program. The course draws upon theories, empirical studies, and practical applications to help people discover the importance and significance of psychosocial aspects in physical activity. This course will provide a theoretical foundation for exploring the relationship/interaction between biology (brain, body systems), psychology (cognitions, emotions, and behaviors), and social factors (relationships, culture, health policy) within the reviewed topic areas. Topics covered in this course include but are not limited to: the biopsychosocial model, theories and techniques of interpersonal and cross-cultural communication, eating disorders and disordered eating, substance abuse/addiction, sleep, stress, psychosocial distress, trauma (including Trauma Informed Care), mental health concepts, suicide and self-harm, sociocultural issues, abuse and/or neglect, social support systems, response to injury and rehabilitation, psychosocial aspects of pain, psychosocial and "complementary therapies" such as meditation, yoga, massage, and acupuncture This course will also demand critical thinking of the research, assigned readings, and articles

that support or contradict a certain theoretical perspective/viewpoint.

ATR 00478: Therapeutic Exercises in Athletic Training 3 s.h.
Prerequsite(s): (ATR 00475 or PHED 35475) and (ATR 00447 or PHED 35447) Corequisite(s): ATR 00476
This course covers the cognitive, affective and psychomotor competencies involved in developing appropriate rehabilitation exercise protocols for the injured person. This course uses current research to discuss the physiological and biomechanical concepts involved in the clinical practice of rehabilitation. This course implements a holistic and problem-solving approach for the return of functional integrity to the injured person. A laboratory experience is part of this class.

ATR 00479: Pharmacology and General Medicine in Athletic Training 3 s.h.
Prerequisite(s): (ATR 00478 or PHED 35478)
This senior level course is designed to meet educational competencies in pharmacology and general medication for the undergraduate athletic training student. The course will focus on issues in pharmacology and general medicine pertinent to the allied health profession of athletic training. Issues such as the drug approval process, side effects of medications, general medical evaluation will be explored during this course. There is a general medical clinical field experience with the athletic training program's medical director associated with this course.

ATR 00505: Principles in Evidence-based Practice 3 s.h.
Prerequisite: Acceptance into the Athletic Training Program
This course addresses the role of research in professional Athletic Training practice including conduct of research, research sources utilization and dissemination, methodology, data analysis and principles and models of evidence-based practice.

ATR 00510: Cadaver Anatomy 4 s.h.
Prerequisite: Acceptance into the Athletic Training Program
This course offers students the opportunity to identify various structures on cadaver specimens that are related to neuro and musculoskeletal structures and pathologies of the human body.

ATR 00511: Management of Medical Emergencies 3 s.h.
Prerequisite: Acceptance into the Athletic Training Program
This is a lecture and laboratory course that provides a comprehensive approach to the identification of risk factors, preparation of emergency action plans, and recognition and care of emergency medical conditions including those that may lead to sudden death. Students will gain CPR Certification upon successful completion of curricular requirements.

ATR 00519: Clinical Assessment I 4 s.h.
Prerequisite(s): In good standing with the Athletic Training Program
This course discusses prevention, assessment, diagnosis, and treatment approaches for patients with musculoskeletai pathologies as it relates to the lower extremity and lumbar spine.

ATR 00520: Clinical Assessment II 4 s.h.
Prerequisite: ATR 00519
This course discusses prevention, assessment, diagnosis, and treatment approaches for patients with musculoskeletal pathologies as it relates to the head, upper extremity, cervical and thoracic spine.

ATR 00521: Clinical Assessment III 4 s.h.
Prerequisite: ATR 00520
This course discusses knowledge, skills and abilities associated with the prevention, assessment, diagnosis, and treatment approaches for patients with a variety of medical conditions. Students will practice the clinical skills necessary to provide appropriate patient care within this course.

ATR 00524: Injury Risk Management to Enhance Human Performance 3 s.h.
Prerequisite(s): In good standing with the Athletic Training Program
This course will provide students with the knowledge, skills and abilities that relate to health care systems, injury prevention, prophylactic strapping & bracing, and durable medical equipment. This course will also teach students how to develop assessment plans that detect poor movement strategies and then implement corrective intervention programs to improve movement patterns that will reduce injury risk and maximize performance.

ATR 00526: Healthcare Management & Quality Improvement 3 s.h.
Prerequisite: ATR 00531
This course will provide students with the concepts and issues related to healthcare management and quality improvement within the clinical setting to enhance patient care. Students will learn the knowledge, skills and abilities in the areas of, but not limited to, healthcare informatics, quality improvement, finance and reimbursement, managed care, professional and governmental regulations, diversity within the workplace, and professional responsibility. These topics will culminate into developing healthcare management strategies using qualitative and quantitative outcomes measures, developing healthcare leadership & communication skills, self-assessment and facility management to advocate best clinical practice for all stakeholders involved in patient care.

ATR 00530: Pharmacology 3 s.h.
Prerequisite: ATR 00533
This course will teach students the knowledge, skills and abilities needed to understand basic principles of pharmacology, pharmacodynamics and pharmacokinetics. Students will also learn the indications, contraindications, dosing, interactions and adverse reactions of pharmacological agents in order to educate patients about medication administration while managing their condition. This course is also designed to educate students how to administer medications using the appropriate route upon the order of a prescribing physician and in accordance with governing pharmacological regulations.

ATR 00531: Therapeutic Interventions I 4 s.h.
Prerequisite: ATR 00519 and ATR 00524
This course will use an evidence-based approach to teach students the knowledge, skills and abilities to use physical agents as a component in the development and implementation of plans of care designed to address a patient's impairments, limitations and restrictions following injuries requiring both surgical and non-surgical therapeutic interventions. These physical agents include but may not be limited to cryotherapy, thermotherapy, ultrasound therapy, electrical therapy, diathermy, intermittent compression, traction, LASER, massage and manual therapies. Additionally, students will be taught how to use patient-oriented and clinician-oriented outcomes to develop and adjust their plans of care to provide the most effective healthcare.

ATR 00533: Therapeutic Interventions II 4 s.h.
Prerequisite: ATR 00531
This course will use an evidence-based approach to teach students the knowledge, skills and abilities to use rehabilitation & reconditioning components in the development and implementation of plans of care designed to address a patient's impairments, limitations and restrictions following injury. These concepts include but may not be limited to strength, endurance power, restoration of flexibility and range of motion, activity specific conditioning, proprioception and balance, and agility. Additionally, students will continue to use patient-oriented and clinician-oriented outcomes to develop and adjust their plans of care to provide the most effective healthcare.

ATR 00535: Behavioral Health 3 s.h.
Prerequisite: ATR 00526
This course teaches the knowledge, skills and abilities needed for the Athletic Trainer to appropriately develop and implement policies to identify patients with a behavioral health crisis (e.g., sociocultural, mental, emotional and/or physical) and for referral to qualified providers. This course will also address the role of cultural competence among athletic trainers, their patients, and other healthcare providers involved in developing policy, referral and plans of care that promote high quality healthcare.

ATR 00537: Residency in Athletic Training I 3 s.h.
Prerequisite: ATR 00519
This supervised clinical experience course provides students with clinical practice opportunities. This course emphasizes continuum of care, including the use of evidence-based practice, cultural competence, inter-professional practice, communication, quality improvement, ethical decision- making, documentation, patient-centered care and professionalism.

ATR 00538: Residency in Athletic Training II 3 s.h.
Prerequisite: ATR 00520
This clinical experience course continues to provide students with clinical practice opportunities using increased supervised clinical decision-making autonomy. This course also continues to emphasize continuum of care, including the use of evidence-based practice, cultural competence, inter-professional practice, communication, quality improvement, ethical decision- making, documentation, patient-centered care and professionalism.

ATR 00540: Fellowship in Athletic Training I 5 s.h.
Prerequisite: ATR 00539
This clinical course will allow students to have an immersive experience in which to practice clinical skills under supervised clinical decision- making autonomy. This course emphasizes continuum of care, including the use of evidence-based practice, cultural competence, inter-professional practice, communication, quality improvement, ethical decision- making, documentation, patient-centered care and professionalism.

ATR 00541: Fellowship in Athletic Training II 5 s.h.
Prerequisite: ATR 00540
This course is the culmination of all clinical experiences. Students practice clinical skills during a full semester of supervised immersive clinical education experiences with the greatest amount of supervised autonomy. This course emphasizes continuum of care, including the use of evidence-based practice, cultural competence, inter-professional practice, communication, quality improvement, ethical decision- making, documentation, patient- centered care and professionalism.

ATR 00560: Capstone in Clinical Reasoning I 4 s.h.
Prerequisite: ATR 00535
This course will provide the student, under the guidance of their advisor, the opportunity to develop a clinical/research question and methodology, data analysis and interpretation that leads to a research project that will enhance the Athletic Training profession. In addition, this course will be used to assess the student's competence to practice Athletic Training. Course will include a Master's Comprehensive Exam to assess Athletic Training skills.

ATR 00561: Capstone in Clinical Reasoning II 4 s.h.
Prerequisite: ATR 00560
This course is a continuation of ATR00560 Capstone in Clinical Reasoning I. The student will prepare their research project for a culminating presentation in preparation for submission to a scholarly journal.

HCNV 07401: Inter-professional Teamwork in Healthcare 2 s.h.
This seminar course will provide students from various healthcare disciplines with opportunities to work together to develop skills needed to engage in inter-professional collaborative practice. Students will complete pre-work online and then attend meetings with other healthcare disciplines to develop care plans for patient cases. Specific, but not limited to, areas of study include ethics for inter-professional practice, roles and responsibilities of healthcare providers, inter-professional communication strategies and developing quality healthcare teams to enhance patient outcomes.

HES 00100: Teaching Concepts of Driver Education 3 s.h.
Prerequisite(s): (ATR 00235 or PHED 35235) and (HPE 00325 or HLTH 37325) or (ATR 00235 or PHED 35235) and (HPE 00326 or HLTH 37326)
The course is designed for individuals seeking New Jersey Driver Education teacher endorsement. The content includes learning to teach motor vehicle operation, driving environment and the student development of teaching techniques emphasizing safety, risk perception, and decision-making prcesses applied in a vehicle. Learning how to instruct others in performing behind-the-wheel driving will be scheduled outside of class time.

HES 00105: Foundations of Exercise Science 3 s.h.
This course introduces students to the Exercise Science major. Students will thoroughly understand the policies and procedures within the major, careers in the field of exercise science, become familiar with professional organizations, develop resume writing and interview skills, participate in professional development and site visit experiences, be exposed to research opportunities, along with preparation for graduate school. Students will assess career goals and create a plan to develop principles and characteristics that will improve their opportunities for success.

HES 00109: Adventure and Experiential Learning 2 s.h.
This course is designed to provide experiences to promote adventure and experiential learning. Students will be introduced to skills and activities that promote emotional, social, mental and physical perspicacity and awareness. The students within the class will work collaboratively in a variety of activities including initiatives, and low and high elements. The class requires active participation and will use a high ropes course.

HES 00116: Safety First Aid Basic Understanding of Athletic Injuries 3 s.h.
Prerequisite(s): Acceptance into one of the following programs; Athletic Training, Health Promotion and Fitness Management, or Health and Physical Education Teacher Certification.
This course is designed for the individual who is interested in gaining CPR and First Aid certification and a basic understanding of athletic injuries. The first part of this class will allow students to understand and demonstrate appropriate techniques in performing American Red Cross Community CPR and First Aid techniques required for certification. The second component of the class will enable students to understand basic concepts in athletic injury: anatomy, recognition, and basic care.

HES 00201: Essentials of Strength Training 3 s.h.
Pre-requisites: BIOL 10210 and BIOL10212
Opportunity is provided for an individual study of developing and practicing safe and effective resistance training programs based on the fundamentals of anatomy, physiology and biomechanics. Students will learn basic training principles, appropriate exercise selection, exercise technique and programming while applying these skills in a gym setting. Students will professionally train each other using a variety of equipment gaining practice and confidence when training individuals.

HES 00202: Medical Terminology 3 s.h.
This course is designed to assist in mastery of the terms, words, phrases, and symbols that describe the human body in its various states of health and disease, as well as the proper anatomical terms for each of the body parts. Terminology regarding diagnosis, surgical procedures, and pharmacological preparations will be presented. The depth and score of this course will meet the needs of students in healthcare and allied health-related fields.

HES 00209: Adventure Processing and Facilitation 3 s.h.
Prerequisite: HES 00109
This course examines the historical background and philosophical theories of Adventure Education. From this base, students will learn the skills to facilitate and process adventure-oriented activities in order to build intrapersonal and interpersonal skills. Students will learn Standard Operating Procedures (SOP) of the elements so they may lead future adventure programming.

HES 00241: Structure and Function of the Human Body I 3 s.h.
Prerequisite: Acceptance into one of the following programs; Athletic Training, Health Promotion and Fitness Management, or Health and Physical Education Teacher Certification
This course investigates basic anatomical and physiological concepts of the human body. It includes cellular structure and function, metabolism, and the skeletal, nervous, muscular, circulatory and respiratory systems.

HES 00242: Structure and Function of the Human Body II 3 s.h.
Prerequistie(s): (HES 00241 or PHED 35241) and acceptance into on of the following programs; Athletic Training,Health Promotion and Fitness Management, or Health andPhysical Education Teacher Certification.
This course continues the study of the human body begun in HES 00241. It investigates the urinary, endocrine, reproductive, digestive and integumentary systems.

HES 00243: Motor Control and Learning 3 s.h.
Prerequisites: C- or higher in BIOL 10210 and BIOL 10212
This course provides a thorough understanding of motor control and motor learning of human movement. Motor control deficiencies in people with neurological diseases will also be covered. Laboratory activities will be used to support the information learned in class.

HES 00271: Movement and Meaning in Sports 3 s.h.
This course helps students understand themselves and how they relate physically to their environment. Through movement students discover, understand, control and adjust to their environment and gain an understanding of space, time and force. The course discusses exercise and sport forms. This course may not be offered annually.

HES 00272: Technology and Assessment of Health and Exercise Science 3 s.h.
Prerequisite: Acceptance into one of the following programs; Athletic Training, Health Promotion and Fitness Management, or Health and Physical Education Teacher Certification
This course will prepare students in the Department of Health and Exercise Science to use computers and technology for organizing information, amplifying presentation, developing written documents, assessing client/students, gathering information, and completing research. Students will evaluate software, use peripheral devices, explore internet applications, and use non-computer media applications as they apply to their discipline. An introduction to simple statistical designs will also be a component of this course.

HES 00301: Research Methods in Health and Exercise Science 3 s.h.
Prerequisite(s): STAT 02100
The course details design and application of research methodology that considers the cognitive, affective, and psychomotor performance as they relate to health and human performance. Published research, review of literature, methodology, research skills, scientific writing, and the interpretation of published research in the discipline will be included.

HES 00309: Wilderness First Responder 4 s.h.
During disaster wilderness or outdoor situations, training in wilderness medicine is essential. Wilderness First Responder (WFR) takes a thorough examination of the skills needed to assess and respond to emergencies. The course uses a hands-on approach in which students are trained to react competently in the kind of emergencies they may encounter. Many scenarios will be used so students have opportunity to critically think about injuries or illness. The course leads to Wilderness First Responder (WFR) certification upon successfully passing the WFR exam.

HES 00329: Laboratory in Personal Training Techniques 1 s.h.
Prerequisite: HES 00345 OR HES 00349, both with minimum grade of C-
This course prepares the student with an exercise science background to work successfully as a personal fitness trainer for individual clients. During this highly experiential learning course, students will develop their ability to combine their exercise science knowledge, counseling and educational skills, and fitness techniques to prescribe exercise for a variety of populations. Upon successfully completing this course, students will be prepared to qualify for national certifications in personal training.

HES 00343: Kinesiology 3 s.h.
Prerequisite(s): (BIOL 10210 and BIOL 10212) or (HES 00241 or PHED 35241) and (HES 00242 or PHED 35242), all with a grade of C- or higher.
Kinesiology, the study of human movement, integrates the sciences of anatomy, physiology and physics as they contribute to developing an appreciation for the art of movement. Opportunity is given for an individual study of a movement pattern with emphasis on the application of the mechanical principles of motion.

HES 00344: Exercise Physiology (without lab) 3 s.h.
Prerequisite(s): (BIOL 10210 and BIOL 10212) or (HES 00241 or PHED 35241) and (HES 00242 or PHED 35242), all with a grade of C- or higher.
A course in applied anatomy and physiology, this course studies the interrelationship of exercise and physiology. This course also covers the functions of the human body under the stress of physical activity.

HES 00345: Exercise Physiology (with lab) 4 s.h.
Prerequisite(s): (HES 00241 and HES 00242) or (BIOL 10210 and BIOL 10212), all with a grade of C- or higher.
A course in applied anatomy and physiology, this course studies the interrelationship of exercise and physiology. This course also covers the functions of the human body under the stress of physical activity.

HES 00346: Introduction to Biomechanics 3 s.h.
Prerequisite(s): (BIOL 10210 and BIOL 10212) or (HES 00241 or PHED 35241 and (HES 00242 or PHED 35242), all with a grade of C- or higher.
This course specifically prepares students with the knowledge and skills essential for working in clinical settings related to health and healthcare professions. It integrates the sciences of anatomy, physiology and physics as they contribute to developing the knowledge and skills pertinent to understanding human motion from a mechanical perspective. An introduction to biomechanical instrumentation (e.g., motion capture, force plates, etc) will provide practical applications to address: functional movement assessment, kinetic and kinematic qualities of movement, gait analysis for healthy populations and selected pathological conditions, and corrective exercises for proper human movement.

HES 00347: Wellness Programming for Children Seminar 1 s.h.
Prerequisite: Earn a grade of C- or higher in HPW 00340
This seminar prepares students who are not in a teacher preparation program to design and implement wellness programs and initiatives for children and adolescents using age-appropriate strategies and materials. Students will apply the knowledge and skills they have learned about behavior change and program planning to non-school settings that serve children and adolescents.

HES 00348: Human Disease and Epidemiology in Health and Exercise Science 3 s.h.
Prerequisites: C- or higher in HES 00345 OR HES 00349, both with minimum grade of C-
This course examines the etiology, pathophysiology and epidemiology of diseases and conditions that are often seen by health and fitness professionals working with clients in human performance and exercise science settings. Included are cardiovascular disease, hypertension, asthma, Type 1 and Type 2 diabetes mellitus, overweight and obesity, osteoarthritis, rheumatoid arthritis, low back pain syndrome and cancer. In addition, concerns specific to children, the elderly and in pregnancy are also addressed.

HES 00349: Exercise Physiology for the Health Care Professions 4 s.h.
Prerequisite(s): (HES 00241 and HES 00242) or (BIOL 10210 and BIOL 10212), all with a grade of C- or higher.
The course specifically prepares students with the knowledge and skills essential for working in clinical settings related to health and healthcare professions. It intricately examines the interrelationship between physical activity and the consequential human physiological response. It prepares students to assess the physiology of the human body during acute responses and chronic adaptations to exercise and physical activity as a result of the training and conditioning process. Laboratory experiences will allow students to apply theoretical concepts to the health and health care professions in the areas of cardiovascular, metabolic, neuromuscular, pulmonary diseases, body composition, and exercise in thermal stress environments.

HES 00373: Advanced Lifesaving/Cardiopulmonary Resuscitation 3 s.h.
This course is for advanced swimmers who wish to learn the skills and techniques necessary to become qualified lifeguards. This course covers swimming and rescue skills, personal safety skills, lifeguard techniques, cardiopulmonary resuscitation skills and knowledge, and management techniques for aquatic environments. Upon successful completion of the course the student will receive the American National Red Cross Certificate in Basic Cardiopulmonary Resuscitation and in Advanced Lifesaving. This course may not be offered annually.

HES 00374: Coaching Team Sports (Non-Majors) 3 s.h.
This course develops a sound philosophy in team sports for interscholastic programs in junior and senior high schools. This course presents skills, techniques, theory, rules, strategy and methods through laboratory, classroom experiences and audiovisual aids. This course may not be offered annually.

HES 00377: Teaching Health and Physical Education to the Handicapped 3 s.h.
This course is a restrictive elective course for special education majors and an elective for all other students. Students study the need for health and physical education for handicapped students as defined in P.L. 94-l42. The course demonstrates several teaching styles that correlate physical education with other disciplines focusing on movement. Learning experiences in the gymnasium are used to reinforce methodology studied in the classroom. This course may not be offered annually.

HES 00378: Recreation and Leisure Studies for the Handicapped 3 s.h.
This course develops an understanding of the values and function of recreation in the lifestyle of handicapped individuals. It explores societal trends, legislation, and barriers which impact on recreation participation. It studies the implementation of leisure education, leisure counseling, recreation as a related service in P.L. 94-142, and the continuum of recreation services in community settings. Open to all students.

HES 00401: Exercise Prescription 3 s.h.
Prerequisite(s): HES 00345 OR HES 00349 with a minimum grade of C-
This course provides students with the knowledge and practical experience in exercise testing and prescription. It enables students to establish scientific foundations of exercise testing and prescription, identify risk factors for disease and prescribe exercise programs based on exercise test results and personal limitations. Practical experiences are provided for testing subjects in the laboratory. The course prepares students for professional exercise certifications.

HES 00402: EKG Interpretation and Basic Pharmacology in Health and Exercise Science 3 s.h.
Prerequisite: HES 00401 with minimum grade of C-
This course provides a thorough understanding of EKG interpretation and basic pharmacology related to cardiac, pulmonary, and diabetic conditions for professionals in human performance and exercise science fields. Video streaming of EKG rhythms will provide students with practical experience. Case studies will be used to understand how medications are used to treat a variety of health issues and the influence of these medications on exercise prescription.

HES 00409: Adventure Programming 3 s.h.
Prerequisite(s): HES 00109 and HES 00209 and HES 00309
This is an advanced course examining the role of an adventure course manager or outdoor leader. The class focuses on purposeful design, risk management, and safety of adventure programming. There will be managed adventure course scenarios where skills, judgment, and reactions will be assessed and reviewed. Students will learn to be environmentally-responsible wilderness users. Finally, students will learn to organize and lead excursions.

HES 00412: Exercise for Special Populations 3 s.h.
Prerequisites: HES 00345 OR HES 00349 with minimum grade of C-
This course provides a study of exercise considerations for those with disease and special conditions. It covers the basic concepts of the physiologic effects of exercise and the application of these concepts to special cases. Cases included are respiratory and cardiovascular diseases, hypertension, obesity, diabetes, arthritis, osteoporosis, pregnancy, children/adolescents, and the elderly. In addition, students will learn exercise testing modifications and specific exercise prescriptions and the associated modifications.

HES 00413: Senior Seminar in Exercise Science 3 s.h.
Prerequisites: C- or higher in HES 00401
This application-oriented course is designed to review and assess the students' knowledge and skills which were developed throughout the Exercise Science program. Students will progress through a series of online seminars reviewing the key concepts and skills learned in the program that are necessary for a career in the field of Exercise Science. In addition, students will work in group settings to continue to practice and develop key skills necessary for their career.

HES 00415: Nutrition for Fitness 3 s.h.
Prerequisite(s): (NUT 00200 OR INAR 06200) AND (BIOL 10210 OR HES 00241) AND (BIOL 10212 OR HES 00242) all with a grade of C- or higher.
This advanced nutrition course explores the relationship between nutrition, physical fitness, performance and disease prevention. Specific topics include nutrition fraud, supplementation, ergogenic aids, diet planning for athletes and the relationship between nutrition and chronic diseases such as cancer and heart disease. In addition, students continue to develop their skills as nutrition counselors and educators.

HES 00456: Principles of Coaching 3 s.h.
Emphasizes the development of a sound coaching philosophy. Includes aspects related to team organization, supervision, equipment control and its administration and community ethics. Attention will be given to the sociology and psychology of sport.

HES 00473: Water Safety Instructor 3 s.h.
This course covers the American National Red Cross standardized program of skill proficiency, teaching methodologies, principles of class organization, safety factors in teaching swimming and practice teaching experiences. The course is for advanced swimmers who are interested in learning to teach swimming and water safety. Upon successful completion of this course students receive the American National Red Cross Certificate as a Water Safety Instructor. This course may not be offered annually.

HES 00480: Trends in School and Community Recreation 3 s.h.
This course, an elective course for all students, assists students to develop and enhance "a worthy use of leisure" by participation in school and community recreation as well as leisure service programs and activities.

HES 00483: Senior Internship in Health and Exercise Science 9 s.h.
Prerequisites: HPW 00430 OR HES 00413 with minimum grades of C-
Students complete 400 hours of supervised field experience enabling them to gain practical experience in an environment focused on Health Promotion, Exercise Physiology, Community Health or other, related field. Placements are made in agencies selected on the basis of student's goals, interests, and program specialization. The site will provide experiences that build on the skills, knowledge, and dispositions acquired during coursework and related professional experiences.

HES 00484: Senior Internship in Exercise Science 6 s.h.
Prerequisite: HES 00413 with a C- or higher
Students complete 250 hours of supervised field experience enabling them to gain practical experience in an environment focused on Exercise Science or other, related field. Placements are made in agencies selected on the basis of student's goals, interests, and program specialization. The site will provide experiences that build on the skills, knowledge, and dispositions acquired during coursework and related professional experiences. 6 Credit hours

HES 00490: Exercise Science Learning Assistant 3 s.h.
Prerequisite: Permission of Instructor
As Learning Assistants, students will develop educational experiences in facilitating active learning techniques in a classroom with an Exercise Science faculty. Being a Learning Assistant will enhance a student's development and mastery of Exercise Science content as a result of facilitating student group interactions and activities that encourage engagement. Students will meet weekly to develop teaching competencies that better prepare students for future education endeavors like teaching and/or graduate assistantships, or college instructors in their future careers.

HES 00492: Independent Study Health & Exercise Science 1 to 3 s.h.

HLT 00103: Health and Wellness 3 s.h.
This course stresses the concepts of lifetime health and physical fitness. It examines the positive effects of exercise upon the heart and blood vessels, obesity and proper diet, body mechanics, and how the body handles stress. The course also examines the negative effects of disease, including socially transmitted diseases, substance abuse including narcotics, alcohol and tobacco, and other contemporary health-related problems. Students learn to analyze their strengths and limitations while planning a personal wellness profile which best fits their needs and interest.

HLT 00170: Stress Management 3 s.h.
This course focuses on the nature of stress and the impact it has on a person's health. The student will study the relationship of the physiological, psychological and social factors which contribute to one's general stress balance and develop life skills to combat the negative impact of stress.

HLT 00180: Psychological Aspects of Health 3 s.h.
The course deals mostly with assisting students in meeting mental health problems in today's society. It emphasizes modification in behavior, effects of chemicals on behavior, the psychology of sex, the psychology of accident prevention and the psychological problems of aging. This course may not be offered annually.

HLT 00192: Contemporary Health I 3 s.h.
Prerequisite: Acceptance into one of the following programs Athletic Training, Health Promotion & Fitness Management, or Health & Physical Education Teacher Certification.
This is the first in a series of two general knowledge based survey courses which provide students with knowledge of current health issues which occur in the human life cycle. Topics which will be addressed are family life and human sexuality, personal growth and development, mental and emotional health, aging and death and dying.

HLT 00193: Contemporary Health II 3 s.h.
This is the second in a series of two general knowledge based survey courses which provide students with knowledge of current health issues which occur in the human lifecycle. Topics which will be addressed are alcohol, tobacco and other drugs, personal health, chronic and infectious diseases, environmental health and consumerism.

HLT 00200: Introduction to Public Health and Wellness 3 s.h.
Community and Public Health examines the trends and components of the community health field. This course prepares students for the additional courses in the Community Health Advocacy and Education program. Topics include foundations of community health, epidemiology, health of the nation, community mental health, environmental health and occupational safety.

HLT 00209: Health Education for Elementary School Teachers 1 s.h.
Elementary education majors will be prepared to conduct thorough and effective health education in grades K-6. This course focuses on the nature and philosophy of health education and comprehensive school health programs as well as the teacher's role in curriculum, instruction and evaluation as they impact student health-related behavior.

HLT 00227: Consumer Health Decisions 3 s.h.
This course examines the rights and responsibilities of a consumer faced with increasing amounts of information related to his or her overall well-being. It examines the major problem of health fraud and the components of scientific research. The role of advertising is explored, as well as sound principles for purchasing nutrition, fitness and other health-related products and services. Students learn important concepts related to health insurance and hospitals, traditional and alternative medical care and how to better manage the decisions they make.

HLT 00262: Drugs, Alcohol, and Tobacco 3 s.h.
This course is designed to examine in depth the use and abuse of drugs, alcohol and tobacco including the origins and current status of use. Topics include types of drugs, physiological and psychological impact, assessment, monitoring and prevention programs. Federal and state laws are considered and drug policy is examined. Furthermore, the societal impact of drug use and abuse is examined. The content considers the topic from a health professional's position and is specific to the profession of wellness education.

HLT 00300: Implementation and Assessment in Public Health 3 s.h.
Prerequisite: HLT 00200
Implementation and Assessment in Public Health examines case studies and examples involving an array of public health applications. This course prepares students to conduct and evaluate community and public health programs. Topics include ethical components, qualitative data, evaluation design, data analysis and program planning and evaluation.

HLT 00301: Health and Diverse Populations 3 s.h.
The goal of this course is to enable students to understand the powerful influence of social, economic, geographic and demographic factors on the health-related attitudes, beliefs and actions of individuals and communities. Students explore the concepts of health literacy, health disparities, and the impact of public policy on the health status of different populations from a social justice perspective. Social Capital is explored as a model for effectively improving the health status of diverse populations.

HLT 00302: Global Health 3 s.h.
Global Health examines major health challenges and the solutions created to manage these challenges. Students will analyze current and emerging global health issues, including diseases, poverty, conflicts, emergencies, and global initiatives for prevention and promotion of well-being.

HLT 00303: Environmental Issues and Health 3 s.h.
This course exposes students to environmental health risks impact on human health. Students will examine the relationship of lifestyle and the ability of the planet to sustain us. Students are introduced to conceptual definitions for environmental health and hazards that impact human health. The importance of establishing and enforcing standards (local, federal, occupational) which protect employees, communities, and the environment will be considered. Students will explore areas in infectious disease, toxicology, environmental risk assessment, occupational safety, waste management, pollution, and sustainability. Students will understand the importance of effective risk communication strategies/approaches and advocacy for policies and laws that protect the future well being of our planet.

HLT 00304: Grant Writing for Public Health-WI 3 s.h.
Prerequisite(s): COMP 01112 AND (HLT 00200 OR HPW 00210)
The goal of this course is to introduce students to the importance of grant-writing process and to provide them with knowledge and experience of grant-writing. Students will learn how and where to find grant opportunities, the different types of grants available, and how to write each component of a basic grant application.

HLT 00344: US Health Care Systems 3 s.h.
This course provides an overview of public health's role in healthcare history, delivery, financing and policy in the United States. Governmental agencies roles and policies and healthcare statistics are considered as the shape public health.

HLT 00345: US Health Care Policy, Ethics, and Advocacy 3 s.h.
Prerequisites: HES 00301, HLT 00344
This course will explore the legal and ethical foundations of US public health system and the subsequent conflict between personal choice and the government and public health's role in protecting the health of the population. The course will take an in depth examination of public health policy creation that benefits the health of the population and the ethical considerations of the policy. Finally, the course will consider strategies that public health specialists utilize to advocate for the well-being of society. Case studies in obesity, HIV treatment, communicable diseases as well as other areas will be used throughout this course.

HLT 00347: Wellness Programming for Children Seminar 1 s.h.
Prerequisite: Earn a grade of C- or higher in HPW 00340
This seminar prepares students who are not in a teacher preparation program to design and implement wellness programs and initiatives for children and adolescents using age-appropriate strategies and materials. Students will apply the knowledge and skills they have learned about behavior change and program planning to non-school settings that serve children and adolescents.

HLT 00348: Public Health Epidemiology 3 s.h.
This course is designed to be an introduction to the basic principles of epidemiology and its role in Public Health. Students will be introduced to terminology, measures of disease, outbreaks, screenings, causality, and risk. As these principles are examined, students will be introduced to epidemiological research and surveillance tools. An essential component of the class is the attention to problem solving scenarios that Public Health professionals encounter and use to promote health.

HLT 00370: Introduction to Sport and Exercise Psychology 3 s.h.
Prerequisite: PSY 01107
Introduction to Sport and Exercise Psychology examines theories and models of psychology related to performance. Topics include personality, exercise environments, motivation, arousal, stress and anxiety, group processes, performance enhancement and exercise and psychological well-being. This course is a prerequisite for Social Psychology of Sport.

HLT 00371: Social Psychology of Sport 3 s.h.
Prerequisite(s): PSY 01107 and HLT 00370
Social Psychology of Sport examines issues related to athletic performance based on theoretical perspectives and current research addressing the impact of social concepts on sport and exercise. Topics include relationships in sport, such as coach-athlete and peer, team cohesion, group dynamics, effective communication, coach impact on leadership, motivational climates and athletic transition.

HLT 00372: Evidence-Based Approach to Applied Sport Psychology and Exercise 3 s.h.
Prerequisites: PSY 01107 AND HES 00370/PSY05320
Evidence-Based Approach to Applied Sport Psychology and Exercise examines research methods, assessments and inventories utilized with populations in sport and exercise. Topics include ethics, diversity, purpose of assessment, screening tools for mental health, injured athletes and athletes transitioning in their careers.

HLT 00390: Health Problems of the Young Child 3 s.h.
Designed primarily for the early childhood and kindergarten-primary education majors, this course covers observation, detection, prevention and alleviation of physical, emotional and social health problems and disorders of the 3-8 year old child. This course may not be offered annually.

HLT 00410: Senior Seminar in Public Health and Wellness 3 s.h.
Prerequisites: HLT 00200 OR HPW 00210
Students in this course are presented with the challenge of integrating the knowledge and skills they have learned in their previous coursework to design, implement, and evaluate a small-scale health intervention, such as a behavior change program or health screening, with a local population. They will prepare an application to a grant-funding agency as part of the process. In addition, students will demonstrate their overall understanding of community and public health through the completion of a written and oral comprehensive exam. In preparation for entry into the profession, students will develop a resume, practice job interviewing skills, and explore graduate school options.

HLT 00413: Senior Seminar in Human Performance in Clinical Settings 3 s.h.
Prerequisites: C- or higher in HES 00401
This application-oriented course is designed to review and assess the students' knowledge and skills which were developed throughout the Human Performance in Clinical Setting program. Students will progress through a series of online seminars reviewing the key concepts and skills learned in the program that are necessary for a career in the field of Human Performance in Clinical Settings. In addition, students will work in group settings to continue to practice and develop key skills necessary for their career.

HLT 00415: Public Health Methods and Interventions 3 s.h.
Prerequisites: HPW 00340, HPW 00350, HES 00301
This course will be a culminating experience and bring together content in public health. The course will explore needs assessments, program creation, evaluation techniques and reporting. Analysis of case studies will be an integral component of the course. Finally, students will have an opportunity to perform a needs assessment and create a program.

HLT 00483: Internship in Public Health and Wellness 6 s.h.
Prerequisites: All PHW classes except Senior Seminar in Public Health and Wellness (HLT 00410) must be completed.
Students complete 250 hours of supervised field experience enabling them to gain practical experience in an environment focused in the professional health fields. Placements are made in organizations selected on the basis of student's goals and interests. The internship sites will provide experiences that build on the skills, knowledge, and dispositions acquired during coursework and related professional experiences.

HLT 00485: Evaluation Procedures in Health 3 s.h.
This course applies knowledge and skill in developing measuring techniques for program effectiveness, through types of research procedures related to health. It includes competence in evaluating and interpreting health-related statistical data and material from various national and international health organizations. This course may not be offered annually.

HLT 00486: Problems and Issues in Health 3 s.h.
This course assists students in understanding current problems and issues in health solutions by examining past and possible future solutions. It stresses the latest health issues, such as AIDS, the cocaine problem, and teenage pregnancy. This course may not be offered annually.

HLT 00490: Wellness and Community Health Learning Assistant Seminar 3 s.h.
Prerequisite: Permission of Instructor
As Learning Assistants, students will develop educational experiences in facilitating active learning techniques in a classroom with a Community Health or Health Promotion Wellness Management faculty. Being a Learning Assistant will enhance a student's development and mastery of Exercise Science content as a result of facilitating student group interactions and activities that encourage engagement. Students will meet weekly to develop teaching competencies that better prepare students for future education endeavors like teaching and/or graduate assistantships, or college instructors in their future careers.

HLTH 37170: Stress Management 3 s.h.
This course focuses on the nature of stress and the impact it has on a person's health. The student will study the relationship of the physiological, psychological and social factors which contribute to one's general stress balance and develop life skills to combat the negative impact of stress.

HLTH 37180: Psychological Aspects Of Health 3 s.h.
The course deals mostly with assisting students in meeting mental health problems in today's society. It emphasizes modification in behavior, effects of chemicals on behavior, the psychology of sex, the psychology of accident prevention and the psychological problems of aging. This course may not be offered annually.

HLTH 37192: Contemporary Health I 3 s.h.
Prerequisite: Acceptance into one of the following programs:Athletic Training, Health Promotion and Fitness Management,or Health and Physical Education Teacher Certification.
This is the first in a series of two general knowledge based survey courses which provide students with knowledge of current health issues which occur in the human life cycle. Topics which will be addressed are family life and human sexuality, personal growth and development, mental and emotional health, aging and death and dying.

HLTH 37193: Contemporary Health II 3 s.h.
Prerequisite: Acceptance into one of the following programs:Athletic Training, Health Promotion and Fitness Management,or Health and Physical Education Teacher Certification.
This is the second in a series of two general knowledge based survey courses which provide students with knowledge of current health issues which occur in the human lifecycle. Topics which will be addressed are alcohol, tobacco and other drugs, personal health, chronic and infectious diseases, environmental health and consumerism.

HLTH 37209: Health Education For Elementary School Teachers 1 s.h.
Elementary education majors will be prepared to conduct thorough and effective health education in grades K-6. This course focuses on the nature and philosophy of health education and comprehensive school health programs as well as the teacher's role in curriculum, instruction and evaluation as they impact student health-related behavior.

HLTH 37310: Foundations Of Health Promotion And Fitness Management 3 s.h.
This course examines the history, purpose and current practice of health promotion and fitness in organizational settings. Concepts of the field as they relate to corporations, hospitals, non-profit community health agencies and commercial providers are discussed. Students meet with professionals in the field and learn how health promotion and fitness are addressed in different organizations. Resources for professionals in the field are reviewed. Characteristics and skills of successful professionals in this field are addressed.

HLTH 37325: Teaching Concepts Of Health Education I 3 s.h.
Pre-requisite: PHED 35286
This is the first in a series of two combined pedagogy and helath education content courses which provide students with knowledge along with general scope and understanding of current health issues which occur in the human lifecycle. This course also develops an understanding of the competencies essential for planning school health education programs. Students are given learning opportunities to develop sensitivity for the importance of integrating health education in various settings and to address the New Jersey Core Curriculum Content Standards for Comprehensive Health and Physical Education (Standards 2.1 through 2.4) Actual lesson planning and teaching experiences are required. Topics which will be addressed are Alcohol, Tobacco and Other Drugs, Personal Growth and Development, Mental and Emotional Health, Aging and Death and Dying.

HLTH 37326: Teaching Concepts Of Health Education II 3 s.h.
Pre-requisite: PHED 35286
This is the second in a series of two combined pedagogy and health education content courses which provide students with knowledge along with general scope and understanding of current health issues which occur in the human lifecycle. This course also develops an understanding of the competencies essential for planning school health education programs. Students are given learning opportunities to develop sensitivity for the importance of integrating health education in various settings and to address the New Jersey Core Curriculum Content Standards for Comprehensive Health and Physical Education (Standards 2.1 through 2.4). Actual lesson planning and teaching experiences are required. Topics which will be addressed are Family Life and Human Sexuality, Personal Health, Chronic and Infectious Diseases, Environmental Health and Consumerism.

HLTH 37327: Consumer Health Decisions 3 s.h.
This course examines the rights and responsibilities of a consumer faced with increasing amounts of information related to his or her overall well-being. It examines the major problem of health fraud and the components of scientific research. The role of advertising is explored, as well as sound principles for purchasing nutrition, fitness and other health-related products and services. Students learn important concepts related to health insurance and hospitals, traditional and alternative medical care and how to better manage the decisions they make.

HLTH 37329: Laboratory In Personal Training Techniques 1 s.h.
Prerequisites: PHED 35401
This course prepares the student, with an excercise science background, to work successfully as a personal fitness trainer for individual clients. During this highly experiential learning course, students will develop their ability to combine their excercise science knowledge, counseling and educational skills, and fitness techniques to prescribe exercise for a variety of poulations. Upon successfully completing this course, students will be prepared to qualify for national certifications in personal training.

HLTH 37340: Administration Of Health Promotion And Fitness Programs 3 s.h.
Prerequisites: HLTH 37170 and HLTH 37192 and HLTH 37310 and HLTH 37350 and INAR 06200
This course identifies and explains the components of a successful health promotion and fitness program. Students learn how to conduct a needs assessment, set goals and objectives, design intervention strategies, promote the program, find resources, prepare a budget and evaluate a program. In addition, students sharpen their professional skills related to public speaking, time management and business writing.

HLTH 37350: Health Behavior 3 s.h.
Prerequisites: HLTH 37310 and successfulcompletion of Praxis I exam.
This course examines the factors that influence an individual's choices and behaviors related to health and the process of motivating change within the individual to adopt healthful behaviors and discontinue unhealthful ones. Several theories of health behavior are examined and applied. The different roles of the client and educator are addressed as the student is prepared to counsel others in making positive health behavior changes.

HLTH 37390: Health Problems Of The Young Child 3 s.h.
Designed primarily for the early childhood and kindergarten-primary education majors, this course covers observation, detection, prevention and alleviation of physical, emotional and social health problems and disorders of the 3-8 year old child. This course may not be offered annually.

HLTH 37430: Practicum In Health Promotion And Fitness Management 3 s.h.
Prerequisites: HLTH 37340
This is an application-oriented course in which students design and implement a health promotion/ fitness program for the Rowan community. While the major emphasis is on the implementation of the program, students continue to meet weekly to discuss and evaluate their progress. Specific topics related to the field, such as legal liability and resume preparation are also addressed. In addition, students complete a formal evaluation of their professional qualities and skills for the health promotion and fitness field.

HLTH 37453: School Health Program Planning 2 s.h.
Prerequisites: HLTH 37325 and HLTH 37326
This course develops an understanding of the competencies essential in planning of health programs in schools. Students are given opportunities for integrating and correlating health in K-12 school settings. Field experiences, planning and teaching experiences are a part of this course.

HLTH 37483: Senior Internship in HPFM 9 s.h.
Prerequisite(s): HLTH 37430
Students complete 400 hours of supervised field experience enabling them to gain practical experience in an environment focused on Health Promotion, Exercise Physiology, Community Health or other, related field. Placements are made in agencies selected on the basis of student's goals, interests, and program specialization. The site will provide expereinces that build on the skills, knowledge, and dispositions acquired during coursework and related professional experiences.

HLTH 37485: Evaluation Procedures In Health 3 s.h.
This course applies knowledge and skill in developing measuring techniques for program effectiveness, through types of research procedures related to health. It includes competence in evaluating and interpreting health-related statistical data and material from various national and international health organizations. This course may not be offered annually.

HLTH 37486: Problems And Issues In Health 3 s.h.
This course assists students in understanding current problems and issues in health solutions by examining past and possible future solutions. It stresses the latest health issues, such as AIDS, the cocaine problem, and teenage pregnancy. This course may not be offered annually.

HLTH 37515: Driver Education Concepts And Theory 3 s.h.
The course is designed for currently certified teachers seeking New Jersey Driver Education teacher endorsement. The content includes learning to teach motor vehicle operation, driving environment and the student development of teaching techniques emphasizing safety, risk perception, and decision-making processes applied in a vehicle. Learning how to instruct others in performing behind-the-wheel driving will be scheduled outside of class time.

HPW 00210: Foundations of Health Promotion and Wellness Management 3 s.h.
This course examines the history, purpose and current practice of health promotion and wellness in organizational settings. Concepts of the field as they relate to corporations, hospitals, non-profit community health agencies and commercial providers are discussed. Students meet with professionals in the field and learn how health promotion and wellness are addressed in different organizations. Resources for professionals in the field are reviewed. Characteristics and skills of successful professionals in this field are addressed.

HPW 00340: Program Planning & Leadership in Health Promotion & Wellness 3 s.h.
Prerequisite(s): (HPW 00350 or HLTH 37350)
This course identifies and explains the components of a successful health promotion and fitness program. Students learn how to conduct a needs assessment, set goals and objectives, design intervention strategies, promote the program, find resources, prepare a budget and evaluate a program. In addition, students sharpen their professional skills related to public speaking, time management and business writing.

HPW 00350: Health Behavior Theory and Counseling 3 s.h.
Prerequisite(s): HPW 00210 or HLT 00200 or NUT 00230 or HES 00105
This course examines the factors that influence an individual's choices and behaviors related to health and the process of motivating change within the individual to adopt healthful behaviors and discontinue unhealthful ones. Several theories of health behavior are examined and applied. The different roles of the client and educator are addressed as the student is prepared to counsel others in making positive health behavior changes.

HPW 00351: Wellness Coaching Seminar 1 s.h.
Pre-requisites: HPW 00350
This course provides students an opportunity to learn and practice Wellness Coaching skills and Motivational Interviewing strategies that were introduced in HPW 00350 Health Behavior: Theory and Practice. Building upon the foundational content of prior coursework, students will have an opportunity to apply basic wellness coaching skills and receive individualized, constructive feedback on their skills. In addition, students will learn and practice more advanced coaching skills related to Powerful Questioning and different types of Reflection Statements designed to elicit internal motivation within a coaching client.

HPW 00360: Facility & Program Management in Wellness 3 s.h.
Prerequisite: HPW 00210
This course examines the skills necessary to effectively manage a health promotion facility and program through the study of the health and fitness facility management industry. Topics include training and managing staff, marketing programs and services, customer service, financial management, legal concerns, equipment selection and health and safety issues.

HPW 00430: Practicum in Health Promotion and Wellness Management 3 s.h.
Prerequisite(s): (HPW 00340 or HLTH 37340) AND (PHED 35343 or HES 00343, with C- or better)
This is an application-oriented course in which students design and implement a health promotion/ fitness program for the Rowan community. While the major emphasis is on the implementation of the program, students continue to meet weekly to discuss and evaluate their progress. Specific topics related to the field, such as legal liability and resume preparation are also addressed. In addition, students complete a formal evaluation of their professional qualities and skills for the health promotion and fitness field.

INAR 05302: Contemporary American Family 3 s.h.
This course examines the dynamic interiors of family life, focusing on the interpersonal relationships of family members and current issues related to family life. Students choose course projects related to their professional or personal goals.

INAR 06200: Basic Nutrition 3 s.h.
Students study human nutrition through the basic knowledge of nutrients and the physiological processes involved in the utilization of food. They also develop an understanding of the ways in which age, health, social, and economic factors and other variables affect nutritional needs and food practices. A computerized dietary analysis may be one of the course requirements.

INAR 06390: Nutrition Education 3 s.h.
This course provides an overview of nutrition education and explores the various settings in which nutrition education is carried out. It introduces students to learning theory and reviews techniques and resources for teaching nutrition. Students learn to assess the needs of different learner groups and develop, select, and evaluate appropriate nutrition education materials. This course may not be offered annually.

INAR 06415: Nutrition For Fitness 3 s.h.
Prerequisites: INAR 06200, and (BIOL 10210 and 10212)or (PHED 35241 and PHED35242), all with grade ofC- or higher.
This advanced nutrition course explores the relationship between nutrition, physical fitness, performance and disease prevention. Specific topics include nutrition fraud, supplementation, ergogenic aids, diet planning for athletes and the relationship between nutrition and chronic diseases such as cancer and heart disease. In addition, students continue to develop their skills as nutrition counselors and educators.

INAR 06420: Contemporary Issues In Nutrition 3 s.h.
Prerequisites: INAR 06200
This upper-level nutrition course provides students with a forum to critically consider controversial issues in nutrition research, education and policy. The influence of governmental agencies, the food industry, the media, and consumer advocacy groups on the dietary guidelines provided for Americans is examined. Students are challenged to apply their nutrition knowledge and education skills as they provide a nutrition consultation for a client. This course is relevant for students desiring to enter the fields of public or community health upon graduation.

NUT 00200: Basic Nutrition 3 s.h.
Students study human nutrition through the basic knowledge of nutrients and the physiological processes involved in the utilization of food. They also develop an understanding of the ways in which age, health, social, and economic factors and other variables affect nutritional needs and food practices. A computerized dietary analysis may be one of the course requirements.

NUT 00230: Introduction to Nutrition Professions 3 s.h.
The goal of this course is to introduce students to the profession of nutrition and/or dietetics and to the competecies necessary to be an effective leader in the health care field. Students will explore a variety of career opportunities in nutrition and complete one professional site visit with a nutrition professional. Information on competencies and credentialing in the field of nutrition, including the path to becoming a Registered Dietitian, will be reviewed. Principles of effective leadership will be introduced.

NUT 00300: Lifecycle Nutrition 3 s.h.
Prerequisite(s): NUT 00200 (minimum grade of C) for undergraduate majors requiring this course
This course explores the theory and practice of improving the nutritional status of various populations along the life span. Special needs within populations will be addressed, including obesity and diabetes, disordered eating, federal assistance programs, and school nutrition policies and programs.

NUT 00310: Management of Food and Nutrition Services 3 s.h.
Prerequisite: NUT 00200 (minimum grade of C) for undergraduate majors requiring this course
This course explores the organizational and business skills needed to establish and operate a food service facility. Students will learn about facility design, budgeting and accounting, human resources management, menu planning, regulatory compliance and marketing of food service facilities.

NUT 00320: Techniques of Food Preparation 3 s.h.
Prerequisite(s): Earn a grade of C or higher in NUT 00230 and NUT 00310
This lab-based course offers student an opportunity to develop essential cooking and baking skills necessary for preparing recipes properly and safely. Students will learn how to prepare a wide variety of foods from all food groups and will have opportunities to improve their cooking and baking skills through evaluation of the foods they prepare.

NUT 00330: Nutrition Therapy 1 3 s.h.
Prerequisite(s): Earn a grade of C- or higher in BIOL 10210 and CHEM 06100
This is the first of a two-course sequence reviewing all aspects of nutritional care and therapy for patients with nutrition-related diseases. In this course, students are introduced to the concepts of nutrition assessment, care and therapy as part of a plan to treat disease. Methods of medical and nutritional record-keeping are also examined, as students learn how dietitiansn work within a health care team.

NUT 00340: Nutrition Therapy 2 3 s.h.
Prerequiste: Earn a grade of C or higher in NUT 00330
This is the second of a two-course sequence reviewing all aspects of nutritional care and therapy for patients with nutrition-related diseases. Building upon the first course, students expand their understanding and application of nutrition assessment, care and therapy as part of a plan to treat disease. Specific diseases of focus in this course include diabetes, mellitus, anemia, hepatitis, cancer and other diseases of the liver, kidneys, cardiovascular system, and pulmonary system.

NUT 00341: Nutrition Therapy 2 Laboratory 1 s.h.
Prerequisite(s): NUT 00330
The course provides students the opportunity to practice nutrition assessment and intervention skills in a practice laboratory setting. Essential components of medical nutrition therapy including nutrition focused physical exam techniques, calculation of enteral and parenteral nutrition solutions, and glucose monitoring will be presented in lab. Students will perform hands on techniques to complement topics covered in Nutrition Therapy 2. The role of nutrition therapy will be emphasized through projects and activities throughout the lab course.

NUT 00350: Community Nutrition 3 s.h.
Prerequisite(s): NUT 00300 (minimum grade of C) for undergraduate majors requiring this course
This course prepares students with the skills and knowledge they need to become effective nutrition educators in a community setting among diverse populations, including different cultural backgrounds and learning abilities. Students will learn the elements of planning, implementing and evaluating nutrition education programs in a variety of delivery formats.

NUT 00400: Quantity Food Production 3 s.h.
Prerequisite: Earn a grade of C or higher in NUT 00310
This course builds upon student's knowledge of managing a food service facility by specifically addressing the challenge of food production in larger volume. Students learn how to develop menus, calculate costs, maintain food safety, extend and convert recipes, procure and store foods and ingredients, estimate labor needs, and market a large-scale food service operation.

NUT 00410: Nutrition and Public Health 3 s.h.
Prerequisite: NUT 00350 Minimum Grade of C
This course will focus on policy and professional issues which affect the nutrition and dietetics profession. These include including professional ethics standards, state and federal legislation, political advocacy, and the mission and function of leading health and nutrition agencies. Students will have opportunities to engage in the advocacy process as they meet with professional representing these agencies and legislative efforts to discuss current issues facing the profession.

NUT 00415: Nutrition for Fitness 3 s.h.
Prerequisite(s): Undergraduate level NUT 00200 Minimum Grade of C and BIOL 10210 minimum grade of C- and BIOL 10212 minimum grade of a C-
This advanced nutrition course explores the relationship between nutrition, physical fitness, performance and disease prevention. Specific topics include nutrition fraud, supplementation, ergogenic aids, diet planning for athletes and the relationship between nutrition and chronic diseases such as cancer and heart disease. In addition, students continue to develop their skills as nutrition counselors and educators.

NUT 00420: Contemporary Issues in Nutrition 3 s.h.
Prerequisite(s): NUT 00200, (minimum grade of C) for undergraduate majors requiring these courses
This upper-level nutrition course provides students with a forum to critically consider controversial issues in nutrition research, education and policy. The influence of governmental agencies, the food industry, the media, and consumer advocacy groups on the dietary guidelines provided for Americans is examined. Students are challenged to apply their nutrition knowledge and education skills as they provide a nutrition consultation for a client. This course is relevant for students desiring to enter the fields of public or community health upon graduation.

NUT 00425: Principles of Food Science 3 s.h.
Prerequisite(s): Undergraduate level CHEM 06101 minimum grade of a C-
Food science integrates several branches of science with emerging technologies to better understand the properties of nutrients with a goal of expanding and improving the food supply. Students will explore the effects of preparation methods, commercial processing, and storage systems on the safety, quality and nutritional value of a variety of nutrients and foods.

NUT 00460: Integrative and Functional Nutrition 3 s.h.
Prerequisite(s): NUT 00200
The course provides an overview of the essential components of integrative and functional nutrition including optimal health through a holistic approach to patient care using natural products and mind- body maneuvers. The gastrointestinal tract and microbiome, mind–body connection, environmental toxins and effects, and dietary supplements will be addressed. The role of the integrative and functional dietitian will be emphasized through projects and activities throughout the course.

NUT 00465: Maternal and Child Nutrition 3 s.h.
Prerequisite(s): NUT 00200
The course provides an overview of nutritional needs in the following populations: females in their reproductive years, pregnant and lactating women, infants, children, and adolescents. Evidenced based guidelines will be discussed to provide an in-depth review of the nutrition concerns among these patient populations in the community setting. Topics discussed include nutrition and fertility, human breast milk, breastfeeding promotion, nutrition during infancy, childhood, and adolescents including obesity and disordered eating.

NUT 00470: Nutrition Education 3 s.h.
Prerequisite: NUT 00330 Minimum Grade of C
Students will examine communication and educational practices relevant to dietetics. The course will provide hands on experiences with individual and group education in a variety of nutrition related topics.

NUT 00484: Senior Seminar In Nutrition 3 s.h.
Prerequisite(s): NUT 00200
This course assesses the students' knowledge, skills, and disposition to begin a career in the field of Nutrition. The primary focus will be a comprehensive review of all course work taught within the major. In addition, students will refine their resumes, interview skills, complete their professional development hours, and prepare for their internship, career, and or graduate school.

NUT 00485: SENIOR INTERNSHIP IN NUTRITION 6 s.h.
Prerequisite(s): NUT 00484 C- or better.
Students complete 250 hours of supervised field experience enabling them to gain practical experience in an environment focused on Nutrition, Dietetics or other, related field. Placements are made in agencies selected on the basis of student's goals, interests, and program specialization. The site will provide experiences that build on the skills, knowledge, and dispositions acquired during coursework and related professional experiences.

NUT 00490: Macronutrient Metabolism 3 s.h.
Prerequisites: NUT 00415 AND CHEM 07200
This course provides an in-depth examination of carbohydrate, lipid, and protein in the human body. Specific topics include the digestion, transport, and metabolism of each of the macronutrients, recommendations for consumption of each macronutrient, and the relationship between the macronutrients and disease. This course is for Nutrition majors. This does not count as part of the Chemistry or Biochemistry major curricula nor does it satisfy any requirements for those majors or the Chemistry minor.

NUT 00495: Micronutrient Metabolism 3 s.h.
Prerequisites: NUT 00415 AND CHEM 07200
This course is an investigation of the biochemical and clinical aspects of micronutrient metabolism. All of the essential vitamins and minerals are explored in depth. Toxicity symptoms, deficiency diseases, food sources and primary functions are reviewed for each essential vitamin and mineral. Students also discuss controversies surrounding recommended dietary allowances. This course is for Nutrition majors. This does not count as part of the Chemistry or Biochemistry major curricula nor does it satisfy any requirements for those majors of the Chemistry minor.

NUT 00500: Advanced Nutritional Assessment 3 s.h.
Prerequisite: Must be accepted into the M.S. in Nutrtitionand Dietetics program and in the fifth (graduate) year ofthe program.
This graduate level course will expand upon the nutritional assessment skills of dietetics students to enable them to perform a complete client assessment. Students will learn to assess lifestyle habits, health risks, dietary intake, biometric measurements, and results of blood, stool, saliva and urine laboratory tests. Students will integrate assessment data into a comprehensive analysis and recommendation report for a client. Client confidentiality, data management and follow-up nutrition counseling skills will also be addressed.

NUT 00510: Advanced Topics in Public Health Nutrition 3 s.h.
Prerequisite: Earn a grade of C or higher in NUT 00410
This course is an exploration of the relationship between nutrition, wellness and disease prevention. Students will examine the interaction between the physical and social environment, lifestyle habits and biological factors in determining the health status of a population and the role nutrition plays in addressing them. The development, implementation, monitoring and evaluation of nutrition programs and research needed to address current public health issues will be explored.

PHED 35103: Health And Wellness 3 s.h.
This course stresses the concepts of lifetime health and physical fitness. It examines the positive effects of exercise upon the heart and blood vessels, obesity and proper diet, body mechanics, and how the body handles stress. The course also examines the negative effects of disease, including socially transmitted diseases, substance abuse including narcotics, alcohol and tobacco, and other contemporary health-related problems. Students learn to analyze their strengths and limitations while planning a personal wellness profile which best fits their needs and interest.

PHED 35105: Introduction To Athletic Training 3 s.h.
This course is designed as an initial experience for students considering a career in athletic training. Students will be introduced to various domains, competencies, and proficiencies related to athletic training. An in-depth look at the field of athletic training and the requirements of the athletic training program will be discussed. An observational field experience is required.

PHED 35109: Adventure And Experiential Learning 2 s.h.
This course in adventure and experiential learning activities is designed to provide the prospective students with the skills and knowledge necessary to conduct adventure and experiential learning activities in a variety of settings. A function of this course is to introduce strategies appropriate for facilitating experiential and adventure experiences for varied settings and groups. We believe that these types of activities are becoming increasingly relevant in today's society, especially in occupational wellness. Thus, the skill and knowledge proficiency is a necessary component of leadership in a variety of settings.

PHED 35116: Safety, First Aid, And Basic Understanding Of Athletic Injuries 3 s.h.
Prerequisite: Acceptance into one of the following programs:Athletic Training, Health Promotion and Fitness Management,or Health and Physical Education Teacher Certification.
This course is designed for the individual who is interested in gaining CPR and First Aid certification and a basic understanding of athletic injuries. The first part of this class will allow students to understand and demonstrate appropriate techniques in performing American Red Cross Community CPR and First Aid techniques required for certification. The second component of the class will enable students to understand basic concepts in athletic injury: anatomy, recognition, and basic care.

PHED 35218: Prevention And Care Of Orthopedic Injuries 3 s.h.
An examination of current practices and procedures in the basic pathology, prevention and care of athletic injuries. The laboratory experience exposes students to wound care, padding, and the art and science of athletic injury taping. An observational clinical field experience will be required.

PHED 35219: Pathology And Evaluation Of Orthopedic Injuries I 3 s.h.
Prerequisites: PHED 35218 Corequisites: PHED 35238
This course provides an examinationg of the etiology, epidemiology, pathology, and assessment of injuries and illnesses to the lower extremity. Structural, functional, and surface anatomy will be reviewed. In addition to didactic classroom time, students are also instructed, given time to practice and evaluated on pertinent athletic training psychomotor competencies and clinical proficiencies within a practical laboratory experience. There is an observational field experience associated with this class.

PHED 35220: Pathology And Evaluation Of Orthopedic Injuries II 3 s.h.
Prerequisites: PHED 35219 Corequisitie: PHED 35239
This course provides an examination of the etiology, epidemiology, pathology and assessment of injuries and illnesses to the upper extremity, head, axial skeleton, chest, and thorax. Structural, functional and surface anatomy will be reviewed. In addition to didactic classroom time, students are also instructed, given time to practice and evaluated on pertinent athletic training psychomotor competencies and clinical proficiencies within a practical laboratory experience. There is an observational field experience associated with this class.

PHED 35238: Pathology And Evaluation Of Orthopedic Injuries I (Lab) 2 s.h.
Prerequisites: PHED 35218 Corequisites: PHED 35219
This laboratory course is designed to teach the psychomotor and clinical proficiency skills necessary to perform a competent evaluation of the lower extremity and low back region. It must be taken and successfully completed in conjunction with Pathology and Evaluation of Orthopedic Injuries I before a student may continue matriculating through the Athletic Training Education Program.

PHED 35239: Pathology And Evaluation Of Orthopedic Injuries II (Lab) 2 s.h.
Prerequisites: PHED 35219 and PHED 35338 Corequisites: PHED 352201
This laboratory course is designed to teach the psychomotor and clinical proficiency skills necessary to perform a competent evaluation of the upper extremity, head, cervical and thoracic regions. It must be taken and successfully completed in conjunction with Pathology and Evaluation of Orthopedic Injuries II before a student may continue matriculating through the Athletic Training Education Program.

PHED 35240: Motor Development And Motor Learning 3 s.h.
This is an introductory course that includes the study of locomotor and non locomotor movement, manipulative skills, and developmental and environmental factors that affect learning in these motor skill areas. The course will focus on motor behavior changes. Students will also be introduced to motor learning theories and concepts, assessment, and development of motor skills in various settings.

PHED 35241: Structure And Function Of The Human Body I 3 s.h.
Prerequisite: Acceptance into one of the following programs: Athletic Training, Health Promotion and Fitness Management,or Health and Physical Education Teacher Certification
This course investigates basic anatomical and physiological concepts of the human body. It includes cellular structure and function, metabolism, and the skeletal, nervous, muscular, circulatory and respiratory systems.

PHED 35242: Structure And Function Of The Human Body II 3 s.h.
Prerequisites: PHED 35241 and acceptance into one of the following programs: Athletic Training, Health Promotion and Fitness Management, or Health and Physical Education Teacher Certification
This course continues the study of the human body begun in PHED35.241. It investigates the urinary, endocrine, reproductive, digestive and integumentary systems.

PHED 35252: Foundations Of Fitness 3 s.h.
This course is designed to provide students with the skills and knowledge to be able to design, implement, and assess a fitness program for K-12 students. Content will focus on health and skill related fitness and include designing fitness programs for individuals with differing needs and abilities.

PHED 35271: Movement And Meaning In Sports 3 s.h.
This course helps students understand themselves and how they relate physically to their environment. Through movement students discover, understand, control and adjust to their environment and gain an understanding of space, time and force. The course discusses exercise and sport forms. This course may not be offered annually.

PHED 35272: Technology And Assessment Of Health And Exercise Science 3 s.h.
Prerequisite: acceptance into one of the following programs:Athletic Training, Health Promotion and Fitness Management,or Health and Physical Education Teacher Certification
This course will prepare students in the Department of Health and Exercise Science to use computers and technology for organizing information, amplifying presentation, developing written documents, assessing client/students, gathering information, and completing research. Students will evaluate software, use peripheral devices, explore internet applications, and use non-computer media applications as they apply to their discipline. An introduction to simple statistical designs will also be a component of this course.

PHED 35286: Teaching In Learning Communities II: Foundations Of Teaching Health And Physical Education 3 s.h.
Prerequisite: C- or better in EDUC 01270
Students in this course are introduced to the profession of teaching health and physical education for pupil outcomes which address the New Jersey Core Curriculum Content Standards for Comprehensive Health and Physical Education, with specific emphasis on teaching skills, student behaviors, and the classroom environment. These three elements are discussed, analyzed and practiced through the principles of learning communities. Students explore the roles and responsibilities of teachers through the study of professional literature; class discussions and activities; simulation exercises; and direct interactions with students, teachers and administrators during on-campus and off-campus experiences. School observations are a required component of this course.

PHED 35310: Teaching Concepts Of Secondary Physical Education I 3 s.h.
Prerequisites: PHED 35286
This course provides an opportunity for students to learn the characteristics of a skilled performance in a variety of activities, including target and net/wall activities. Students will be able to describe and demonstrate the application of appropriate participation in each activity, as well as effective pedagogical techniques that lead to such participation.

PHED 35316: Teaching Concepts Of Dance In Physical Education 3 s.h.
Prerequisite: Acceptance into one of the following programs:Athletic Training, Health Promotion and Fitness Management,or Health and Physical Education Teacher Certification
This course introduces health and exercise science majors specializing in teacher certification to the skills, concepts and knowledge necessary for instructing development and performance sequences in various rhythmic activities (creative rhythms, routines with small hand apparatus, and novelty dances) and dance forms (folk, social, square, contra, and line). The study of selected rhythmic activities and dance forms include: terminology, relative movement patterns, techniques, skill performance, evaluation, basic musical structure, and teaching strategies.

PHED 35320: Teaching Concepts Of Secondary Physical Education II 3 s.h.
Prerequisites: PHED 35286
This course provides an opportunity for students to learn the characteristics of a skilled performance in a variety of physical activities, including invasion sports. Students will be able to describe and demonstrate the application of appropriate participation in each activity, as well as effective pedagogical techniques that lead to such participation.

PHED 35334: Advanced Emergency Care 3 s.h.
This is a sophomore level course designed primarily for athletic training majors and other allied health professionals. Students are trained in CPR for the professional rescuer as well as other advanced emergency skills. An additional observation experience in a local emergency room is required. There also is an optional lifeguarding component available in this class.

PHED 35336: Teaching Concepts Of Elementary Physical Education 3 s.h.
Prerequisites: PHED 35286 and HES Department Acceptance
This course is an introductory survey course designed to help prepare health and exercise science teacher certification majors to teach relevant curriculum at the elementary school level. Students will be exposed to a number of important activities that comprise the focus of elementary school physical education. Methods, techniques and classroom management as they apply to teaching pertinent curriculum will be highlighted.

PHED 35338: Clinical Techniques In Athletic Training I 2 s.h.
Co-requisite: PHED 35358 Prerequisites: PHED 35220
This course, designed for first semester juniors, will review and evaluate psychomotor competencies and clinical proficiencies previously discussed in pre-professional course work. Students meet once per week in the Athletic Training Laboratory to practice and be evaluated on their psychomotor and clinical proficiency skills. Opportunities are also provided to discuss topics pertinent to the student's clinical residency assignment.

PHED 35339: Clinical Techniques In Athletic Training II 2 s.h.
Co-requisite: PHED 35359 Prerequisites: PHED 35338
This course, designed for second semester juniors, will review and evaluate psychomotor competencies and clinical proficiencies previously discussed in Therapeutic Modalities and topics relevant to previous course work. Students meet once per week in the Athletic Training Laboratory to practice and be evaluated on their psychomotor and clinical proficiency skills. Opportunities are also provided to discuss topics pertinent to the student's clinical residency assignment.

PHED 35340: Clinical Techniques In Athletic Training III 2 s.h.
Co-requisite PHED 35360 Prerequisites: PHED 35339
This course, designed for first semester seniors, will review and evaluate psychomotor competencies and clinical proficiencies previously discussed in Therapeutic Excercises and topics relevant to previous course work. Students meet once per week in the Athletic Training Laboratory to practice and be evaluated on their psychomotor and clinical proficiency skills. Opportunities are also provided to discuss topics pertinent to the student's clinical residency assignment.

PHED 35341: Clinical Techniques In Athletic Training IV 2 s.h.
Corequisite: PHED 35361 Prerequisites: PHED 35340
This course, designed for second semester seniors, will review and evaluate clinical proficiencies previously discussed in General Medical Conditions and Pharmacology and related topics relevant to previous course work. Students meet once per week in the Athletic Training Laboratory to practice and discuss topics pertinent to their clinical assignment. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites.

PHED 35343: Kinesiology 3 s.h.
Prerequisites: (BIOL 10210 and BIOL 10212) or(PHED 35241 and PHED 35242), all with grade of C- or higher
Kinesiology, the study of human movement, integrates the sciences of anatomy, physiology and physics as they contribute to developing an appreciation for the art of movement. Opportunity is given for an individual study of a movement pattern with emphasis on the application of the mechanical principles of motion.

PHED 35344: Exercise Physiology (Without Lab) 3 s.h.
Prerequisites: (BIOL 10210 and BIOL 10212) or(PHED 35241 and PHED 35242), all with the gradeof C- or higher.
A course in applied anatomy and physiology, this course studies the interrelationship of exercise and physiology. This course also covers the functions of the human body under the stress of physical activity.

PHED 35345: Exercise Physiology (With Lab) 4 s.h.
Prerequisites: (PHED 35241 and PHED 35242) or(BIOL 10210 and BIOL 10212), all with grade of C-or higher.
A course in applied anatomy and physiology, this course studies the interrelationship of exercise and physiology. This course also covers the functions of the human body under the stress of physical activity.

PHED 35347: Applied Biomechanics 3 s.h.
Prerequisites: PHED 35219 and PHED 35220
This course is designed to acquaint students with the fundamental principles involved with biomechanics and human movements. This course will discuss the kinetic and kinematics concepts and how they are applied to balance, posture, locomotion and functional activity.

PHED 35358: Residency In Athletic Training 3 s.h.
Prerequisites: PHED 35220 and acceptance in the Professional Phase of the athletic Training Education program; Corequisites: PHED 35338
This clinical education course, designed for first semester juniors, will review and evaluate, within a clinical assignment, those clinical proficiencies discussed in previous and concurrent course work using a learning-over-time model. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites. During this course, the student will be formally evaluated by an Approved Clinical Instructor only. This course must be takend and successfully completed in conjunction with PHED 35.338 Clinical Techniques in Athletic Training I before a student may continue to matriculate through the Athletic Training Education Program.

PHED 35359: Residency In Athletic Training II 3 s.h.
Prerequisites: PHED 35338 and PHED 35358 Corequisites: PHED 35339
This clinical education course, designed for second semester juniors, will review and evaluate, within a clinical setting, those clinical proficiencies discussed in previous and concurrent course work using a learning-over-time model. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites. During this course, the student will be formally evaluated by an Approved Clinical Instructor only. This course must be taken and successfully completed in conjuction with PHED 35.339 Clinical Techniques in Athletic Training II before a student may continue matriculating through the Athletic Training Education Program.

PHED 35360: Residency In Athletic Training III 3 s.h.
Prerequsites: PHED 35339 and PHED 35359; Corequisites: PHED 35340
This clinical education course, designed for first semester seniors, will review and evaluate, within a clinical setting, those clinical proficiencies discussed in previous and concurrent course work using a learning-over-time model. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites. During this course, the student will be formally evaluated by an Approved Clinical Instructor only. This course must be taken and successfully completed in conjuction with PHED 35.340 Clinical Techniques in Athletic Training III before a student may continue matriculating through the Athletic Training Education Program.

PHED 35361: Residency In Athletic Training IV 3 s.h.
Prerequisites: PHED 35340 and PHED 35360; Corequisites: PHED35341
This clinical education course, designed for second semester seniors, will review and evaluate, within a clinical setting, those clinical proficiencies discussed in previous and concurrent course work using a learning-over-time model. The clinical assignment enables students to develop and assimilate patient care skills under the direct supervision of a certified athletic trainer and/or approved clinical instructor within the athletic training room, exposure to intercollegiate athletics and/or at approved affiliated sites. During this course, the student will be formally evaluated by an Approved Clinical Instructor only. This course must be taken and successfully completed in conjuction with PHED 35.341 Clinical Techniques in Athletic Training III before a student may continue matriculating through the Athletic Training Education Program.

PHED 35368: Motor Learning And Human Movement 3 s.h.
In this course students receive an introduction to major theories and principles concerning motor learning and performance of physical skills. Emphasis is placed on the preparation of instructional designs which enhance skill and knowledge acquisition of the learner.

PHED 35373: Advanced Lifesaving/Cardiopulmonary Resuscitation 3 s.h.
This course is for advanced swimmers who wish to learn the skills and techniques necessary to become qualified lifeguards. This course covers swimming and rescue skills, personal safety skills, lifeguard techniques, cardiopulmonary resuscitation skills and knowledge, and management techniques for aquatic environments. Upon successful completion of the course the student will receive the American National Red Cross Certificate in Basic Cardiopulmonary Resuscitation and in Advanced Lifesaving. This course may not be offered annually.

PHED 35374: Coaching Team Sports (Non-Majors) 3 s.h.
This course develops a sound philosophy in team sports for interscholastic programs in junior and senior high schools. This course presents skills, techniques, theory, rules, strategy and methods through laboratory, classroom experiences and audiovisual aids. This course may not be offered annually.

PHED 35377: Teaching Health And Physical Education To The Handicapped 3 s.h.
This course is a restrictive elective course for special education majors and an elective for all other students. Students study the need for health and physical education for handicapped students as defined in P.L. 94-l42. The course demonstrates several teaching styles that correlate physical education with other disciplines focusing on movement. Learning experiences in the gymnasium are used to reinforce methodology studied in the classroom. This course may not be offered annually.

PHED 35378: Recreation And Leisure Studies For The Handicapped 3 s.h.
This course develops an understanding of the values and function of recreation in the lifestyle of handicapped individuals. It explores societal trends, legislation, and barriers which impact on recreation participation. It studies the implementation of leisure education, leisure counseling, recreation as a related service in P.L. 94-142, and the continuum of recreation services in community settings. Open to all students.

PHED 35392: Field Experience In Teaching Health And Physical Education 1 s.h.
Prerequisites: PHED 35286 or PHED 35330 or HLTH 37453
This course introduces students to the nature and operation of elementary and secondary schools. Students learn to organize instructional materials into meaningful daily lessons in both health and physical education. The course emphasizes the development of teaching strategies, classroom management techniques and use of educational media. The field experience involves observation, tutoring, micro-teaching and practice in a variety of other instructional skills. Field assignments are sought that involve the pre-service teacher in a realistic mainstreamed classroom environment.

PHED 35401: Exercise Prescription 3 s.h.
Prerequisites: (BIOL 10210 and BIOL 10212) or (PHED 35241and PHED 35242) and (PHED 35344 or PHED 35345), all withgrade of C- or higher.
This course provides students with the knowledge and practical experience in exercise testing and prescription. The information enables students to establish scientific foundations of exercise testing and prescription, to identify the risk factors for disease development and to prescribe an exercise program based on exercise test results and personal limitations. Practical experience is provided for testing subjects in the laboratory.

PHED 35405: Organization & Administration In Athletic Training 3 s.h.
Prerequisites: PHED 35339
This lecture/laboratory course is designed to meet the entry level competencies for the athletic training student in the area of organization and administration of athletic training. It covers liability, budgeting, athletic training facility design, insurance, administration of medical record keeping systems, data tabulation and interpretation, emergency transportation systems, athletic training facility management, impact of state and national governing body regulations, athletic injury insurance administration and communication, conflict resolution and mediation.
The senior level course is designed to meet educational competencies in pharmacology and general medicine for the undergraduate athletic training student. This course will focus on issues in pharmacology and general medicine pertinent to the allied health profession of athletic training. Issues such as the drug approval process, side effects of medications, general medical evaluation will be explored during this course,. There is a general medical clinical field experience with the athletic raining programs medical director associated with this course.

PHED 35412: Exercise For Special Populations 3 s.h.
Prerequisite: PHED 35345 Corequisite: PHED 35401
This course provides a study of exercise considerations for special populations. It covers the basic concepts of the physiologic effects of exercise and the application of these concepts to special cases. Cases included are respiratory and cardiovascular diseases, hypertension, obesity, diabetes, arthritis, osteoporosis, pregnancy, children/adolescents, and the elderly.

PHED 35430: Senior Seminar In Athletic Training 2 s.h.
Prerequisites: PHED 35340
This senior seminar is an examination of the individual's responsibility to promote athletic training as a profession, remain abreast of current theory and practice, disseminate health and athletic training information, and to enhance the professional growth of self and others.

PHED 35447: Therapeutic Modalities In Athletic Training - Laboratory Experiences 2 s.h.
Prerequisite: PHED 35220 Corequisite: PHED 35475
This laboratory course is designed to teach teh psychomotor and clinical proficiency skills necessary to develop psychomotor skills relevant to the use of Therapeutic Modalities. This laboratory course must be taken and successfully completed in conjuction with Therapeutic Modalities in Athletic Training before a student may continue matriculating through the Athletic Training Education Program.

PHED 35450: K-12 Health And Physical Education Curriculum And Instruction 3 s.h.
Prerequisite: HLTH 37325 and HLTH 37326 andPHED 35310 and PHED 35320 and PHED 35336.Corequisite: PHED 35392
K-12 Physical Education Curriculum and Instruction is a critical junior level course designed to help prepare Health and Exercise Science majors to become successful physical education teachers in schools. Teacher candidates will develop expertise in curriculum construction, planning, instruction and evaluation in elementary, middle and high school. In developing this expertise, candidates will address the NJ Core Curriculum Content Standards for Comprehensive Health and Physical Education (Standards 2.1, 2.5 and 2.6).

PHED 35452: Teaching Concepts Of Adapted Physical Education 3 s.h.
Prerequisites: PHED 35270 and PHED 35286 andPHED 35310 and PHED 35320 and PHED 35336 andSPED 08130. Corequisite: PHED 35392
This course is designed to provide health and physical education teacher candidates with the knowledge and basic skills required to meet the professional and legal mandates pertaining to general physical education for students with unique needs, between ages 3 to 21. The course will focus on the law, placement decisions, assessment, individualized general physical education programming, service delivery, and transition planning for individuals with disabilities. It stresses professionalism in the workplace, awareness of the strengths and limitations of those with disabilities and methods for inclusion.

PHED 35456: Principles Of Coaching 3 s.h.
Emphasizes the development of a sound coaching philosophy. Includes aspects related to team organization, supervision, equipment control and its administration and community ethics. Attention will be given to the sociology and psychology of sport.

PHED 35460: Clinical Practice In Health And Physical Education, Elementary 5 s.h.
Prerequisites: PHED 35392, Praxis II
This course allows teacher candidates to work under the guidance and direction of an experienced elementary health and physical education teacher. Teacher candidates gain experience and develop insight and skill in the teaching of secondary school health and physical education. An application for clinical practice must be submitted and approved through the Office of Field Experiences.

PHED 35461: Clinical Practice In Health And Physical Education, Secondary 5 s.h.
Prerequisites: PHED 35392
This course allows teacher candidates to work under the guidance and direction of an experienced secondary health and physical education teacher. Teacher candidates gain experience and develop insight and skill in the teaching of secondary school health and physical education. An application for clinical practice must be submitted and approved through the Office of Field Experiences.

PHED 35465: Clinical Seminar In Health And Physical Education 2 s.h.
Prerequisites: PHED 35460 or PHED 35461
This senior-level capstone course is designed to be taken concurrently with student teaching. The seminar will focus on: understanding the current issues in teaching health and physical education; evaluating the application of effective teaching; and understanding the parameters of professional and ethical behaviors in teaching.

PHED 35473: Water Safety Instructor 3 s.h.
This course covers the American National Red Cross standardized program of skill proficiency, teaching methodologies, principles of class organization, safety factors in teaching swimming and practice teaching experiences. The course is for advanced swimmers who are interested in learning to teach swimming and water safety. Upon successful completion of this course students receive the American National Red Cross Certificate as a Water Safety Instructor. This course may not be offered annually.

PHED 35475: Therapeutic Modalities For Athletic Training 3 s.h.
Prerequisites: PHED 35220 and PHED 35239Corequisite: PHED 35447
This course focuses on the cognitive, affective and psychomotor competencies involved in developing appropriate therapeutic modality programs for the injured person. This course uses current research to discuss the theory and clinical applications of all potential modalities used in the athletic training room. This course implements a problem-solving approach for the return of functional integrity to the injured person through the use of therapeutic modalities. A laboratory experience is part of this class.

PHED 35476: Therapeutic Exercises In Athletic Training - Laboratory Experiences 2 s.h.
Corequisites: PHED 35478; Prerequisites: PHED 35475
This laboratory course is designed to teach the psychomotor and lcinical proficiency skills necessary to develop psychomotor skills relevant to the use of Therapeutic Excercies. This laboratory course must be taken and successfully copleted in conjunction with Terapeutic Excercies in Athletic Training before a student may continue matriculating through the athletic Training Education Program.

PHED 35477: Psychosocial Aspects Of Physical Activity 3 s.h.
Prerequisites: PSY01.107 PHED 35479
This course, designed for seniors in Athletic Training, addresses several CAATE proficiencies related to the psychosocial aspect of physical activity and injury. Topics include but are not limited to theories related to the psychological and emotional aspects of trauma and forced inactivity, the use of motivational activities towards rehabilitation, basic principles of mental preparation, relaxation, and visualization, as well as theories and techniques of interpersonal and cross-cultural communication among athletic trainers, their patients, and others involved in the health care of the patient.

PHED 35478: Therapeutic Exercises In Athletic Training 3 s.h.
Corequisites: PHED 35476; Prerequisites: PHED 35475 and PHED 35447
This course covers the cognitive, affective and psychomotor competencies involved in developing appropriate rehabilitation exercise protocols for the injured person. This course uses current research to discuss the physiological and biomechanical concepts involved in the clinical practice of rehabilitation. This course implements a holistic and problem-solving approach for the return of functional integrity to the injured person. A laboratory experience is part of this class.

PHED 35479: Pharmacology And General Medicine In Athletic Training 3 s.h.
Prerequisite: PHED 35478
This senior level course is designed to meet educational competencies in pharmacology and general medication for the undergraduate athletic training student. The course will focus on issues in pharmacology and general medicine pertinent to the allied health profession of athletic training. Issues such as the drug approval process, side effects of medications, general medical evaluation will be explored during this course. There is a general medical clinical field experience with the athletic training program's medical director associated with this course.

PHED 35480: Trends In School And Community Recreation 3 s.h.
This course, an elective course for all students, assists students to develop and enhance "a worthy use of leisure" by participation in school and community recreation as well as leisure service programs and activities.

PHED 36100: Teaching Concepts Of Driver Education 3 s.h.
The course is designed for individuals seeking New Jersey Driver Education teacher endorsement. The content includes learning to teach motor vehicle operation, driving environment and the student development of teaching techniques emphasizing safety, risk perception, and decision-making prcesses applied in a vehicle. Learning how to instruct others in performing behind-the-wheel driving will be scheduled outside of class time.

HIST 05100: The West in the World to 1600 3 s.h.
This course covers the evolution of Western Culture from the Stone Age to the end of the Thirty Years War, emphasizing the medieval and early modern periods. Students study the ancient period to learn of its contribution to western culture. The course introduces students to the principles and methodology of history.

HIST 05101: The West in the World since 1600 3 s.h.
This course examines the entanglements of European peoples and nations in the region and wider world after 1600. It emphasizes cultural, social, intellectual, political and economic transformations, and interactions with other parts of the world from the 17th century to the present. This course introduces students to the principles and methodology of history.

HIST 05110: History of Now 3 s.h.
This course introduces students to the importance of history in today's world, allows them to explore how history is made, and encourages them to develop analytical skills. Students will have the opportunity to do history by encountering and interpreting documents and artifacts from the past, and they will consider how history affects their own daily lives. The thematic focus will change from semester to semester.

HIST 05120: World History Since 1500 3 s.h.
This course studies the key changes in the patterns of interaction among the major cultures of the earth from the beginnings of European Expansion in the 1500's. The course covers the roots of European Expansion, the response of the Confucian, modern, and non-Eurasian cultures, and the emergence of a non-Western Third World Block since 1914.

HIST 05150: United States To 1865 3 s.h.
This course examines the historical roots of the American democratic traditions, with the emphasis on understanding the political, social and cultural forces developed in the new physical setting of North American and finally welded into a unified nation.

HIST 05151: United States Since 1865 3 s.h.
This course analyzes the principal political, social and cultural factors conditioning the life of the nation since the Civil War. It emphasizes the issues facing modern America with the impact of industrialization and the problems of world leadership.

HIST 05273: American Military History, 1775-Present 3 s.h.
A survey of American military experience since the Revolution, this course analyzes military action and its effect on the home front against a background of politics, technology, diplomacy, and personality. This course may not be offered annually.

HIST 05306: Historical Methods-WI 3 s.h.
Prerequisites: COMP 01112
This course offers intensive training in the techniques of historical research and analysis of historical writing. Required of History majors as prerequisite for other upper-level courses.

HIST 05307: Ancient Mediterranean World 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course begins with the earliest Near Eastern civilization and ends with the collapse of Rome. It deals with the wide diversities within this span through selected topics, using readings from primary sources and secondary interpretations. This course may not be offered annually.

HIST 05308: Modern Middle East 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course provides an introduction to the history of the Middle East from 1800 to the present, a period of intense change in the region. It examines the transition from empires to nation states and the rise and fall of European imperialism in the area. This course is typically offered in the spring semester. This course may not be offered annually.

HIST 05310: Medieval Europe 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course examines the development of Europe from the particularism of the feudal age to the formation of national states. It covers political evolution, integrating it with the social, economic and cultural trends giving particular stress to the reading of primary sources in translation. This course may not be offered annually.

HIST 05311: Renaissance And Reformation 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course examines the Renaissance in Italy and northern Europe, the Protestant and Catholic Reformations and their impact upon the politics and culture of the period, the growth of a capitalistic society, overseas expansion and the beginnings of modern science. It uses reading of primary sources. This course may not be offered annually.

HIST 05312: Age Of Enlightenment 1648-1789 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course studies Europe from the end of the Thirty Years War to the French Revolution including the significant intellectual development known as the Enlightenment, the development of the national monarchies, colonization and the colonial wars. This course may not be offered annually.

HIST 05313: Age Of Revolutions 1760-1848 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course emphasizes the dramatic changes that occurred in European society during this period. It examines the political, social, economic and intellectual factors that stimulated change, using readings in primary sources and secondary interpretations. This course may not be offered annually.

HIST 05314: Europe 1871-1914 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course examines the period in terms of its dual character as the climax of Enlightenment and as the source of later disillusionment. The course emphasizes Europe and not any particular country, giving particular attention to the historiographical problem of the causes of World War I. This course may not be offered annually.

HIST 05315: Twentieth Century Europe to 1945 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course analyzes significant themes in European history prior to 1945. It stresses the important economic, social and intellectual trends and major political events. This course may not be offered annually.

HIST 05316: Twentieth Century Europe since 1945 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course analyzes significant themes in European history since 1945. It stresses important economic, social, and intellectual trends and major political events. This course may not be offered annually.

HIST 05319: Ancient Greece 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course will cover the history of ancient Greece from its prehistoric beginnings, through the flourishing and collapse of Helladic culture at the end of the Bronze Age, to the formation of the "Classical World" following the Dark Ages. Particular attention will be given to the role and importance of Homer in shaping Greek history and ideals; the rise of the city-state during the Archaic Period; the peculiarities of Sparta and Athens, and their rivalry and clash from the Persian to the Peloponnesian Wars. Emphasis shall be placed upon contemporary perceptions of, and reactions to these events as found in primary sources (in translation), and their utility for recovering and reconstructing Hellenic history.

HIST 05320: Britain to 1715 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201

HIST 05321: U.S. History 1820-1861 3 s.h.
Prerequisite(s): HIST 05150 and (HIST 05299 or HIST 05306 or AMST 13301)
This course analyzes American society and culture from 1820 to 1861 against the background of industrialization, urban development, westward movement, political campaigns, religious revivals, and evolving gender roles, race relations, and social classes. The course will also focus on the growth of the American Empire, the impact of Jacksonian democracy, and the emergence of sectional politics. This course may not be offered annually.

HIST 05322: Civil War And Reconstruction 3 s.h.
Prerequisite(s): HIST 05150 and (HIST 05306 or AMST 13301)
This course provides a detailed political, economic and cultural analysis of the causes of the Civil War. It makes a searching study of the years of reconstruction and their significance for our own times, giving particular emphasis to interpreting the era and its overall significance. This course may not be offered annually.

HIST 05324: Twentieth Century U.S. 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
From the Progressives of the early twentieth century to the present, this course attempts to probe the trends and ideas which form the basis of our present points of view in attempting to solve contemporary problems. This course may not be offered annually.

HIST 05326: Britain since 1715 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course explores developments in English society, government, art, and literature with special emphasis on eighteenth century social and constitutional customs; nineteenth century urbanization, industrialization, imperialism and the attendant social and political consequences; twentieth century world wars, the creation of the welfare state and decolonization. This course may not be offered annually.

HIST 05327: Victorian Britain 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course examines the social and economic history of Britain from the Reform Act of 1832 to the constitutional crises of 1910, giving special attention to those social and economic factors that underlie British Imperialism. This course may not be offered annually.

HIST 05334: US Urban History 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course surveys the development of urban America from the 17th century in the U.S. with emphasis on architecture and city planning as well as the traditional attitudes of Americans toward the city and the country. This course may not be offered annually.

HIST 05338: America From War To War, 1914-1945 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301
This course will focus on the federal government's role in the economy and in social life and the restructuring of the American racial, gender, and ethnic systems. A central focus of the course is the development of a mass production economy and the attendant rise of consumerism and media influence that characterized the era between the wars. This course may not be offered annually.

HIST 05343: Russia To 1914 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course traces the origin, rise and development of Russia until the end of the Imperial period. It emphasizes the formative features in Russian history, using readings from primary sources and secondary interpretations. This course may not be offered annually.

HIST 05344: Russia Since 1914 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course emphasizes the revolutionary forces which led to the explosions of 1905 and 1917. The course carefully studies the nature and dynamics of the Communist Party and the Soviet government. It involves readings from primary sources and secondary interpretation. This course may not be offered annually.

HIST 05347: Colonial Latin America 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course examines racial and cultural diversity of the region, establishment of Iberian institutions and challenges from other empires, the Enlightenment in Hispanic America and the beginnings of independence movements. This course may not be offered annually.

HIST 05350: Modern Latin America 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course examines the history of Latin America from independence to the present, focusing on concepts such as violence, race, slavery, gender, governance, and revolution. This course may not be offered annually.

HIST 05351: Modern Japan 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course offers analysis of the developments of island East Asia (Japan) from the time of the Tokugawa Shogunate's contribution to the development of modern Japan and Japanese involvement in modern Western expansionism to the emergence of Japanese expansionism and contemporary Japan, including the various aspects which affect historical development. This course may not be offered annually.

HIST 05355: Modern China 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course analyzes the development of mainland and island East Asia (China and Japan) from the early involvement with rising Western expansionism to the present. This course may not be offered annually.

HIST 05356: Late Imperial China 3 s.h.
Prerequisite: HIST 05306 or IS 25300
This is an upper-level course on the history of late imperial China, or the rise and fall of the Ming and Qing dynasties from the mid 14th to the early 20th centuries. During this period, China saw an impressive rise of commercial and urban culture, which impacted the relationship among ethnic groups and between genders in family and society. The Ming-Qing dynastic transition also generated lasting changes that shaped the course of development in modern Chinese history. In addition, the course discusses such epoch-making events as the reconstruction of the Great Wall, Zheng He's maritime expeditions and the rise of "evidential learning" as an intellectual movement.

HIST 05362: History Of Mexico And The Caribbean 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course focuses on the development of Mexico and her Central American and Caribbean island neighbors. Although the course deals mainly with events from the time of independence to the present, it also discusses key eras in the pre-Columbian and colonial periods. This course may not be offered annually.

HIST 05369: Indigenous History in the US 3 s.h.
Prerequisite(s): COMP 01112
This course examines the history of indigenous peoples whose homelands reside in the contemporary United States. It begins with Native American origin stories and traditions and moves through the colonization period to the modern day. Major topics covered include contact and interaction, accommodation and resistance, warfare and education, governmental programs and reform movements. This course may not be offered annually.

HIST 05371: U.S. Legal And Constitutional History To 1870 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
In this course, students will learn how American law and the Constitution developed from their English roots. This English Common law heritage of American law means that historical development is a part of contemporary law, as justices interpret a Constitution written over 200 years ago. As a part of gaining a strong foundation in American law and government, the course will pause and spend significant time exploring the Constitutional era, in order to be able to evaluate competing ideas today like "original intent" and the "evolving Constitution." The course will continue through the Reconstruction Amendments to gain perspective on how American law and the Constitution survived and changed during its first chapter.

HIST 05372: U.S. Legal And Constitutional History Since 1870 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301
In this course, students will learn how American law and the Constitution developed in the late 19th and early 20th century beginning with the transformative Reconstruction movements. The course is structured thematically, looking at criminal law, professionalization of the law, the expansion of the federal government, and the rise of civil rights, in order to understand the current legal culture.

HIST 05373: Civil Rights/Black Power Movements 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course offers a profound re-examination of the Civil Rights-Black Power movements since the 1970s. Special attention is given to ongoing debates over the origins, development, regional boundaries, leadership, protest strategies, and effects of the movement. We will cover a variety of themes ranging from post-WWII racial politics, gender, interracial alliances, grassroots activism, transnational movements, and the Cold War to the constructed images of Martin Luther King, Jr.

HIST 05375: The United States since 1945 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course is designed to provide students with an in-depth study of the social, economic, cultural, technological and political forces that shaped the United States since 1945. This course may not be offered annually.

HIST 05376: African American History To 1865 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course surveys the major social, economic and cultural developments of the black community from Africa to the Civil War. It emphasizes a comparison of the transition from Africa to slave culture and studies the contribution of blacks to the making of America.

HIST 05377: African American History Since 1865 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course studies the development of the black community from emancipation to contemporary America, tracing such major themes as the pattern of migration and the various methods of black protest developed and employed in the 20th and 21st centuries.

HIST 05378: History of Camden 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
The purpose of this course is twofold. First, it examines the multifaceted origins of the "urban crisis" in a city that has developed an infamous reputation as the poorest and most dangerous metropolis in American. Students will investigate the historical legacy of political and socioeconomic factors that have shaped the urban problems in a post-industrial city like Camden such as: racial segregation, deindustrialization, white flight and suburban sprawl, public housing, urban renewal and environmental racism. Second, this is a service-learning course that will require students to participate in several community-based projects in the city that introduce them to policymakers, social activists, and ordinary residents working towards improving the myriad challenges in Camden. This course will be offered every other year.

HIST 05379: Ancient Egypt 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course will study the culture and history of ancient Egypt from its predynastic beginnings to its formation as the first nation state (c. 3000 BCE) through its apex as an imperial power in the New Kingdom and decline (1050 BCE). Special attention will be paid to the African and Near Eastern origins of ancient Egyptian society; the institution of kingship; the place of ancient Egypt in the development of ethics and religion; and the complexities of imperialism. Emphasis will be placed upon Egyptologists' use of primary sources and their role in the recovery and reconstruction of ancient Egyptian history.

HIST 05380: Traditional Jewish History 3 s.h.
Prerequisities: HIST 05306
This course traces the origin, faith, law and development of the Jewish people to the 16th century, with emphasis on traditional Jewish culture and values; Jewish literature, the phenomenon of anti-Semitism and the Jewish contribution to Western civilization. This course may not be offered annually.

HIST 05381: Modern Jewish History 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course examines the development of Jewry in Poland, Germany and the U.S. with special emphasis on modern Jewish thought, Zionism, the Nazi holocaust, the rise of Israel and the situation of Judaism and Jews at the present time. This course may not be offered annually.

HIST 05383: Islamic Civilization 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course provides an introduction to Islam and Islamic history, concentrating on the Middle East and North Africa, from the emergence of Islam in the 7th century A.D. through the establishment of the Safavid Dynasty in the 16th century. The course is designed to familiarize students with basic themes and debates related to Islamic history, religion, cultures, and societies using a variety of primary sources as well as secondary interpretations.

HIST 05394: Sub-Saharan Africa To 1800 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
This course surveys the regions and cultures of sub-Saharan Africa from the earliest origins to the beginning of European colonialism to provide an appreciation of the variety and significance of historical developments prior to the coming of the Europeans. This course may not be offered annually.

HIST 05397: Sub-Saharan Africa Since 1800 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201
Students survey the development of sub-Saharan Africa during the colonial period and the new national period which followed, making an analysis of colonialism both as a European venture and as an episode in African historical development. This course may not be offered annually.

HIST 05404: Arab-Israeli Conflict 3 s.h.
Prerequisites: HIST 05306 or HIST 05306 or IS 25300
This course focuses on the history and development of the Arab-Israeli conflict from its genesis in the late 19th century to the present day. It covers a variety of topics including the origins of Zionism, Palestinian nationalism, the development of the conflict before 1948, the Arab-Israeli Wars, and peace plans. It is typically offered every other year.

HIST 05406: Nazi Germany and the Holocaust 3 s.h.
Prerequisite(s): HIST 05306
This course examines the attempted systematic destruction of the Jews of Europe and their culture, as well as the persecution of others on the basis of physical and emotional disabilities, ethnicity, politics, religion and sexual orientation at the hands of the Nazis and their collaborators between 1933 and 1945. This course may not be offered annually.

HIST 05407: History Of World War II 3 s.h.
Prerequisite(s): (HIST 05306 or AMST 13301) and (HIST 05101 or HIST 05120 or HIST 05151)
This course explores the Second World War in global perspective, with special attention to diplomatic, military and cultural history. It studies the origins and cause of the war; the six years of military campaigns; the impact on ordinary people and their communities; and the extent to which the conflict has shaped the world we live in today. This course may not be offered annually.

HIST 05408: Chinese Cultural History 3 s.h.
Prerequisites: HIST 05306
This course covers essential features of Chinese culture from the 5th century BC to the present, including philosophy, religion, literature, geography, social and family structure, foreign cultural relations, and art. Students will also learn current scholarship on the subject and recent cultural trends. This course may not be offered annually.

HIST 05409: Latin American Revolutions And Reform 3 s.h.
Prerequisites: HIST 05306
This course examines the often violent movements in Latin American history directed to achieve social, economic, and political reform. It emphasizes the Mexican, Cuban, and Chilean movements. This course may not be offered annually.

HIST 05410: European Intellectual History Since The 16th Century 3 s.h.
Prerequisites: HIST 05101 and HIST 05306
This course covers the major themes in European intellectual history. It includes such topics as the birth and diffusion of the Enlightenment, Romanticism, 19th century liberalism, positivism, the Darwinian Revolution, Marxism, nationalistic thought, irrationalism in political and philosophical thought, existentialism and contemporary ideas. This course may not be offered annually.

HIST 05411: Topics In Latin American History 3 s.h.
Prerequisites: HIST 05306
This course analyzes selected topics in Latin American history since 1808. It reviews various topics and historiographical controversies. This course may not be offered annually.

HIST 05412: Intellectual History Of The U.S. 3 s.h.
Prerequisite(s): HIST 05150 and HIST 05151 and (HIST 05306 or AMST 13301)
This course deals with the main currents in American thought and society from colonial times to the present. It emphasizes discussion of high culture as essential to the understanding of the political and economic process of the American democratic experiment. This course may not be offered annually.

HIST 05413: Comparative Race Relations: South Africa, Brazil, And The U.S. 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301 or AFST 11104 and COMP 01112 or IS 25300
This course offers a comparative examination of the development of multi-racial societies in Brazil, South Africa and the United States, and the impact of race on the political, social and economic cultures of the respective countries. This course may not be offered annually.

HIST 05414: US Foreign Relations to 1900 3 s.h.
Prerequisites: (HIST 05306 or AMST 13301) andHIST 05150
This course surveys U.S. diplomatic history from the Revolutionary period through the emergence of the U.S. as a colonial power. The course stresses the impact of public opinion, cultural and political relations, as well as economic and strategic factors. It will analyze conflicting scholarly interpretations. This course may not be offered annually.

HIST 05415: US Foreign Relations since 1900 3 s.h.
Prerequisite(s): HIST 05151 and (HIST 05299 or HIST 05306 or AMST 13301 or IS 25300)
This course details the U.S. attempt to cope with the international complications and responsibilities brought about by 20th-century reality. The course stresses the impact of public opinion, cultural and political relations, as well as economic and strategic factors and analyzes conflicting scholarly interpretations. This course may not be offered annually.

HIST 05416: History of France 3 s.h.

HIST 05417: Women In Islam 3 s.h.
Prerequisites: HIST 05299 or HIST 05306 or IS 25300
This course aims to acquaint students with the role of women in Islam as a religion. It focuses on the wide range of women's experiences in different periods of history and in diverse Muslim societies, and introduces students to a variety of works and approaches to the field, including primary and secondary sources. The course is typically offered every other year.

HIST 05418: Women In Europe To 1700 3 s.h.
Prerequisites: HIST 05100 and HIST 05306
This course traces the changing status and experience of women from classical civilizations through the early modern period of European history. Themes covered include women's role in religious life, early women's writings, women in the age of chivalry, early modern witch hunting, and the first stirrings of feminist thought. This course may not be offered annually.

HIST 05419: Women In Modern Europe 3 s.h.
Prerequisites: (HIST 05101 or HIST 05120) and HIST 05306
This course examines the history of women in modern Europe, from the 18th century to the 20th. Themes covered include the rise of domesticity, feminism in the age of revolutions, Victorian women, changing patterns of work and family, and the rise of women's activism. This course may not be offered annually.

HIST 05420: British Empire/Commonwealth 3 s.h.
Analyzes those incidents, persons and movements that altered the character of the empire and influenced its governing philosophy. Emphasis is on the changing face of both the dependent empire and the empire of white settlement. Examines the legacy of British imperialism.

HIST 05422: Women In American History 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301
This course focuses on the role of women in American history and culture, but some consideration is also given to Western traditions, myths and ideas which have affected American women. The range of topics is almost limitless. This course may not be offered annually.

HIST 05423: Women in Early American History 3 s.h.
Prerequisite: HIST 05306
This course traces the changing status and experience of American women from the first encounters between indigenous peoples and colonial settlers through the late nineteenth century. Themes covered include work, religion, education, slavery, western settlement, culture, activism, sexuality, and ideas about gender. This course may not be offered annually.

HIST 05424: Women in Modern American History 3 s.h.
Prerequisite: HIST 05306
This course traces the changing status and experience of American women from the late nineteenth century through the present day. Themes covered include work, religion, education, culture, feminism, politics, sexuality, and ideas about gender. This course may not be offered annually.

HIST 05425: History Of Feminisms 3 s.h.
Prerequisite: HIST 05299 or HIST 05306 or IS 25300
This course examines the history and origins of modern feminisms from European and American traditions to emergence in developing nations. Students will analyze and comprehend the intellectual, social, philosophical, political, and religious underpinnings of the development of feminisms from the Middle Ages to the present day in western and non-western contexts. This course may not be offered annually.

HIST 05426: Colonial North America 1500-1775 3 s.h.
Prerequisite(s): HIST 05150 and (HIST 05299 or HIST 05306 or AMST 13301)
This course will examine in-depth the political, economic, social and cultural forces that shaped North America from the time of Columbus' first voyage to the onset of the American Revolution. This will include the study of the variety of European settlements, the impact of European conquest and colonization on native populations, and the threefold relationship between Native Americans, Europeans and Africans that the colonial experience initiated in North America. This course may not be offered annually.

HIST 05427: The American Revolution And Early Republic, 1775-1828 3 s.h.
Prerequisite(s): (HIST 05306 or AMST 13301) and HIST 05150
This course will examine the political, economic, social, and cultural factors that led to the onset of the American Revolution, the outbreak of the Revolutionary War, and the creation of the United States of America. This will include study of the adoption of the Constitution, popular challenges to federal power, and the character of American society and politics during the Early Republic. This course may not be offered annually.

HIST 05428: Family History 3 s.h.
Prerequisites: (HIST 05101 or HIST 05120) and HIST 05306
A comparative and thematic study employing the methods and techniques of new social historians, this course gives students an understanding of the interplay between family and historical processes. This course may not be offered annually.

HIST 05429: Topics in History 3 s.h.
Prerequisite(s): (HIST 05306 or AMST 13301) and HIST 05101 and AMST 13301)
This course introduces students to in-depth historical analysis of a selected theme, including work with historical sources, critical reading of historians' accounts, intensive writing and class discussion.

HIST 05436: The United States during World War II 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301
This course explores the lives of ordinary people under the strains of war, examining social and economic factors which undergirded the military and political decisions of World War II. This course may not be offered annually.

HIST 05437: Twentieth Century African Nationalism 3 s.h.
Prerequisite(s): HIST 05306 or AFST 11104 and COMP 01112 or (HIST 05299) or IS 25300
In this course students will explore the history of 20th century Africa through an in-depth analysis of independence movements from their roots in the European conquest of the continent at the turn of the century to their legacies in Africa today. This course may not be offered annually.

HIST 05438: History Of The Vietnam War 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301
This course will explore the political, economic, military, diplomatic, social, and cultural dimensions and ramifications of the war from the perspective of all peoples involved. This course may not be offered annually.

HIST 05439: Ottoman History 3 s.h.
Prerequisites: HIST 05306
This course will examine the history and development of the Ottoman Empire from its origins in the 13th century to its partition following World War I. Topics to be covered include its system of government and ruling elite, the cultural and daily life of Ottoman subjects, 19th and 20th century reform movements, and debates about the origins and "decline" of the empire. This course may not be offered annually.

HIST 05441: Imperialism And Colonialism 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301
This course analyzes nineteenth and twentieth century imperialism in terms of its meaning, origins and development. It emphasizes institutional background, theory and practice and the "national liberation" movements, using readings in primary sources and secondary interpretations. This course may not be offered annually.

HIST 05443: Topics in Global History 3 s.h.
Prerequisites: HIST 05306
This course introduces students to in-depth historical analysis of a selected theme in global history, including work with historical sources, critical reading of historians' accounts, intensive writing and class discussion. Past and proposed topics include the partition of Africa and Stalinism.

HIST 05444: Islamist Movements 3 s.h.
Prerequisites: HIST 05299 or HIST 05306 or IS 25300
This course will explore the history of radical Islamist movements, commonly termed "Islamic Fundamentalists," and their increasing strength since the 1970s. Students will explore the writings of infuential Islamist writers as well as the goals, idealogy, and tactics of a wide variety of Islamist opposition groups, regimes, and groups operating in Western coutries. This course may not be offered annually.

HIST 05445: History Of The Cold War 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301 or HIST 05306 or HIST 05299 or IS 25300
This course explores the history of the Cold War by combining lecture and class discussion in a format that seeks to immerse students in the complex series of peaceful and violent interactions between the Soviet Union and the United States (and their allies and client states) that made up the Cold War. The course will focus on several critical issues and the debates among historians over their causes and outcomes. Those issues include: the origins of the Cold War, Stalin and the Soviet system, the Berlin Crisis, war on the Korean peninsula, the Cuban Missile Crisis, the Vietnam War, detente, and the collapse of the Communist Bloc. This course may not be offered annually.

HIST 05446: Race, Identity And History In East Asia 3 s.h.
Prerequisite: HIST 05306
This is an upper-level history course that explores race relations in modern societies from a comparative perspective. Following a basic chronology, the course will be taught thematically. After a brief introduction to the rise of racism in the modern Western world, it will trace ideas and discourses on race in China prior to the 19th century and examine their influence in shaping the world order in East Asia. It will then discuss how the racial discourses changed after the region was exposed to Western influences from the mid-19th century onward. Its foci are how the East Asians appropriated the racial discourses from the West, how they forged nationalist ideas and constructed nation-states, and how they wrote history from nationalist and racialist perspectives.

HIST 05447: History of Medicine in Africa 3 s.h.
Prerequisite: HIST 05306
This course explores health, disease, and healing in Africa from the early nineteenth century to the present. It considers how biomedicine shaped African understandings and experiences of health and how African ideas and practices in turn affected biomedicine. This course may not be offered annually.

HIST 05448: Late Imperial China 3 s.h.
Prerequisite: HIST 05306
This is an upper-level course on the history of late imperial China, or the rise and fall of the Ming and Qing dynasties from the mid 14th to the early 20th centuries. During this period, China saw an impressive rise of commercial and urban culture, which impacted the relationship among ethnic groups and between genders in family and society. The Ming-Qing dynastic transition also generated lasting changes that shaped the course of development in modern Chinese history. In addition, the course discusses such epoch-making events as the reconstruction of the Great Wall, Zheng He's maritime expeditions and the rise of "evidential learning" as an intellectual movement.

HIST 05449: Holocaust Memory 3 s.h.
Without remembrance of the past there is no present nor future. Therefore, this course seeks to unpack and scrutinize memor(ies)y by examining Holocaust Memory specifically in its various forms and representations. We will begin with deliberation upon the scientific progression of memory studies and its historical development within the European context. While individual, collected, and commemorative Holocaust Memory will remain the focus, particular attention will be paid to how certain national and cultural identities shape and rely on Holocaust history and memory. More important, this upper-level seminar aims to challenge monolithic Holocaust Memory paradigms.

HIST 05450: History of Childhood & Youth in America 3 s.h.
Prerequisit(e): HIST 05306 or AMST 13301
This course will explore the history of childhood and youth in America. Major topics include family formations, work, education, children and the state, adolescence, generational tensions, and especially the effects of gender, class, race, ethnicity, religion, and geographically diversity. This course may not be offered annually.

HIST 05451: History of Human Rights in Latin America 3 s.h.
Prerequisite(s): HIST 05306 or IS 25300
This course will explore the history of human rights across Latin America in the twentieth century. Major topics of study include repression and activism during the Cold War, the role of transnational social movements and U.S. foreign policy, and the explosion of social and economic rights activism at the end of the twentieth century, including causes such as women's rights, indigenous rights, LGBTQ rights, and reproductive rights. This course may not be offered annually.

HIST 05452: US HISTORY 1820-1861 3 s.h.
Prerequisite(s): HIST 05150 and (HIST 05299 or HIST 05306 or AMST 13301)
This course analyzes American society and culture from 1820 to 1861 against the background of industrialization, urban development, westward movement, political campaigns, religious revivals, and evolving gender roles, race relations, and social classes. The course will also focus on the growth of the American Empire, the impact of Jacksonian democracy, and the emergence of sectional politics. This course may not be offered annually.

HIST 05453: The Gilded Age And Progressive Era, 1877-1914 3 s.h.
Prerequisite(s): (HIST 05306 or AMST 13301) and HIST 05151
During the Gilded Age and Progressive Era, the United States made a critical transition from a nation that was largely agrarian, rural, and relatively ethnically homogenous to one that was industrial, urban, and ethnically diverse. Students will apply a variety of historical methods to examine the United State's late nineteenth and early twentieth century transformation into a modern society characterized by dynamic politics and fluid cultural forms. This course may not be offered annually.

HIST 05454: America From War To War, 1914-1945 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301
This course will focus on the federal government's role in the economy and in social life and the restructuring of the American racial, gender, and ethnic systems. A central focus of the course is the development of a mass production economy and the attendant rise of consumerism and media influence that characterized the era between the wars. This course may not be offered annually.

HIST 05455: Gender, Sexuality And History 3 s.h.
Prerequisites: HIST 05100, (HIST 05101 or HIST 05120) and HIST 05306
This course examines the intersections of sexuality and gender from an historical perspective, i.e., how attitudes toward both have changed over time. It will also analyze sexuality and gender as social and historical constructs within American society from the colonial era to the modern age.

HIST 05470: Topics in United States History 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301
This course introduces a topical approach to U.S. history and involves an analysis of major events and ideas that have shaped U.S. society that uses historical methodology and interpretation. The course covers issues such as race, sex and youth in American society and protest movements. This course may not be offered annually.

HIST 05471: History Of The American West 3 s.h.
Prerequisite(s): HIST 05150 and (HIST 05306 or AMST 13301)
This course considers the settlement and economic development of the American West from the arrival of Europeans in the sixteenth century to the present. Among the topics considered will be: the role of the frontier in American history; the settlement of the region first by Native Americans and later by Europeans, Africans, and Asians; conflicts between Europeans and Native Americans; Manifest Destiny and American expansionism; the Gold Rush; vigilantism; women and the frontier experience; farming on the Great Plains; Mexican immigration; high technology and the economy of the modern West; and the frontier in the American imagination. This course may not be offered annually.

HIST 05472: Cultural History Of The U.S. 3 s.h.
Prerequisites: (HIST 05306 or AMST 13301) and (HIST 05150 or HIST 05151)
This course explores trends in the fine arts and literature from 1607 to the present on three different levels: high style or urban culture, popular culture and rural or folk culture. It emphasizes specific American interpretations of parallel European developments. This course may not be offered annually.

HIST 05474: U.S. Labor History 3 s.h.
Prerequisites: (HIST 05150 or HIST 05151) and (HIST 05306 or AMST 13301)
This course examines the changing nature of the work and working conditions and the workers' efforts to find their place in the American economy from colonial times to the era of the Wagner and Taft-Hartley Acts, with special attention to workers' organizations. This course may not be offered annually.

HIST 05475: History Of New Jersey 3 s.h.
Prerequisites: HIST 05306 or AMST 13301
This course explores the historical background of the pre-European beginnings, colonial exploitation and settlement, the Revolution, growth of the state's leading industries, the development of transportation and problems of government. This course may not be offered annually.

HIST 05480: Public History 3 s.h.
Prerequisite: HIST 05306
This course will expose students to the variety of ways the public engages with history. Students will explore how history is communicated to the public, how public history sites contribute to public memory, controversies in public history settings, the relationship between academic and public history, and career opportunities for historians beyond the classroom. This course may not be offered annually.

HIST 05492: Seminar 3 s.h.
Prerequisites: Senior Status and HIST 05306 w/C- or better, at least 9 credits in 300-400 level history courses.
This course concentrates on a research paper of substantial length based upon primary as well as secondary sources. The course also requires critical analysis and discussion of the papers by seminar participants. Required of History majors during their senior year.

HIST 05493: Independent Study 3 to 6 s.h.
This course provides an opportunity to pursue individual specialized historical topics under the guidance of a staff member. This course may not be used as substitute for a course offered by the Department. This course may not be offered annually.

HIST 05495: Internship In History 3 s.h.
Prerequisite(s): HIST 05306 or AMST 13301
This course will introduce students to public history by placing them with a public history agency such as an historic site, museum, library, historical society, archives, or similar institution, where they will serve as interns for a minimum of 120 hours during the semester. The students will acquire practical experience in such work as historic preservation, exhibit design and production, library and archives cataloging, journal editing, and museum education. This course may not be offered annually.

INTR 20390: Interdisciplinary Case Studies in the Liberal Arts 1 s.h.
This course will engage students in a team-based project through which they will research a timely, interdisciplinary issue using skills learned in their major. Students will have an opportunity to apply the relevant aspects of their major to the case study at hand. The design of the course will allow for guest speakers and targeted instruction to aid students in understanding the case and forming their solution. The course will culminate in a showcase through which students will present their case study solution to a panel of judges. This course is restricted to majors in the College of Humanities & Social Sciences.

IS 25100: Global Challenges 3 s.h.
This online course examines seven key worldwide trends identified by the former Center for Strategic and International Studies: Population, Resources, Technology, Information, Economies, Conflict, and Governance. Students explore current and future issues related to these global challenges in over 50 countries, as well as international and global contexts. All majors are welcome.

IS 25300: Research Methods in International Studies - WI 3 s.h.
Prerequisites: COMP 01112 or ENGL 01112 or HONR 01112 or ENGR 01201
This writing intensive course will introduce International Studies majors to the interdisciplinary field of international studies, develop students' critical thinking and methodological skills, familiarize students with different perspectives and aspects of globalization, and acquaint students with major trends and themes in global affairs today.

IS 25310: Global Security Clinic 3 s.h.
This course provides an interdisciplinary introduction to global security, linking international security to selected health, environment, and emergency response themes and incorporating hands-on project-based learning. Designed to combine theory, method and empirical content from different disciplines, it surveys a wide-range of topics including environmental disaster, poverty, migration, displacement, and health crises.

IS 25350: Special Topics in International Studies 3 s.h.
Prerequisites: IS 25300 or COMP 01112 and Permission of instructor or International Studies coordinator
This upper-level course will give students the opportunity to examine a range of different issues and themes related to International Studies. The precise topic will change from semester to semester based on faculty expertise and preferences and on student demand.

IS 25400: Senior Seminar in International Studies 3 s.h.
Prerequisites: IS 25.300 and Senior standing.
Students in this capstone course for International Studies majors will write a research paper of substantial length that is comparative in approach, international in context and content, and applies interdisciplinary approaches to global problems and issues. The paper should be informed by important and recent scholarly works drawn from at least three fields, defend a substantive thesis, and extensively use various types of primary sources.

HONR 01101: Leadership and Service Training 0 s.h.

HONR 02210: Principles & Pedagogies in the Inclusive Classroom 3 s.h.
Prerequisite: Admission to Bantivoglio Honors Concentration
In lieu of punitive, rapid-suppression approaches to concerning behavior, this course introduces educational principles and pedagogies that promote the use of positive, universal classroom management techniques supportive of all learners in an inclusive setting. Students will be empowered to: articulate common academic language as it relates to the cycle of teaching and learning; create connections between educational philosophies, beliefs, and dispositions; and embrace universal, proactive supports and strategies for creating effective learning communities to promote a positive school climate. The Honors section will explore the ways critical pedagogies can illuminate social justice issues that are often invisible in school settings. Students will conduct original research on contemporary social issues that affect learners both in and outside the classroom.

HONR 05101: Honors: Participation 0 s.h.
Prerequisites: Admitted to the Bantivoglio HonorsConcentration.
This is a non-credit Honors course in which all Honors Concentration students are enrolled each semester. The course is graded on a Pass/No Credit basis. Each Honors student will complete a portfolio of her/his extracurricular activities in the areas of educational enhancement, service and social activities in accordance with the Honors Concentration requirements. The portfolio will consist of a one-page summary of each of the extracurricular educational, service and social activities in which the student participated during the past semester.

HONR 05180: Mathematics 3 to 4 s.h.
Prerequisites: Admitted to the Bantivoglio Honors Concentration or have a GPA of 3.00 or higher
This is a lower level general education course which provides the student with a working knowledge of the foundations of mathematics. Basic concepts and principles in the philosophy of mathematics and mathematical logic, including set theory, and the concept of infinity and proof will be explored. Mathematical applications form a major portion of the course.

HONR 05200: Songs of Praise, Songs of Protest 3 s.h.
This course will examine the ways in which music has served as an instrument for social change. African-American music in the form of Spirituals and Blackface Minstrelsy will provide a mechanism for exploring social change, tensions between races, confused dynamics of racial identity, and stereotypes. Hymns of the late 18th and early 19th century will demonstrate how women used song as a means of self-expression denied them in other spheres. Finally, the civil rights and protest songs of the 60s and 70s will provide a backdrop for exploring issues of race and social culture.

HONR 05202: Biology, History, and the Fate of Human Society 3 s.h.
This course will focus on the issues in Jared Diamond's Pulitzer Prize-winning Guns, Germs, and Steel (1997). Diamond's thesis is that history "followed different courses for different peoples because of differences among people's environments, not because of biological differences among peoples themselves." (p. 25) Thus, human societies on different continents developed food production, writing, animal domestication, immunity to certain infectious diseases, and various technologies at different times (if they developed them at all), largely as a consequence of geography and the distribution of plants and animals (biogeography). This course investigates Diamond's argument, compares it to alternative explanations for differences in the development of societies, and allows independent student research that will test Diamond's hypotheses.

HONR 05208: Principles of Personal Finance 3 s.h.
Personal financial planning is an essential tool to help us achieve financial objectives throughout our lifetimes. Successful financial planning, via defining financial goals and developing appropriate strategies to achieve them, brings rewards such as wise spending habits, increased wealth, and an improved standard of living. The goal of this course is to teach Honors students the basic personal financial planning tools they will need to take charge of their personal finances, and to control their financial resources more efficiently. The topics that will be covered include the psychology of decision making, time value of money, managing assets and credit, principles of taxation, managing insurance needs, making investment decisions, preparing for retirement, and estate planning.

HONR 05214: Artistic And Creative Experience 3 s.h.
Prerequisites: Admitted to the Bantivoglio Honors Concentration or have a GPA of 3.00 or higher
This is an interdisciplinary general education course which will fulfill a Rowan Experience artistic and creative experience requirement. The course will utilize an interdisciplinary approach to the study of the various types of fine and performing arts including art, music, theatre and dance, and radio/TV/film.

HONR 05217: Literature 3 s.h.
Prerequisites: Admitted to the Bantivoglio HonorsConcentration or have a GPA of 3.00 or higher
This is an interdisciplinary general education course which will fulfill a Rowan Experience literature requirement. The course will utilize an interdisciplinary approach to the study of the literature with the goals of increasing students' understanding and enjoyment of various types of literature including drama, novel, poetry and short story. The content and pedagogy of the course is qualitatively and quantitatively designed to meet the intellectual needs of Honors students. Topics will vary each semester and will be interdisciplinary in content and/or methodology. This course will satisfy the University's general education "literature" requirement.

HONR 05285: Natural Science 3 to 4 s.h.
Prerequisites: Admitted to the Bantivoglio Honors Concentration or have a GPA of 3.00 or higher
This is an interdisciplinary general education course which can be taken by honors students as a Natural Science Rowan Experience course. It permits students to explore the natural sciences from a problem-oriented perspective. Students are encouraged to examine evidence and assess scientific theories critically.

HONR 05306: Teaching the Holocaust: History and Memory 3 s.h.
Prerequisite: Admission to Bantivoglio Honors Concentration
Using primary source materials, students explore the history of Holocaust and then examine the ways the Holocaust is remembered and memorialized in the United States, Europe, and Israel. Students will also contemplate understandings of childhood and will learn about pedagogical theories and practices for appropriately sharing this material with K-12 students.

HONR 05307: Honors History: American Engineering in the Cold War 3 s.h.
Prerequisite: Admission to Bantivoglio Honors Concentration
This course explores how engineers uniquely affected the Cold War (-1945-1989) given Washington policymakers' use of engineers to execute large-scale development projects, initiate defense programs, and even begin an aerospace program to reach outer space. Students will read primary and secondary source materials to form evidence-based opinions on how technology and engineering can be credited (or blamed) with the Cold War's escalation and eventual end, as well as conduct targeted research on particular engineering projects that had significant effects on American domestic and foreign policy.

HONR 05317: Honors Alternative Course Experience 0 s.h.
Prerequisite(s): Permission of instructor
This course is for students completing an approved Honors Alternative Course Experience. The course is for students conducting active research, which includes graduate coursework or national fellowships, taking part in an internship, studying abroad, or undertaking Honors contract work with a member of faculty. The student's proposed activity must be approved through the Honors Alternative Course Experience application process before they can be enrolled in the class.

HONR 05390: Selected Topics 3 to 6 s.h.
Prerequisites: Admitted to the Bantivoglio Honors Concentration or have a GPA of 3.00 or higher
This is an upper level interdiscplinary seminar style course that will address itself to topics and problems taken from various disciplines.

HONR 05400: Honors Independent Study 1 to 3 s.h.
Prerequisites: Admitted to the Bantivoglio Honors Concentration, four Honors courses and 57 hours completed, approvalby the Honors Board.
An upper level interdisciplinary course involving an approved Honors Research Assistantship project supervised by a faculty member.

HONR 05401: Honors Capstone Course 1 s.h.
Prerequisite: Permission of Instructor
This course is for students completing an Honors Capstone Experience supervised by a faculty member.

HONR 05402: Honors Portfolio 1 s.h.
This course is for students completing an Honors Portfolio as part of the Honors Concentration with Distinction requirement.

HONR 09301: Marketing Clinics 3 s.h.
Prerequisite: Admission to Bantivoglio Honors Concentration
Through experiential learning, marketing students will work collaboratively with students in Engineering clinic, focusing on the demand side of product development. Marketing students will provide the critical input for feasibility, demand analysis, competitive analysis, and commercialization for the Engineers' projects as well as research consumer insights. The cross-disciplinary nature of the course will help students gain significant skills in multidisciplinary teamwork and collaboration, communication, problem solving, data analysis, and critical thinking.

HONR 16210: Cultural Geography: Why Place Matters 3 s.h.
Prerequisite: Admission to Bantivoglio Honors Concentration
This course introduces students to key concepts and basic methodologies in studying the complex relationships between people and place, from local to global scales. In exploring why place matters, this course will develop the capacity think geographically: to investigate how our environment (place) influences culture (what people do) and how human activities in turn affect the environment. Students will be introduced to key cultural geography concepts and methodologies (e.g. place, space, landscape, scale, mobility) and will learn to apply these ideas to timely topics and events. This course is intended to cultivate the capacity to think geographically, a critical twenty-first century skill for informed and empathic global citizens.

CASE 90530: Curriculum Theories in Urban Education 3 s.h.
This course is designed for pre-service and in-service teachers currently working in classroom settings and addresses curriculum theory and basic principles of curriculum and instruction. Through the lenses of curriculum theories and ideologies, students will examine their own curricular beliefs, from where they came, and how they affect how they teach and what they teach. Students will work to understand how curricular orientations can affect the experiences of our students and of ourselves. Using theoretically-oriented lenses, students will also examine the following: race and multicultural issues; curricular accountability on student achievement, teacher retention, and teacher burnout; and students' social class as a possible explanation for achievement.

CASE 90534: Disability Studies 3 s.h.
This course explores critical approaches to dis/ability and in/exclusion, including an analysis of shifting social and cultural constructions of dis/ability through an interdisciplinary exploration of autobiography, narrative, film, legal and policy issues and research literature.

ECED 23211: Seminar: Principles and Pedagogies in the Inclusive Classroom 1 s.h.
Prerequisite: Admission into Early Childhood Program; Corequisite: INCL 02210
This Seminar course serves as the vehicle for domain-specific application of the principles and pedagogies that promotes the use of positive management techniques supportive of all learners in an inclusive setting. Through case study scenarios, videos, virtual, and live field experiences, students will have multiple opportunities to reflect on and apply new learning to enhance their understanding of proactive behavior strategies and supports.

ECED 23220: Contemporary Child in the Family and Community 3 s.h.
Prerequisites: ECED 23211 AND INCL 02210: Concurrent Enrollment Allowed. Corequisite: ECED 23320
This course is an overview of inclusive early childhood education focusing on the child in the context of contemporary families and communities. Through theoretical frameworks such as multiculturalism, critical theory, and sociocultural theory, candidates will explore diverse historical, political, social, and economic perspectives on contemporary families with young children, including issues of access and equity within early childhood services and systems. Attention will be given to understanding racial, socioeconomic, structural, linguistic and faith diversity, as well as exceptionalities in the child, family, and community contexts and how early childhood systems respond to these trends.

ECED 23221: Family, Community, And School Relationships 3 s.h.
Prerequisite: EDUC 01270
This course is designed to heighten teacher candidates' awareness of the roles that family and community have on a child's success in school. Teacher candidates will learn that all children must be understood in the context of their community environment, including their families, schools, communities, and the wider society. Teacher candidates will also develop skills in working effectively with diverse families in the learning community, in order to provide positive educational outcomes for the child. Clinical classroom visits are required. This course is offered upon special request.

ECED 23320: Building Brains: Competency and Resiliency 3 s.h.
Prerequisites: READ 30320 AND ECED 23211 AND INCL 02210; Concurrent Enrollment Allowed. Corequisite: ECED 23220
This course will build upon General Education coursework in Child Development, Human Exceptionality, and Educational Psychology. Teacher candidates will apply knowledge from these foundational courses, as well as prior courses on diversity, to understand how young children, birth through age eight, including children with special needs, develop and learn. This course will highlight a risk and resiliency perspective with a focus on protective factors assessed through intentional observations and screenings. Teacher candidates will apply theories of child development through formal and informal observations and in-depth child studies in inclusive classrooms. Emphasis will be made on fostering social and emotional development and developing resiliency. Teacher candidates will thoughtfully plan developmentally appropriate learning experiences to foster growth and connect with learning standards. Clinical classroom visits are required.

ECED 23321: Effective Learning Environments For Diverse Children 3 s.h.
Corequisite: ECED 23322 Prerequisites: ECED 23320 and READ 30320
Teacher candidates will use and apply knowledge that stems from the previous child development and learning courses to understand how young school age children, including typical and atypical children, grow and learn from kindergarten through third grade. Teacher candidates will be able to apply theories of childhood development in the classroom with direct implications for teaching and learning. Teacher candidates will also be able to use developmentally appropriate practice as a foundation for planning and making decisions in inclusive primary education settings. Clinical classroom visits are required. This course is offered in the spring semester only.

ECED 23322: Planning, Integrating, And Adapting Curriculum: Math And Science 3 s.h.
Corequisite: ECED 23321; Prerequisites: READ 30320 AND ECED 23311 AND MATH 01201 AND MATH 01301 with Minimum Grade of C-
This course is designed to enable teacher candidates to understand and plan curriculums for teaching math and science. This course will start from the perspective of teacher candidates' experiences of learning science and mathematics. They will reflect on their own prior experiences with math and science and discover the impact of those experiences on their feelings of efficacy. Teacher candidates will experience teaching strategies and processes that we expect them to master and use in teaching math and science for young children in inclusive settings. Within an integrated framework, teacher candidates will develop the conceptual knowledge base for developing a coherent science and mathematics program with developmentally appropriate learning experiences. Clinical experiences are required.

ECED 23430: Observation, Assessment, And Evaluation Of Diverse Learners 2 s.h.
Corequisites: ECED 23431 AND ECED 23432; Prerequisites: ECED 23321 AND ECED 23322
This course provides teacher candidates with a dynamic hands-on exploration of the measurement and evaluation of children who are in the developmental period known as early childhood. Teacher candidates will learn about standardized measurement and other types of assessments that are appropriate for young children, including children with special needs. The tools of authentic assessment including checklists, rating scales, or observations will be used within the candidates' field experience in both regular and special education settings. Research into the rationale of assessment of young children will also be explored. Clinical experiences are required.

ECED 23431: Planning, Integrating And Adapting Curriculum Across Content Areas 3 s.h.
Corequisite: ECED 23430 Prerequisites: ECED 23321 and ECED 23322
This curriculum course considers the areas of Social Studies, Music, Movement, Arts, Drama, and Health/Physical Education as disciplines with a major focus on the integration of curriculum in a rich learning environment. Teacher candidates will also design learning communities that enhance all aspects of learning, by creating environments that reflect the learning standards. Further, teacher candidates will learn of facilitating interdisciplinary units and projects within an early childhood classroom in inclusive settings. Clinical experiences are required.

ECED 23432: Clinical Experience for Residency 1 s.h.
Corequisite: ECED 23430
This course allows supervised clinical experiences as part of the first semester of the yearlong residency. The course aims to support candidates in their application of teaching knowledge and pedagogical skills in the classrooms in which candidates are placed.

ECED 23446: Clinical Practice In Early Childhood Education 10 s.h.
Corequisites: ECED 23447 and SECD 03350 Prerequisites: ECED 23430 and ECED 23431
The clinical practice experience is a supervised, full-time activity conducted in the early childhood classrooms, PreK to 3rd grade. In this course, teacher candidates must demonstrate abilities to plan and implement developmentally appropriate practice for all children, including developing lesson plans, integrating various activities/lessons into the teaching, accommodating multiple instructional strategies, assessing and documenting learners' performance, building safe and positive learning environment, managing the classroom, and collaborating with families and other professionals. This is a full time course in the clinical classroom. This course should be taken in senior year.

ECED 23447: Early Childhood Education Clinical Seminar 1 s.h.
Corequisites: ECED 23446 and SECD 03350 Prerequisites: ECED 23430 and ECED 23431
This course is a capstone course for all teacher candidates in the Early Childhood Education Program. The main goals of this course are to synthesize the pre-service components of the early childhood teacher education in inclusive settings and to facilitate the transition into the profession. For these goals candidates will have opportunities to reflect on their understanding of child development and to communicate and collaborate with family and community of both typical and atypical children, to plan curricula for all children, to assess and document diverse learners' performance and progress, and to understand professional development of teachers in inclusive settings. They will also develop a professional portfolio. This course should be taken with Clinical Practice in Early Childhood Education.

EDUC 01102: Learning Communities 2 s.h.
This course provides an introduction to the Co-Teach program and learning communities. Through it, students will develop an understanding of how a learning community operates and what is required to be a successful participant. Students will also learn and practice the skills of collaboration through classroom and clinical experiences. This course, and its companion--Foundations of Education--form the foundation on which the rest of the program is built.

EDUC 01104: Teaching: An Introduction To The Profession 3 s.h.
This case-based introductory course is designed for students considering a career in teaching. It guides students through the profession, its foundations, realities, challenges, and rewards. Students will evaluate classroom practices using case studies, video methodology, and online resources. They will participate in ten (10) hours of clinical classroom observations.

EDUC 01200: Literacy, Learning And Curriculum 6 s.h.
Prerequisites: EDUC 01102 and EDUC 01103
This course is a continuation of the sequence of courses in the Co-Teach program. This course builds knowledge about literacy and literacy development as it pertains to regular and special education. The focus of the course is to integrate the major concepts of curriculum development and literacy. The emphasis will be on the interface between literacy development and social studies through appropriate curricular planning. An observational clinical classroom experience will be required.

EDUC 01300: Instructional Planning And Collaboration 3 s.h.
Prerequisite: EDUC 01200
This course focuses on developing a thematic unit plan in the area of literacy. Students learn about various instructional approaches and how to select the best approach for a specific student. Students identify new developments in the field of technology and their applications in teaching all children. Students participate in a literacy clinic in which they will work with children experiencing difficulty in some aspect of literacy, related to their clinical classroom placement.

EDUC 01301: Instructional Implementation And Collaboration 3 s.h.
Prerequisites: EDUC 01102 and EDUC 01103
During the spring semester, the focus is on instructional implementation and collaboration. Students learn about collaborative problem-solving models and participate in a problem-solving activity. Students learn how to design, structure and manage daily classroom routines. They also learn about the principles of action research and develop an action research project.

EDUC 01400: Teaching In Inclusive Classrooms 4 s.h.
Prerequisites: EDUC 01300 and EDUC 01301
This course is designed to enable students in the Collaborative Education major to develop and implement methods for teaching, managing, and evaluating children with special needs. Students will learn about the impact of specific disabilities on learning and behavior, the rationale for inclusive education, and academic adaptations for children with special needs. Students will be responsible for developing and implementing instructional and/or behavior management adaptations in their clinical classroom placements and reporting on these to the class.

EDUC 01401: Developing And Adapting Instruction In Elementary Classrooms 4 s.h.
Prerequisites: EDUC 01300 and EDUC 01301
This course is designed to prepare teacher candidates to use a variety of teaching models and strategies to make mathematics and science instruction accessible to all students. Instructional standards developed by NCTM and NSTA will be reviewed. A technology component addressing the use of technology as a tool for teachers and learners will be incorporated. Issues of equity, curriculum integration, collaboration, and reflection will be emphasized in both course and field assignments. The course includes a clinical assignment in an inclusion classroom.

EDUC 01402: Developing And Adapting Assessment For All Learners 3 s.h.
Prerequisites: EDUC 01300, EDUC 01301 and EDUC 01401
The course emphasizes the link between assessment and instructional decisions for learners at a variety of academic and functional levels. Prospective classroom teachers will learn how to routinely use curriculum-based and authentic assessment techniques. Although the emphasis of this course is on informal assessment, an introduction to standardized tests and statistical factors in testing is included. Teacher candidates will develop informal assessment measures in conjunction with their clinical classroom placement responsibilities.

ELEM 02210: Seminar: Principles and Pedagogies in the Inclusive Classroom 1 s.h.
Co-requisite: INCL 02210
This seminar course serves as the vehicle for domain-specific application of the principles and pedagogies that promote the use of positive management techniques supportive of all learners in an inclusive setting. Through case study scenarios, videos, virtual and live experiences in Early Childhood, Elementary, Art, Music, and Physical Education instructional settings, students will have multiple, varied opportunities to reflect on and apply new learning to enhance their understanding of proactive behavior strategies and supports.

ELEM 02319: Curriculum And Assessment In Elementary Classroom 4 s.h.
Prerequisites: EDUC 01272 Minimum Grade C- and READ 30280 Minimum Grade C- and SMED 33420 Minimum Grade C- and MATH 01201 Minimum Grade B-
This course examines the use of established elementary education content standards in science, social studies, health, and the arts and how interdisciplinary, thematic units of inquiry facilitate meeting those standards. Current research about the way children learn and effective teaching is stressed. Students apply research on the way children learn in science, social studies, health, and the arts, as well as instructional knowledge and skills they are developing related to inquiry- based instruction, assessment, and differentiating that instruction for elementary students. Building on school district materials and mandates, teacher candidates plan, teach, and assess an interdisciplinary unit of inquiry, which reflects candidates' understanding of appropriate content and pedagogy in science, social studies, health, and the arts for the grade and student in the classroom. Teacher candidates will also review, administer as appropriate, and reflect on results of varied assessments of student learning that are typically used in that classroom. The course includes a field experience, and assignments are coordinated with a concurrent course on differentiating instruction.

ELEM 02336: Mathematics Pedagogy For Elementary Teachers 2 s.h.
Prerequisite: MATH 01301 with a minimum grade B-Corequisites: ELEM 02338 and READ 3051
This course in mathematics pedagogy for the elementary education candidate focuses on the knowledge and skills essential for teaching mathematics. Utilizing current research findings about how students develop mathematical concepts and processes, candidates will develop an understanding of teaching and learning mathematics at the elementary level. Teacher candidates will develop a repertoire of instructional strategies and will develop and analyze effective mathematics lessons. A field component is required.

ELEM 02338: Practicum In Mathematics And Literacy 1 s.h.
Corequisites: ELEM 02336 and READ 30351 Prerequisites: ELEM 02319 and SPED 08316
This field experience course provides an opportunity for candidates in the Elementary Education Specialization to practice their developing instructional skills once a week in a K-5 classroom setting. Candidates will work with partners in assigned classrooms to assist with literacy and mathematics instruction and to take the lead in developing and teaching lessons in literacy and mathematics.

ELEM 02445: Elementary Education Clinical Practice Seminar 1 s.h.
Corequisites: ELEM 02448 SECD 03350
This capstone senior seminar provides elementary education candidates with a supportive atmosphere in which to synthesize the pre-service components of their academic preparation with actual experience, emerging issues in the field of education, and their transition into the profession. Candidates develop a philosophy of teaching; gather and present evidence of their comprehensive knowledge, skills, and dispositions expected in this profession; and demonstrate knowledge of current critical and contemporary issues facing educators and those who hold a stake in education. Interviewing skills and a professional portfolio will be developed.

ELEM 02448: Clinical Practice In Elementary Education 10 s.h.
Corequisites: ELEM 02445 and SECD 03350 Prerequisite(s): INCL 02310 and INCL 02320 and READ 30351 and INCL 02325 and INCL 02315
The clinical practice experience is a supervised, full-time activity conducted in a public elementary classroom. In this course, candidates must demonstrate mastery of subject area content, lesson planning, and use of multiple instructional strategies; ability to assess learner progress, manage all aspects of classroom activity, work collaboratively with all colleagues, administrators, families, and community, and to document evidence of doing all of the above. This is a full-time field-based course taken in the senior year.

FNDS 21230: Characteristics of Knowledge Acquisition 3 s.h.
This course will focus on how human beings think, process information and acquire skills. Discussion of learning philosophies and applications in a variety of settings will be addressed. Methods of inquiry, reflection, motivation, creativity and critical thinking will be explored.

INCL 02150: International Experiences in Education 2 s.h.
This course encourages and facilitates global experiences of an educational and cultural nature for students at all stages in the progression of their university coursework. It will enhance students' historical, cultural, and social perspectives within the context of policy, human rights, health, social and educational representations, and technology. This course will be beneficial for all students in developing their professional dispositions. Students participate in pre-travel orientation meetings and a post-travel meeting as determined by the destination and the course instructor. In order to receive credit for the course, students must attend 90% of the pre-travel meetings and the post-travel meeting and submit a final project which includes reflective summary of their international experience.

INCL 02200: Context of Education in the Inclusive Classroom 3 s.h.
This course examines educational philosophies in inclusive and elementary education, psychological influences on education, and the development of the Standards Movement as these ideas pertain to current educational practices. Emphasis isi placed on understanding the relationship between theory and practice, and students are required to develop self-analytic, reflective, problem-solving skills. Through seminal readings and course assignments, students widll explore how differing philosophies of inclusive education and the associative psychological influences shape elementary learning communities and approaches for teaching all learners in the classroom.

INCL 02210: Principles and Pedagogies in the Inclusive Classroom 2 s.h.
Co-requisites: ELEM 02210 or ECED 23211
This course introduces educational principles and pedagogies that promote the use of positive, universal classroom management techniques supportive of all learners in an inclusive setting. Students will be empowered to: articulate common academic language as it relates to the cycle of teaching and learning; create connections between educational philosophies, beliefs, and dispositions; and embrace universal, proactive supports and strategies for creating socially just learning communities to promote a positive school climate.

INCL 02215: Foundation of Inclusive Education 3 s.h.
Prerequisite: SPED 08130
This course is an introduction to the foundations of inclusive education. Students will be asked to critically examine teaching and schooling, with an emphasis on identifying effective approaches to supporting the meaningful participation and learning of diverse students. Students will develop a research-based educational philosophy in which they articulate their plan for creating inclusive classroom environments.

INCL 02310: STREAM 1: Social Studies, ELA, and the Arts 2 s.h.
Prerequisites: INCL 02250 and INCL 02330Co-requisites: INCL 02315 and INCL 02320 and INCL 02325and READ 30351
This course explores the use of established elementary education content standards and pedagogical methods in social studies, English/language arts, and the fine arts, and how interdisciplinary, thematic units of inquiry facilitate meeting those standards. Students apply current research on how children learn and on effective teaching methods in social studies, English/language arts, and the fine arts. Students also apply instructional knowledge and skills they are developing related to inquiry-based, interdisciplinary instruction, assessment, and differentiation in the co-requisite STREAM I Clinical Experience course.

INCL 02315: STREAM I Clinical Experience 1 s.h.
Prerequisites: INCL 02250 and INCL 02330Co-requisites: INCL 02310 and INCL 02320 andINCL 02325 and READ 30351
The STREAM I Clinical Experience course serves as the first of two clinically-based experiences during the STREAM professional courses. This course provides teacher candidates enrolled in the co-requisite STREAM courses opportunities to apply educational knowledge, theories, and frameworks across a semester of clinical classroom teaching experience. In addition, a series of discussions, readings, and course assignments will focus teacher candidates on the teaching cycle of lesson planning, implementation, assessment, and reflection/revision. In this course, candidates develop and present evidence of the comprehensive knowledge, skills, and dispositions expected of teaching professionals.

INCL 02320: STREAM II: STEM & Health in the Inclusive Classroom 3 s.h.
Prerequisites: INCL 02250 and INCL 02330Co-requisites: INCL 02310 and INCL 02325 and INCL 02315and INCL 02335 and READ 30351
This course focuses on understanding and developing inquiry-based, interdisciplinary instruction based on national and state standards in science, technology, engineering, mathematics, and health education at the elementary school level. Students will critically examine the principles of inquiry-based instruction and design-based instruction, develop interdisciplinary lesson plans, and develop performance-based assessments. Utilizing current research findings about how students develop STEM & Health concepts and processes, candidates will develop an understanding of teaching and learning related to STEM & Health disciplines at the elementary level. Teacher candidates will develop repertoire of instructional strategies and will develop and analyze effective science, technology, engineering, and mathematics and health instruction.

INCL 02322: Science Inquiry and Methods for the Inclusive Classroom 3 s.h.
Pre-requisites: INCL 02351 and INCL 02330 and INCL 09432
This course focuses on assessment practices in science education and developing instructional strategies for teaching science content as a means for achieving scientific literacy and understanding scientific inquiry. Candidates will explore strands of science including Nature of Science, Science as Inquiry, and Science Outreach and Resources, as well as Technology & Engineering for Elementary teaching. Candidates will be exposed to a variety of high leverage practices and science curricula with an emphasis on integrated instruction in a community context and meeting the unique needs of all learners.

INCL 02323: Social Studies Methods for the Inclusive Classroom 3 s.h.
Pre-requisites: INCL 02215 and INCL 02330
The course focuses on engaging prospective teachers in inclusive social studies pedagogy in the K-6 inclusive elementary classroom. The course will equip students with instructional models that will prepare them to teach history and social sciences integrated with other subjects in the inclusive elementary classroom. This course will emphasize how prospective teachers might build inclusive social studies assessments using standards from the National Council for Social Studies and the Common Core State Standards. This course is a required course for students enrolled in the B.A. in Inclusive Education major.

INCL 02324: Advanced Mathematics Methods for the Inclusive Classroom 3 s.h.
Prerequisites: MATH 01201 AND MATH 01301
This is a specialized methods course that addresses topics including pedagogies and strategies for teaching elementary mathematics to students with a range of needs and characteristics in inclusive classrooms. Students will develop intervention plans for struggling students based on evidence-based practices in an effort to support diverse learners in the classroom.

INCL 02325: Mathematics Strategies in the Inclusive Classroom 2 s.h.
Prerequisites: INCL 02250 and INCL 02330Co-requisites: INCL 02320 and INCL 02335 OR INCL 02322 and READ 30351
This course is designed to help teacher candidates prepare to teach mathematics in diverse, inclusive elementary classrooms. In order to do that, this course will focus on teaching through inquiry and problem solving, using appropriate interventions, and shaping the learning environment. The co-requisite STREAM II Clinical Experience should be considered a laboratory for this course, where teacher candidates observe, reflect, question, and make connections among content and pedagogy discussions.

INCL 02330: Differentiating Instruction in the Inclusive Classroom 2 s.h.
Prerequisites: SPED 08130 and INCL 02210 and ELEM 02210Corequisite: INCL 02250
This course focuses on how the diverse needs of individuals with educational disabilities/differences can be met within the general education classroom environment. Emphasis will be on communication and collaboration with parents and education professionals, understanding of linguistic and cultural differences, and utilizing instructional strategies in response to the results of differentiated assessments to meet individual needs.

INCL 02335: STREAM II Clinical Experience 1 s.h.
Prerequisite: INCL 02250 or INCL 02350 or INCL 90432 or ELEM 02199Corequisites: INCL 02320, INCL 02325
The STREAM II Clinical Experience course serves as the second of two clinically-based experiences during the STREAM professional courses. This course provides teacher candidates enrolled in the co-requisite STREAM II courses in Science, Technology, Engineering, Mathematics and Health opportunities to apply educational knowledge, theories, and frameworks across a semester of clinically-based, classroom teaching experience. In addition, a series of discussions, readings, and course assignments will focus teacher candidates on the teaching cycle of lesson planning, implementation, assessment, and reflection/revision. In this course, candidates develop and present evidence of comprehensive knowledge, skills, and dispositions expected of teaching professionals.

INCL 02350: Instruction & Assessment in the Inclusive Classroom 3 s.h.
Prerequisites: INCL 02210 AND ELEM 02210 AND Corequisite: INCL 02330
This course provides in-depth examination of instructional planning and assessment in the inclusive classroom. Built on the learning community philosophy developed in Principles and Pedagogies in the Inclusive Classroom, this course is a broad overview of inclusive elementary education. Standards, philosophies, theories, and teaching and learning principles that underpin inclusive elementary education are revealed to enable teacher candidates to begin developing a personal philosophy of how children learn and what teachers need to do to support and assess their learning. Candidates learn to write lesson plans and incorporate different teaching strategies to enhance student learning. Teacher candidates design, review, and reflect on results of varied assessments of students learning typically used in the elementary inclusive classroom. This course includes clinical classroom visits in inclusive urban school settings.

INCL 02351: Clinical Experience I in Inclusive Education 1 s.h.
Pre-requisites: INCL 02215
This 1 credit Clinical Experience field-based course requires approximately 1 day a week in the field and focuses on inclusive pedagogy, including: differentiating instruction, implementing principles of Universal Design for Learning and adapting curriculum and classroom environments to support diverse learners in inclusive settings. The course is designed to align with the program goals of the BA in Inclusive Education and to accompany INCL02330: Differentiating Instruction in the Inclusive Classroom. Students develop the skills and have the opportunity to implement their skills in the field to support a wide range of learners, collaborate with cooperating teachers, as well as support school-based professionals and families. They learn to implement content-rich interdisciplinary learning experiences which address the learning needs of all students, utilizing a strengths-based perspective to differentiate and adapt instruction for individual learners. The program prepares students to create communities of learning based on social justice and culturally relevant pedagogical practice. The Inclusive Clinical Experience will be designed to present students with opportunities to focus on the practice they are developing in Differentiated Instruction. This course is required course in the B.A. in Inclusive Education program,

Elementary Education specialization (K-6).

INCL 02352: Clinical Experience II in Inclusive Education 1 s.h.
Pre-requisite: INCL 02351
This 1 credit Clinical Experience field-based course focuses on inclusive pedagogy, including: differentiating instruction across content areas, with a particular focus on Social Studies and Science, implementing principles of Universal Design for Learning and adapting curriculum and classroom environments to support diverse learners in inclusive settings. The course is designed to align with the program goals of the BA in Inclusive Education and to accompany INCL02323: Social Studies Methods for the Inclusive Classroom and INCL 02322: Science Inquiry and Methods for the Inclusive Classroom. Students build on the skills they have been developing in coursework and through INCL 02351: Clinical Experience I in Inclusive education and have the opportunity to implement their skills in the field to support a wide range of learners, collaborate with cooperating teachers, school-based professionals, and families. This course is required course in the B.A. in Inclusive Education program, Elementary Education specialization (K-6).

INCL 02440: Diversity Seminar 2 s.h.
Prerequisites: INCL 02310 and INCL 02320 and READ 30351INCL 02325 and INCL 02315Co-requisite: ELEM 02448
This Diversity Seminar is a capstone course in the Elementary Education program and will help teacher candidates enrolled in clinical practice reflect upon and better understand their practitioner experiences through a series of discussions, readings, and course assignments. In this course, candidates develop a philosophy of teaching; gather and present evidence of their comprehensive knowledge, skills, and dispositions expected in this profession; and demonstrate knowledge of current critical and contemporary issues facing educators and other stakeholders in education.

INCL 02444: Clinical Practice I in Inclusive Education 2 s.h.
Pre-requisites: INCL 02215, INCL 90432, and SPED 08307
Clinical Practice I is the first field-based course of the Clinical Practice Year for Inclusive Education Major. It is a supervised, 2-3 days a week internship conducted in a public elementary inclusive classroom. In this course, candidates will work with cooperating teachers and supervisors to plan lessons, use multiple instructional and assessment strategies; manage classroom activity; work collaboratively with colleagues, administrators, families, and community; and provide evidence documenting teaching tasks.

INCL 02445: Clinical Practice II in Inclusive Education 5 s.h.
Prerequisites: INCL 02215 and INCL 90432
The Clinical Practice experience is the second field-based course of the Clinical Practice Year for Inclusive Education Major. It is a supervised, full-time activity conducted in a public early childhood or elementary inclusive classroom. In this course, candidates must demonstrate mastery of subject area content, lesson planning, and use of multiple instructional strategies and ability to assess learner progress; manage all aspects of classroom activity; work collaboratively with colleagues, administrators, families, and community; and document evidence of doing all of the above. This is a full-time field-based course taken in the senior year.

INCL 90432: Working with Families and Communities 3 s.h.
Prerequisite: INCL 02215
This course is designed to heighten inclusive education teacher candidates' and the CUGS for Teaching in Urban and Diverse Settings students' awareness of the roles that family and community have on a child's success in school. The course situates students' communities and families from an asset-based perspective, demonstrating that all children must be understood in the context of their community environment, including their families, schools, communities, and the wider society. Students will also develop skills in working effectively with diverse families in the learning community, in order to provide positive educational outcomes for children in inclusive settings.

SELN 10576: Effective Inclusive Instruction 3 s.h.
This course is designed to begin developing the knowledge, skills, and dispositions necessary for general education teachers to understand and educate students in inclusive classrooms. Emphasis will be on: (a) understanding the legal foundations for inclusive instruction, (b) recognizing students' diverse strengths and needs, (c) designing, implementing, and assessing effectively differentiated lessons that feature research-based strategies, and (d) organizing and managing a flexible, student-centered classroom.

SELN 40477: Effective Inclusive Instruction in English, Social Studies, and World Language Classrooms 3 s.h.
Corequisite: SMED 52330 OR SMED 51330 OR SMED 50330
In this course, candidates will learn how to identify the learning difficulties of students with exceptional learning needs in inclusive, subject-matter content classes. They will also learn to assess, plan, and teach these students using evidence-based practices.

SELN 60576: Inclusive Instruction in STEM Classrooms 3 s.h.
Prerequisite(s): B- or higher in: STEM 60501, READ 30520, STEM 60510Corequisite(s): STEM 60502 and STEM 60512
With a focus on STEM education for students with special needs, this course is designed to begin developing the knowledge, skills, and dispositions necessary for STEM teachers to understand and education students in inclusive classrooms. Emphasis will be on: (a) understanding the legal foundations for inclusive instruction, (b) recognizing students' diverse strengths and needs, (c) designing, implementing, and assessing effectively differentiated lessons that feature research-based strategies, and (d) organizing and managing a flexible, student-centered classroom.

SMED 40477: Effective Inclusive Instruction in English, Social Studies, and World Language Classrooms 3 s.h.
Prerequisite(s): EDUC 01272 and SPED 08130; Corequisite(s): SMED 50330 or SMED 51330 or SMED 52330
In this course, candidates will learn how to identify the learning difficulties of students with exceptional learning needs in inclusive, subject-matter content classes. They will also learn to assess, plan, and teach these students using evidence-based practices.

SPED 02340: Teaching Students with Autism Spectrum Disorder 3 s.h.
Prerequisite(s): SPED 08130 and SPED 08360
This undergraduate course focuses on the instruction and assessment of students with autism spectrum disorders. Students will learn about evidence-based practices for enhancing the academic, social, behavioral, and communication skills of P-16 learners with autism spectrum disorders. Students will apply this learning in both in-class study activities and across clinical experiences. In addition to specialized practices, students will learn how to modify instruction in general education classes to meet the needs of students with autism spectrum disorders.

SPED 08130: Human Exceptionality 3 s.h.
This general education course is designed to develop students' awareness and understanding of the nature and needs of individuals with exceptionalities. It provides a lifespan perspective that will assist students in better understanding and, hopefully, accepting and advocating for individuals with disabilities.

SPED 08307: Assessment in Special and Inclusive Education 3 s.h.
Prerequisites: SPED 08130
This course emphasizes linking assessment with educational instruction in inclusive and special education. Prospective classroom teachers will learn how to routinely utilize formal and informal assessments to support all students in various inclusive settings. Teacher candidates will also have the opportunity to develop and demonstrate competencies related to assessment in conjunction with a required field experience component.

SPED 08308: Assistive Technology And Transition Planning 3 s.h.
Prerequisites: SPED 08130
This course focuses on exposing teacher candidates to a variety of accessible and assistive technologies. Students will gain hands-on skills in selecting and designing technology-based instructional materials for students with a wide range of instructional and communication needs. Teacher candidates will also explore transition planning across the educational continuum. Teacher candidates will also have the opportunity to develop and demonstrate competencies related to assistive technology and transition planning in conjunction with a required field experience component.

SPED 08316: Differentiated Instruction In The Inclusive Classroom 2 s.h.
Prerequisites: SPED 08130
This Junior Level (300) course will focus on how the diverse needs of individuals with educational disabilities/differences can be met within the general education classroom environment. Emphasis will be on developing communication/collaboration, instructional and assessment strategies that will assist the classroom teacher in diversifying instruction to meet individual needs. A field component is required.

SPED 08325: Pract Spec Ed I 4 s.h.

SPED 08326: Pract Spec Ed II 4 s.h.

SPED 08330: Workshop In Special Education 3 s.h.
This course provides instruction in current issues and topics related to the field of special education which are compatible with the student's prerequisites and interest. The course can be designed to meet the in-service needs of agencies and/or local school systems. Number of credits will be determined by course content each time the course is offered. Students should consult current registration booklet for the topic and the specific number of credits to be offered.

SPED 08350: TOSD Clinical Experience I 1 s.h.
Corequisite(s): SPED 08360 and SPED 08307
This course serves as the field placement for SPED 08308 and SPED 08415. Students must complete the field requirements of those in a classroom that includes students with low incidence special needs.

SPED 08351: TOSD Clinical Experience II 1 s.h.
Corequisite(s): SPED 08308 and SPED 08415
This course serves as the field placement for SPED 08308 and SPED 08415. Students must complete the field requirements of those courses in a classroom that includes students with low incidence special needs.

SPED 08360: Positive Behavioral Support Systems 3 s.h.
Prerequisite: SPED 08130
This course exposes teacher candidates to a variety of theoretical approaches in behavior support of students. Students will develop an individual support plan and explore multi-tiered class-wide and school-wide behavior support systems to support all students. Teacher candidates will also have the opportunity to develop and demonstrate competencies related to positive behavior intervention supports in conjunction with a required field experience component.

SPED 08415: Specialized Instruction For Students With Exceptional Learning Needs 3 s.h.
Prerequisites: SPED 08130 and SPED 08316and SPED 08307
This senior-level course enhances the systematic progression of skills initiated during the earlier stages of the Teacher of Students with Disabilities Endorsement Program. The course prepares candidates to teach students with exceptional learning needs, covering instructional methods and strategies to teach self-help, motor, reading, math, language, study skills, science, and social studies. The course also emphasizes supporting students with exceptional learning needs in inclusive classrooms. There is a required field experience component with this course.

SPED 08416: Specialized Instruction For Students With Exceptional Learning Needs II (K To Grade 12) 5 s.h.
Prerequisites: SPED 08316
This senior-level course enhances the systematic progression of skills initiated during the earlier stages of the Teacher of Disabilities Program. The course prepares canidates with Subject Area Specialization to teach children from Kindergarden thru 12th grade with exceptional learning needs, covering instructional methods and strategies to teach self-help, motor, reading, math, language, study skills, science, and social studies. The course also emphasizes supporting students with exceptional learning needs in inclusive classrooms. There is a required, supervised field experience component with this course.

SPED 08445: Clinical Seminar in Specialized Education 1 to 2 s.h.
Prerequisites: SPED 08415
This course exposes teacher candidates to how to modify, adapt and supplement general education curricula for students with and without disability labels. Students will develop lesson plans and create cross-curricular modifications in order to create multiple access points for all students. Teacher candidates will also have the opportunity to develop and demonstrate competencies related to specialized instruction in conjunction with a required field experience component.

SPED 08450: Clinical Practice In Special Education 3 s.h.
Prerequisites: SPED 08415 or SPED 08416
This is the culminating field experience for candidates seeking a Teacher of Disabilities Endorsement. Clinical Practice provides candidates with full-time placement in a classroom setting that serves students with disability labels. Under university supervision and working with a collaborating teacher or mentor, candidates assume full responsibility for planning, teaching, and managing a classroom during this placement.

SPED 19410: Cerebral Palsy: Its Individual And Community Problems 3 s.h.
Prerequisites: SPED 08326
This course presents a focus on a comprehensive multi-disciplined approach to the diagnosis and habilitation of the cerebral palsied individual. It covers the roles of the medical, psychological, therapeutic, social work and rehabilitation professions to assist teachers to provide appropriate instructional programs.

CM 01069: Construction Management Lab .5 to 99 s.h.

DA 01505: Data Analytics Capstone Practicum 3 s.h.
Prerequisite(s): Graduate standing or permission of the instructor.
This course provides a culminating experience for students graduating with an M.S. in Data Analytics. This course will reinforce ethical awareness and good decision making in health-related situations and discuss the specific professional and ethical responsibilities of the health data practitioner.

DA 03520: Healthcare Management 3 s.h.
Prerequisite(s): Graduate standing or permission of the instructor.
This course provides a comprehensive overview of the healthcare management field. Students will be introduced to organizational behavior theories as well as organizational behavior issues specific to the healthcare industry. Students will gain an understanding of the major functions, roles, and responsibilities of those working in healthcare management, including resource and technology management. Students will also gain an appreciation for the legal and ethical issues inherent in healthcare management.

DPEM 00101: Introduction to Emergency Management and Homeland Security 3 s.h.
This course presents comprehensive overview of the discipline of Emergency Management and Homeland Security. Attention to mitigation, preparedness, response, and recovery will be emphasized. An analysis of past disasters will be presented along with their impacts on policy formation leading up to the current FEMA all-hazards approach. The role, duties, and importance of the Emergency Management professional will be discussed throughout the semester. Moreover, a discussion of ethical issues and career options will be presented.

DPEM 00310: Critical Infrastructure in Emergency Management and Homeland Security 3 s.h.
Prerequisite(s): DPEM 00101
This course introduces students to the methods and approaches to protecting critical infrastructure as a means of effectively protecting people, physical entities and cyber systems and the establishment of an effective incident command operation. Moreover, students will examine vulnerability rise reduction strategies, contingency planning, and strategic partnership models as they are applied to the critical infrastructure sectors. Course topics include risk assessment and management, contingency planning, training and exercises, the role of the crisis management team, crisis communications, and public and private sector roles and relationships in emergency management.

DPEM 00400: Disaster Planning, Mitigation and Recovery 3 s.h.
The purpose of Disaster Planning, Mitigation and Recovery is to introduce the concepts and skills of hazard mitigation and recovery planning, vulnerability risk analysis, and implementation of a community-wide program disaster preparedness plan, and to relate them to hazard planning and mitigation processes of disaster planning. Students will design an exercise, identify the logistics necessary for execution and management of the exercise, and develop an exercise evaluation plan. The course instruction will follow and meet the guidelines established by the Federal Emergency Management Agency exercise design and evaluation courses and the Department of Homeland Security Exercise and Evaluation Program.

DPEM 00410: Public Leadership in Crisis Management & Communications 3 s.h.
This course provides an overview of political and organizational leadership in crisis situations by addressing prevention of potential crises, mitigation of those that do occur, and recovery and restoration in the wake of a crisis. Students learn why effective crisis preparation and response are crucial, how to handle internal and external communications, and which leadership qualities are essential for effectively managing a crisis.

INTR 01102: Introduction To Social Science 1 s.h.
This is an interdisciplinary general education course intended to introduce social science thinking, concepts and methods. The course describes the core social science disciplines and their typical methods and examines the common themes of self, society and power through readings selected from such prominent contributors to social science as Sigmund Freud, Erving Goffman, Ruth Benedict, and Karl Marx.

INTR 01107: ROWAN 101: COLLEGE SUCCESS-RS 2 s.h.
Prerequisite: None
This course provides support during freshman students' transition to college level work; engagement with the Rowan community; and planning for major and career. Included among many topics are discussions of academic skills, identity and diversity, academic integrity, and financial literacy.

INTR 01108: Financial Wellness: Planning for Personal Financial Success 2 s.h.
This course will enable students to understand, manage, and plan for their financial lives during their college years and beyond. Students will learn about concepts related to personal finance including budgeting, setting financial goals, understanding debt, and implementing strategies to prepare for their future and gain tools to better navigate the complexities of personal finances.

INTR 01120: Biology, History, And Human Societies 3 s.h.
This course explores the ultimate causes of differences in the development of human societies over approximately the last 13,000 years. Students will be introduced to the methods of two disciplines, history and evolutionary biology. This course will reveal the importance of an interdisciplinary approach for addressing a major question in human history: why did early societies on different continents develop at different rates?

INTR 01130: Women And Gender In Perspective 3 s.h.
An introduction to Women's and Gender Studies, this course surveys the field, focusing on how both men and women are depicted and represented in culture: in the arts, in popular media, in the sciences and in psychology, sociology and history. This interdisciplinary course probes questions of sex roles, sexism in language, stereotyping in society.

INTR 01132: Biology, History, And The Fate Of Human Societies 3 s.h.
This course explores the ultimate causes of differences in the development of human societies over approximately the last 13,000 years. Students will be introduced to the methods of two disciplines history and evolutionary biology. This course will reveal the importance of an interdisciplinary approach for addressing a major question in human history: why did early societies on different continents develop at different rates.

INTR 01134: Readings In American Democracy 3 s.h.
This course will acquaint students with the theoretical and intellectual underpinnings of American democracy by providing opportunities to read, respond to, discuss, and write about seminal American political literature from diverse times and perspectives.

INTR 01136: Gateway To Asia 3 s.h.
Combining visual presentations with other innovative pedagogical methods, this course offers an introduction to various aspects of Asian culture, ranging from philosophy, history, and social structure to literature, martial arts, and family and gender relations. Students will not only learn and discuss important issues related to the study of Asian cultural developments and the Asian American experiences, they will also acquire first hand experience through field trips, live demonstrations, and the exchange of ideas in and outside the class.

INTR 01138: Issues In Sustainable Development 3 s.h.
This course is an introduction to local and global sustainability challenges. The course will discuss the environmental dimensions of development at the local and global level addressing issues such as resource use, greenhouse gas emissions, and population growth. The course will also focus on technological solutions to sustainable development.

INTR 01140: Diverse Approaches To Environmental Literature 3 s.h.
This is a multidisciplinary course that addresses the understanding of diversity of selected environmental issues at local, regional and global settings and in a historical context through the reading of literature pieces. The selected readings will help students to understand today's environmental challenges, and to think about the profound ethical, political, economic, religious, and technological implications of these challenges.

INTR 01142: Three Generations Of Family Life: Diversity And Democracy Through Family 3 s.h.
Using the concepts of diversity and democracy as the common unifying scheme, students will employ a sociological perspective to explore the macro level changes in the family as an institution as well as the parallel micro level changes in the life of their own families. The historical period under examination extends from 1880 to 1970 and ,thus, captures approximately three generations of family life. The changes in family life will be explored within the larger context of the political, economic and social changes that characterize the historical period under examination.

INTR 01144: Human Ecology: An Evolutionary Approach 3 s.h.
This course will take an evolutionary approach to understand how the environment has shaped biological and cultural changes in humans, and how humans have and are continuously impacting the environment. The emphasis of this course will be to understand the biological, cultural and environmental diversity that has emerged through human history and its impact in the intricate interactions among humans and between humans and their environment.

INTR 01148: Environmental Ethics: Through The Lens Of Diversity 3 s.h.
This is a multidisciplinary course that addresses ethical issues and concerns regarding the environment; the relationships between individual, society and the natural environment; the importance of different attitudes and world-views for understanding and responding to environmental challenges; and the need for changes in those attitudes and world-views. Students will be encouraged to think about the profound ethical, political, economic, religious, and technological implications of these environmental challenges.

INTR 01150: Language, Rhetoric, And Propaganda: The Weapons Of The Cold War 3 s.h.
This course introduces students to knowledge of the political, social, economic and cultural history of the Cold War. Students will learn to critically and rhetorically analyze scholarly writing and decipher and evaluate primary source documents relating to the history of the Cold War.

INTR 01152: Beyond Face Value: Critical Analysis Of Texts And Images 3 s.h.
This is an interdisciplinary course that addresses the social construction of identity from three interconnected, disciplinary perspectives: literature, art and gender studies. This class will teach students how to read stories and images critically in order to uncover the often hinder ways certain aspects of lived identity are presented and/or experienced as "natural" when they, in fact, are constructed by the society in which we live.

INTR 01154: Emotions In Organizations 3 s.h.
This course will consider the role of emotions in organizational settings. Attention will be paid to the nature of emotions, emotional expression, and perceptions of emotions. Factors related to emotions, including cultural and individual diversity will be addressed throughout the course.

INTR 01156: Freedom And Artistic Expression In 20th Century America 3 s.h.
This course is designed to help students understand what free speech is, the legal limits on free speech, and current debates on free speech. Additionally, students will come to understand aesthetics, aesthetics as related to the arts, and how aesthetics changed as America into and through the 20th century. Specifically, this course will enable the students to see how specific art works comment on current events or are a reaction to the suppression of speech/expression and how artists have be subjected to control while pursuing their arts in the United States during the 20th century. The course will also help students appreciate diversity by studying various works of art and various artists, and will help students understand democracy by examining free speech and related issues in art and artistic expression.

INTR 01158: From Nancy Drew To Lara Croft: Historical And Critical Dimensions Of The Female Detective Genre 3 s.h.
This course analyzes historic and multi-cultural constructions of the female detective/action figure in literature, motion pictures, and video games. Students will confront a variety of texts in order to increase their awareness of how cultural assumptions come into play and often unconsciously influence their reading and viewing of texts. The course will culminate in the development and implementation of a cooperatively devised critical thinking rubric, which allows students to more critically analyze textual and visual media.

INTR 01160: Growing Up Female In 20th Century America: Historical And Psychological Perspectives 3 s.h.
This course combines the historical and psychological approaches to female adolescence in the 20th century America from a multicultural perspective. Its topics include the historical development of adolescence, theories of adolescent development, and representations of female adolescence.

INTR 01162: The Leadership Of Ideas 3 s.h.
The college experience includes constant engagement with new and challenging ideas. This course explores how little ideas become big and public ideas by drawing on the knowledge and experiences students bring to college. The course will focus on the learning mechanisms for expanding those ideas. The intent is to enhance the student's academic experience by exploring critical thinking skills and developing concrete strategies that lead to lifelong learning success.

INTR 01164: Science Fiction As A Gateway To Human Diversity 3 s.h.
This course will explore the intersection between the ways in which scientific theories (especially evolutionary and genetic ones) are used to justify or reduce discrimination in human societies and the hypothetical exploration of similar issues in science fiction literature. Students will critically examine examples of utopian and dystopian science fiction and investigate how such writings can inform our thinking about current, real-world diversity issues.

INTR 01166: Rhetoric Of Music - Rs 3 s.h.
This course examines the rhetoric of music with particular emphasis given to the rhetorical aspects of music's aural, non-discursive elements. The course will consider how there elements functioned in diverse cultures and political systems from antiquity to the twentieth century.

INTR 01168: What'S Wrong With Normal? - Rs 3 s.h.
This course will address the topic of the body and physical difference as it is theorized in Disability Studies. As a Rowan Seminar, special attention will be paid to basic skills and critical inquiry. Particular topics will include Deaf culture, Supercrips, Accessibility, the ADA, images of disability and resistance to normative structures of emobodiment.

INTR 01170: Law And Order - Rs 3 s.h.
This course explores the three components of the criminal justice system: police, courts, and corrections, based on our understanding of Nature's order. In particular, it presents the case for taking a mathematical and scientific approach to dealing with many of the issues facing our criminal justice system today: racial profiling, affirmation action hiring, cost of crime, cost effectiveness of prevention and rehabilitation programs, admissibility of evidence, standards of proff, incarceration policies. These issues will provide context for developing mathematical proficiencies such as calculating means, percentages, and rates of change; representing quantitative informationg visually; and making predictions by extrapolating from existing data. The underlying theme will be to quantitatively analyze whether our legal policies reflect

and protect the interests of diverse groups in our society pertaining to issues of social order, civil liberties and fairness.

INTR 01172: Songs Of Praise/Protest - Rs 3 s.h.
This course will examine the ways in which music has served as an instrument for social change. African-American music in the form of Spirituals and Blackface Minstrelsy will provide a mechanism for exploring social change, tensions between races, confused dynamics of racial identity, and stereotypes. Hymns of the late 18th and early 19th century will demonstrate how women used song as a means of self-expression denied them in other spheres. Finally, the civil rights and protest songs of the 60s and 70s will provide a backdrop for exploring issues of race and social culture.

INTR 01174: Ethics And The Professions 3 s.h.
This course will provide students with a critical examination of moral and ethical issues that arise in the context of various professions. The course will address and seek to bridge conceptual issues with more practical real-life examples. Students will discuss longstanding philosophical questions concerning social justice, equality, and the place of religion in a diverse society.

INTR 01176: Historical Aesthetics Of Suffering 3 s.h.
The subject of suffering is a universal one, and forces all human beings to acknowledge the commonality of a shared experience. Yet, while this phenomenon transcends time and place, and is inclusive of all communities and their members, reponses to, and representations of suffering may, and have, differed greatly. This class is intended to prompt reflection upon the diversity of questions and answers provoked by suffering in various socio-historical contexts, as preserved in contemporary accounts, religious and philosophical writings, literature, drama, the visual arts, and music. A detailed examination of these documents, texts, and performances hopefully will move students from intial, personal understanding of this complex topic, towards group empathy and cultural sensitivity, as well as fostering appreciation and respect for the many, and profound ways in which individuals and societies have wrestled with tragedy.

INTR 01178: In Search Of Democracy: The Quest For Civil Liberties 3 s.h.
This course will explore critical issues in contemporary civil rights, placing them in their historical, philosohical and political contexts. Specific issues to be discussed include separation of church and state, freedom of speech, the role of the federal government in the protection of civil liberties, the right to privacy and its implications for women's reproductive rights, and Prohibition and its implications for gay marriage and marijuana.

INTR 01200: Issues In Women'S Health 3 s.h.
This interdisciplinary course examines issues in women's health. Biological, socio-cultural, psychological, historical and political processes that shape and define women's health and healthcare experiences will be explored, including the ways in which medical knowledge has been applied to women.

INTR 01430: Women, Sex, And Power: A Capstone Seminar In Women'S Studies 3 s.h.
This capstone seminar will be interdisciplinary in focus with a writing-intensive component. Students in this course will engage in critical analyses of selected readings on women and gender from six different subject areas, including biology, history, literature, psychology, philosophy and sociology. Students will study and learn the dominant issues and debates concerning the study of women and gender within these specific academic disciplines.

INTR 01451: Issues in Business: Directed Research 3 s.h.
Prerequisites: COMP 01111 AND COMP 01112 AND BUS 01101
An upper-division course for students in the Liberal Studies: Humanities and Social Sciences, Sequence B Perspectives in Business, Issues in Business: Directed Research is a course that focuses on the current issues and trends in business as found in the business media. Through this class, students are able to examine the relationship business trends relate with their other areas of study. As a writing intensive (WI) course, the course is designed to allow students to explore areas of personal interest through the collection of research and the presentation of such material in written and spoken formats.

INTR 01486: Interdisciplinary Materials Science 3 s.h.
This interdisciplinary course discusses selected topics of current technological importance drawn from the field of materials science. Three faculty members from different backgrounds in engineering and science will co-teach this course, offering the students different perspectives to a given topic. The topics are chosen by the faculty and may include nanotechnology, semiconductors, polymers, inorganic materials, superconductors, fiberoptics, spintronics, and photonics.

INTR 01488: Career Planning And Development 2 s.h.
This course will provide students with multifaceted experiences in career planning and development. Students will engage in self-assessment, career exploration, job search strategies and decision making.

INTR 01490: New Media Practicum 3 s.h.
Prerequisite(s): RTF 03295 and (RTF 03394 or JRN 02321 or CMS 04315)
New Media Practicum provides students with the opportunity to integrate the knowledge they have gathered through the Concentration in New Media by synthesizing what they have learned into a cohesive and sophisticated project that will be exemplary of the student's particular strengths and interests. In addition to the experiential benefit of producing the capstone project, the student is also expected to present the work in such a way that it can serve as part of or a complete portfolio of new-media work that would be of interest to potential employers, graduate schools, or other interested parties. Students plan the project with an assigned adviser and meet various agreed-upon milestones throughout the semester.

INTR 01499: Bachelor Of General Studies Portfolio 1 s.h.
This course is limited to students enrolled in the General Studies Program.
This course is the portfolio component required for all students in the Bachelor of General Studies Program. Students will analyze their academic progress through self-reflective assessment.

INTR 02492: Senior Seminar In Math/Science 3 s.h.
Prerequisites: COMP 01112
This course provides the opportunity for students to engage in their own research into specific scientific topics and to significantly advance their own scholarly development in the field. Students will interact with the instructor and the other students in the seminar in the development and completion of their individual projects. The central theme will vary by semester. Topics will include case studies of applied and theoretical math and scientific research.

INTR 20399: Internship In Applied Liberal Arts 2 to 6 s.h.
Prerequisite: 30 credits required
The course will provide formal opportunities and guidance for students seeking to explore the wide variety of careers open to students with degrees in the humanities and social sciences. Through engaging in an internship, students will explore careers in the corporate, non-profit, or public sectors. The coursework will engage students in lectures and assignments that allow for reflection on their internship experience and enhance critical career readiness skills. The course will be offered as an online class in fall, spring, and summer terms. Students may receive between 2-6 credits depending on the number of hours the student works.

INTR 99300: Environmental Internship 6 s.h.
The internship provides for career-oriented training outside the college under the guidance of a faculty adviser and an experienced sponsor. Assignments will be based on matching the needs and objectives of the students and sponsors. Students become involved in work with a community resource group, industry, governmental agency, etc.

MILS 01100: Military Science I Lab 0 s.h.

MILS 01110: Military Science I - Leadership And Personal Development 3 s.h.
Introduces students/cadets to the personal challenges and competencies that are critical for effective leadership. Focus is placed on developing basic knowledge and comprehension of the U.S. Army's Leadership Dimensions while gaining a "big picture" understanding of the Army ROTC program, its purpose in the U.S. Army and our nation, and its advantages for the student. Classes are conducted for one hour once each week. (No service obligation).

MILS 01120: Military Science I - Foundations In Leadership 3 s.h.
Reviews leadership fundamentals such as setting direction, problem solving, listening, presenting briefs, providing feedback and using effective writing skills. Students/cadets are also exposed to key fundamentals of skills required to be successful as an MS II cadet; namely, military map reading and land navigation, and small unit operations/ leadership drills. (No service obligation).

MILS 01150: American Military History 1650 - Present 3 s.h.
The focus of the Army Military History Course is to examine the relationship of the military to American society and the value of military history to the professional officer. The course will cover American military history through the American Revolution to the current 'War on Terror'. This is a very large span of time to cover in one class, thus not every war, conflict or interwar period can be touched upon. At the conclusion of this course students will have a basic understanding of major conflicts in which the United States has been involved, what brought the nation to the decision of war and what the outcomes were.

MILS 01210: Military Science II - Innovative Tactical Leadership 3 s.h.
Prerequisites: MILS 01110 or MILS 01120 Minimum Grade of B
Explores the dimensions of creative and innovative tactical leadership strategies and styles by studying historical case studies and engaging in interactive student exercises. Focus is on continued development of the knowledge of leadership values and attributes through an understanding of rank, uniform, customs and courtesies. (No service obligation).

MILS 01220: Military Science II - Leadership In Changing Environments 3 s.h.
Prerequisites: MILS 01210, MILS 01110, MILS 01120 andMinimum Grade of B
Examines the challenges of leading in complex contemporary operational environments. Students/cadets are exposed to more complex land navigation/map reading tasks, as well as more advanced small unit operations/ leadership drills. Cadets develop greater self awareness as they practice communication and team building skills. (No service obligation).

MILS 01310: Military Science III - Leadership In Contact 3 s.h.
Corequisites: MILS 01301 Prerequisites: MILS 01101, MILS 01102, MILS 01201 and MILS 01202
Uses increasingly intense situational leadership challenges to build cadet awareness and skills in leading small units. Skills in decision-making, persuading, and motivating team members when "in combat" are explored, evaluated, and developed. (Service obligation incurred upon enrollment in MILS01.310.)

MILS 01320: Military Science III - Complex Team Leadership Issues 3 s.h.
Prerequisites: MILS 01310 Minimum Grade of B, MILS 01101, MILS 01102, MILS 01201 and MILS 01202
Challenges cadets with more complex leadership issues to further develop, practice, and evaluate adaptive leadership. Cadets continue to analyze and evaluate their own leadership values, attributes, skills, and actions in preparation for the Leadership Development and Assessment Course (LDAC). Primary attention is given to preparation for LDAC and the development of both tactical skills and leadership qualities.

MILS 01410: Military Science IV - Developing Adaptive Leaders 3 s.h.
Corequisites: MILS 01401; Prerequisites: MILS 01310 and MILS 01310 Minimum Grade of B
Develops cadet proficiency in planning, executing, and assessing complex operations, functioning as a member of a staff, and providing leadership performance feedback to subordinates. Cadets are given situational opportunities to assess risk, make ethical decisions, and provide coaching to fellow ROTC cadets.

MILS 01420: Military Science IV - The Army Officer 3 s.h.
Prerequisites: MILS 01410 Minimum Grade of B
Explores the dynamics of leading in the complex situations of current military operations. Cadets examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. Aspects of interacting with non-government organizations, civilians on the battlefield, and host nation support are examined and evaluated.

JRN 01407: SP TOPICS JRN 3 s.h.

JRN 02101: News Media Literacy 3 s.h.
Well-informed citizens create, maintain, and protect the health of democratic societies. Mediated news, in myriad forms, constitute the sources of information about society that citizens most often consume. It is therefore vital that members of society have a keen understanding of how news media function and why, so that they can find, evaluate, and choose the information they consume wisely. News Media Literacy (JRN 02101) trains students to do just that. Upon completion, students will be able to identify and explain the historical context of western news media, analyze news texts and artifacts, critically evaluate evidence and claims presented in the media, find and organize information for research, and develop coherent, credible arguments about news coverage and the contemporary media landscape.

JRN 02205: Journalism Principles And Practices 3 s.h.
Prerequisites: COMP 01111
This course introduces students to the world of journalism: the culture, commerce, ethics, history, working conditions, rights, responsibilities, standard practices, and effects of evolving technology. Students learn about the nature of a journalism career and gather information that will serve as a foundation for their future journalism skills as well as for their lecture and seminar courses.

JRN 02210: Journalistic Writing 3 s.h.
Prerequisites: COMP 01112
This course provides an introduction to a wide variety of news writing forms. Students learn how to cover events, conduct interviews, and write with effective journalistic structure and style.

JRN 02305: TV Newscast 3 s.h.
Prerequisites: JRN 02310
Students write, gather, edit, and present a cable newscast on Rowan University's closed-circuit cable system and adapt that newscast for transmission over the Web. During the semester, students rotate through various duties, including writing, anchoring, reporting and producing.

JRN 02307: On-Camera Field Reporting 3 s.h.
Prerequisites: JRN 02341
On-Camera Field Reporting provides the fundamentals of reporting and includes writing, camera shooting techniques, editing, gathering sources, and on-camera presentation to perform "one-man band" responsibilities in any television market. Students will gain extensive hands-on experience that will produce a resume reel for their portfolio. Skills acquired can be used to edit online video components for news outlets.

JRN 02310: News Reporting I 3 s.h.
Prerequisites: JRN 02205
This course teaches students basic reporting and writing skills. They learn newspaper style and use a computer to write basic stories that deal with accidents, obituaries, construction, statistics, speeches, interviews and polls. Students also learn how to write humorous stories and how to rewrite news releases. Students take weekly spelling and style quizzes to sharpen writing skills.

JRN 02311: News Reporting II-Wi 3 s.h.
Prerequisites: JRN 02310 and COMP 01112
This course stresses government reporting. Students learn about the Sunshine Law and how to deal with government sources. They use a computer to write stories about governing bodies, zoning and planning boards, school boards, budgets, arrests, hearings, arraignments, indictments and trials. Students cover a local community and write various meeting stories.

JRN 02312: Feature Writing 3 s.h.
Prerequisites: JRN 02310
This is a journalism class focusing on narrative writing. This class is designed to develop competence in the writing of color stories, profiles, reviews and opinion pieces.

JRN 02313: Magazine Article Writing 3 s.h.
Prerequisite(s): JRN 02310 or JRN 02210 or PR 06301 or WA 01300 with a grade of C- or better
Students get started as freelance magazine article writers by conceiving article ideas, interviewing, researching, and writing. The course provides instruction in adjusting style and slant to reach potential readers. Students learn to sharpen writing, resolve clarity problems, and add vigor to writing. The course analyzes freelance markets. Students submit work for publication.

JRN 02314: Photojournalism 3 s.h.
Prerequisites: 45 credits required
This course covers the practices and techniques used by photojournalists on modern American newspapers. Students take digital photographs and edit in Photoshop. Weekly laboratory assignments are required.

JRN 02317: Publication Layout And Design 3 s.h.
Prerequisites: 45 credits required
This course focuses on design, layout, and make-up of brochures, magazine and newspaper pages, newsletters, fliers, and advertisements. Students will learn how to coordinate art and typography with content. A workshop approach is used to show students how creativity in design can increase the effectiveness of communication. Students learn how to work with various computer applications to achieve effective layout.

JRN 02318: Investigative Journalism 3 s.h.
Prerequisites: JRN 02310
This course acquaints students with federal and state public records laws. They learn where to find and how to use public records at federal, state, county, and local levels. Students investigate property records, records on public officials and business and nonprofit records. They use this and other information to write long-form journalism articles.

JRN 02319: Media Ethics 3 s.h.
Prerequisite(s): JRN 02205 or RTF 03295 or PR 06301
Media Ethics examines decision-making in media professions. The course examines the moral aspects of media conduct, and helps the student develop a more complete understanding of not only the historical background of ethics, but how the interplay of politics, science, economics, law, philosophy, and other disciplines have influenced the way we view right and wrong. The course also strengthens analytical skills as they relate to ethical decisions, cultivating a perception of how media professionals come to a decision and the many factors that influence that decision.

JRN 02320: Radio News 3 s.h.
Prerequisites: completion of 45 earned hours
This course provides training in the necessary skills students must demonstrate to obtain entry-level employment as news reporters and editors in radio. Students learn broadcast writing and reporting techniques. The course is designed primarily for those interested in newscasting as a career.

JRN 02321: Digital Journalism I 3 s.h.
Prerequisite(s): JRN 02205 or RTF 03295 or PR 06301
This course provides an introduction to the digital news landscape. Students perform original reporting and a series of writing, photo, audio, video and social media news assignments.

JRN 02322: The Publishing Industry 3 s.h.
Prerequisites: completion of 45 semester hours
The Publishing Industry examines the business and practice of publishing through broad readings and research related to industry operations and trends, field trips, guest speakers, interactive projects, and directed discussion. Students explore publishing aspects of books, magazines, newspapers, online material, blogging, podcasting, self-publishing, and editing. When students complete this course, they will have a better idea of the career path they would like to pursue.

JRN 02323: Crime Reporting 3 s.h.
Prerequisite: JRN 02310 with a grade C- or better
The class explores one of the most durable and important aspects of journalism, focusing not only on the mechanics of crime, but also on how the story reflects the undercurrents of conflict in society as a whole. Crime Reporting focuses on how to gather information and turn it into a narrative that both tells the story and explores the issues behind the story. Emphasis will be on researching existing databases and analyzing actual documents. Students will be required to enroll in PACER, a federal court tracking system.

JRN 02324: Health Reporting 3 s.h.
Prerequisite: JRN 02310 with a grade of C- or better or by permission
From news bulletin on peanut butter recalls to a feature story on concussions in football, from advice on preventing sunburn to in-depth examinations of how the aging of America impacts the economy, health reporting keeps the public informed about issues affecting their well-being. In this journalism class, students will learn through real-world practice, guest speakers, and field trips how to report and write about health issues. Topics include public health, healthcare reform, and health trends.

JRN 02325: Digital Journalism II 3 s.h.
Prerequisites: JRN 02321
In this course, students develop a "digital-first" workflow for reporting and news content creation, improve their multimedia and mobile news skills, and produce digital news packages as individuals and as part of a team.

JRN 02326: Sports Broadcasting I 3 s.h.
Prerequisite(s): JRN 02361 with a grade of C- or better or JRN 02310 with a grade of C- or better or JRN 02210 with a grade of C- or better or by permission
Sports Broadcast will include play-by-play, color commentary, pre-game and post-game analysis. Students will learn reporting techniques unique to the world of sports coverage, including interviewing sports figures. They will gain onsite expereince at Rowan's radio station as well as with Rowan's television network as they become proficient in sports talk and sports reporting for broadcast.

JRN 02327: Sports Broadcasting II 3 s.h.
Prerequisite(s): JRN 02326 or RTF 03395
This course offers students advanced concepts and techniques for the production and broadcast of sports media. Students will develop proficiency with play-by-play announcing, radio/tv reporting, and sports talk shows.

JRN 02332: The Publishing Industry 3 s.h.
Prerequisites: 75 credits required
The Publishing Industry examines the business and practice of publishing through broad readings and research related to industry operations and trends, field trips, guest speakers, interactive projects, and directed discussion. Students explore publishing aspects of books, magazines, newspapers, online material, blogging, podcasting, self-publishing, and editing. When students complete this course, they will have a better idea of the career path they would like to pursue.

JRN 02335: Media Law 3 s.h.
Prerequisites: 45 credits required
This course examines laws that deal with the legal responsibilities of print, broadcast, online and film media as well as public relations and advertising practitioners. Students analyze topics such as libel, privacy, broadcast regulations, and copyright.

JRN 02341: Broadcast News Writing 3 s.h.
Prerequisites: completion of 45 earned hours
Broadcast News Writing provides instruction in the fundamentals of television news writing essential to all careers in television news. Students will explore the fast-paced world of writing breaking news for television. They will learn how to write in TV broadcast style and write news blogs to build their student portfolios.

JRN 02355: Journalism Practicum Fall 1 to 3 s.h.
Prerequisites: 75 credits required
Journalism Practicum allows students to apply their skills and knowledge by working on-campus with department faculty on a variety of technical, creative, or research-related assignments. Students earn 1 credit for every 40 hours of work, with most practica implemented for 3 credit hours. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum and are evaluated by their faculty supervisor. Journalism Practicum Fall is offered in the fall. Practica may be taken in any order.

JRN 02356: Journalism Internship Fall 1 to 3 s.h.
Prerequisites: 75 credits required and Journalism major with 2.5 Major GPA
Under professional supervision in the field, students practice theories and skills learned in the classroom. Students earn 1 credit for every 40 hours of work, with most field experiences implemented for 3 credit hours. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their faculty supervisor. Journalism Internship Fall is offered in the Fall. Internships may be taken in any order.

JRN 02357: Journalism Practicum Spring 1 to 3 s.h.
Prerequisites: 75 credits required
Journalism Practicum allows students to apply their skills and knowledge by working on-campus with department faculty on a variety of technical, creative, or research-related assignments. Students earn 1 credit for every 40 hours of work, with most practica implemented for 3 credit hours. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum and are evaluated by their faculty supervisor. Journalism Practicum Spring is offered in the spring. Practica may be taken in any order.

JRN 02358: Journalism Internship Spring 1 to 3 s.h.
Prerequisites: 75 credits required and Journalism major with 2.5 Major GPA
Under professional supervision in the field, students practice theories and skills learned in the classroom. Students earn 1 credit for every 40 hours of work, with most field experiences implemented for 3 credit hours. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the internship, and are evaluated by their faculty supervisor. Journalism Internship Spring is offered in spring. Internships may be taken in any order.

JRN 02359: Journalism Internship Summer 1 to 3 s.h.
Prerequisites: 75 credits required and Journalism major with 2.5 Major GPA
Under professional supervision in the field, students practice theories and skills learned in the classroom. Students earn 1 credit for every 40 hours of work, with most field experiences implemented for 3 credit hours. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their faculty supervisor. Journalism Internship Summer is offered in the summer. Internships may be taken in any order.

JRN 02361: Sports Journalism I 3 s.h.
Prerequisite: 45 earned hours
This introduction to Sports Journalism focuses on practical experience as well as study of professional sports journalists. Students cover Rowan University sports teams and learn to produce professional-quality game stories, feature stories, columns, and a comprehensive enterprise package. In addition, students are required to file weekly reports detailing their Internet tracking of professional journalists, with a focus on the amount, variety, and quality of their work.

JRN 02362: Sports Journalism II 3 s.h.
Prerequisite: JRN 02361
Students will build on sports writing skills learned in Sports Journalism I. Students will work in teams to form sports staffs that will produce sports sections on a biweekly basis. These sections will include game stories, features and columns, as well as "surprise" stories. The sports staffs will compete with each other to produce the most compelling, timely, informative, opinionated and entertaining sections. Each student will spend time in a different role - beat writer, feature writer, columnist, general-assignment writer, and assigning editor.

JRN 02363: Data Journalism 3 s.h.
Prerequisite: JRN 02310
This course covers the basic concepts and techniques of data journalism to inform and engage the public. Students will find, evaluate, organize and analyze data and learn how to transform it into compelling news stories and graphic visualizations.

JRN 02364: Journalism Through Film 3 s.h.
Prerequisite: 45 credits required
Through film screenings, discussions, and presentations, students explore issues in journalism, such as libel, obscenity, invasion of privacy, protection of journalistic sources, the right of the individual versus the collective protection of society, and the balance between the watchdog and the attack-dog nature of the press.

JRN 02365: Introduction to Entrepreneurial Media 3 s.h.
Prerequisite: COMP 01111
Introduction to Entrepreneurial Media examines ways media professionals can profit from the technological and economic upheaval in the mass media environment - the ability of individuals and small groups to produce high-quality media on a shoestring budget -- by inventing new business models for themselves and new enterprises that focus on media and journalism.

JRN 02366: Social Media Management and Metrics 3 s.h.
Prerequisite: COMP 01111
Media Metrics and Analytics provides a thorough grounding in how media consumption is measured (metrics) and utilized (analytics) by media organizations and independent professionals. The course spans traditional circulation of print publications, broadcast, cable, and radio ratings, web site traffic measures, social media statistics and advertising data. Media Metrics and Analytics examines the types of measures that, for example, are now commonly displayed on monitors in newsrooms as a way to gauge success of a story, or are used by entrepreneurs to evaluate the overall success of various media. No special statistical background is necessary, and the course is geared toward using programs and tools that are designed for use by non-technical personnel.

JRN 02400: Independent Study - Journalism 1 to 3 s.h.

JRN 02410: Journalism Senior Seminar-Wi 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGL 01112 or ENGR 01201 with a grade of C- or better and 90 credit hours and JRN 02311 with a grade of C- or better
The course probes four issues: ethics, group ownership of the media, the public and the press, and journalism education. Students read and react to articles in professional journals and other publications. They present panel discussions and interview media professionals.

JRN 02411: Copy Editing 3 s.h.
Prerequisite(s): JRN 02205 or RTF 03295 or PR 06301
Students learn modern copy-editing skills. They use computers to edit copy and write captions and headlines. Students interview copy editors to learn more about the job. They take weekly style quizzes to sharpen their editing skills.

JRN 02420: Newspaper Laboratory 3 s.h.
Prerequisites: JRN 02310
This laboratory course teaches students to use desktop publishing equipment and modern design principles to produce a newspaper. It emphasizes interview and research techniques. Students use concepts learned in liberal arts courses to go beyond the mere facts of a story to add depth that will help readers understand issues. Students function as editors, making assignments and directing production.

JRN 02425: Advanced Publication Layout 3 s.h.
Prerequisites: JRN 02317
This course provides a thorough experience in print production through its various stages: writing, edition, choosing styles, layouts, imposition, proofs, and printer specs. Students build on the skills and knowledge acquired in Publication Layout and Design (JRN 02317). They work with various page sizes, edit photos and art, creative multiple-page documents such as booklets and magazines, and format a brand identity to implement in their projects.

SPRT 09101: Introduction to Sports Communication and Media 1 s.h.
This introductory course to the Sports Communication and Media (Sports CaM) program provides students with an overview of the structure of the Sports CaM major/minor, program expectations, overall learning outcomes, career fields in sports communication and media, faculty teaching in the program, and concentrations within the program. In addition, this course will combine academic instruction with industry exposure by providing students with opportunities to network with professionals from the sports industry.

SPRT 09201: Introduction to Esports 3 s.h.
Introduction to Esports is foundational course for students interested in learning the language, history, and culture of the esports industry and entertainment experience. It is the prerequisite for students completing the CUGS in Esports. The class cover the historical development of several of the most popular esports games as well as the cultural and economic implications of those games on the videogame industry.

SPRT 09211: Esports Coverage & Media - Reporting 1 s.h.
Pre-Requisites: SPRT 09201
Esports reporting is a vibrant and growing area of sports journalism. In this course, students will learn the competencies required to be multimedia reporters who can cover the events, debates and controversies surrounding players, matches, tournaments, games, leagues and corporations behind this multi billion-dollar entertainment industry. Unlike traditional sports journalism though, Esports reporting requires videogame-specific skillsets for newsgathering, sourcing unique to the digital and virtual contours and platforms of video game competition. This course introduces students to Esports research, interviewing, writing and reporting through practical assignments and coverage of actual Esports events. Through this course they will develop the foundational skills necessary to begin professional Esports reporting.

SPRT 09212: Esports Coverage & Media - In-Game Observing 1 s.h.
Pre-requisites: SPRT 09201
This course examines current practices and techniques employed in the visual presentation of Esports by in-game observers, who must follow the action and show the story of each match quickly, methodically, and accurately, in real-time, capturing the excitement of the competition for virtual and real life audiences. Students will hone techniques for best showcasing game storylines and action sequencing, character/player choices, and develop strategies for covering the action for an audience. Assignments for study and practice provide students the opportunity to apply acquired knowledge in gameplay situations and begin to build a body of work that showcases experience in Esports in-game observing.

SPRT 09213: Esports Coverage & Media - Shoutcasting 1 s.h.
Pre-requisites: SPRT 09201
Shoutcasting is the play-by-play and color commentary of Esports competition. This course examines current techniques and standards of those oral presentations by professionals and experts in the field. Students will learn and practice the basics of covering a variety of live Esports tournaments and matches across the platforms and technologies used by professional shoutcasters. Key areas of study and practice explore the fundamentals of match research, game knowledge, verbal storytelling, and live performance necessary to attract and retain audiences both in person and across streaming platforms. Assignments and exercises will put these vital skills into practice, in real Esports match situations, with critical feedback to hone performance abilities. Students will ideally leave the class with an array of foundational skills sought by employers in the Esports industry and related fields.

SPRT 09301: Internship in Sports Communication and Media I 3 s.h.
Prerequisites: CMS 04223 AND 60 Earned Hours AND Cumulative GPA of 2.5
Under professional supervision in the field of sports communication and media, students practice theories and skills learned in the classroom. Students earn 3 credit hours for 120 hours of field experience completed during a semester. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their field supervisor and a faculty coordinator.

SPRT 09302: Internship in Sports Communication Media II 3 s.h.
Prerequisites: CMS 04223 AND 60 Earned Hours AND Cumulative GPA of 2.5
Under professional supervision in the field of sports communication and media, students practice theories and skills learned in the classroom. Students earn 3 credit hours for 120 hours of field experience completed during a semester. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their field supervisor and a faculty coordinator.

SPRT 09303: Internship in Sports Communication and Media III 3 s.h.
Prerequisites: CMS 04223 AND 60 Earned Hours AND Cumulative GPA of 2.5
Under professional supervision in the field of sports communication and media, students practice theories and skills learned in the classroom. Students earn 3 credit hours for 120 hours of field experience completed during a semester. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their field supervisor and a faculty coordinator.

SPRT 09304: Special Topics in Sports Communication and Media 1 to 3 s.h.
Special Topics in Sports Communication and Media (SportsCaM) enables students to explore a range of issues and themes related to the sports media industry. The precise topic will vary based on curriculum developments, faculty expertise, and student interest.

SPRT 09401: Senior Seminar in Sports Communication and Media-WI 3 s.h.
Prerequisite(s): CMS 04205 and CMS 04223 and 90 s.h.
This writing intensive course challenges students to integrate what they have learned in their classes in the Sports Communication and Media major as they probe relevant issues in sports and society through discussion, presentations and writing assignments. Students will also produce a capstone project in their particular area of interest: Communication Studies, Public Relations and Advertising, Journalism, or Radio, Television and Film.

BLED 40405: Current Policy and Practice in ESL and Bilingual Education 3 s.h.
This course addresses foundational theories and areas of research related to the field of TESOL and bilingual education. Special emphasis is placed on the forces affecting students and policies related to second language schooling in state, national, and international contexts. Students will develop a reflective philosophy for educating English Language learners.

BLED 40410: ESL FIELD EXPER 6 s.h.

BLED 40412: Linguistics and Second Language Acquisition for Teaching Languages 3 s.h.
This course addresses basic concepts of linguistic theory and second language acquisition research. Content will focus on components of the language system in the context of second language teaching. Students will compare and contrast second language acquisition paradigms and investigate their application to the classroom.

BLED 40415: Understanding Immigrant, Bilingual, and English Learner Students 3 s.h.
In this course, students examine the experiences and identities of immigrant, bilingual, and English Learner (EL) students, focusing on the intersections among language, culture,socioeconomic status, race, religion, national origin, disability and gender. Special issues related to immigration and institutional discrimination faced by EL students are also addressed.Candidates will gain the knowledge, skills, and dispositions to become culturally and linguistically responsive advocates for EL students and to create partnerships with families and communities.

BLED 40420: Planning, Teaching, and Assessing in ESL Classrooms 3 s.h.
Prerequisites: BLED 40412 AND BLED 40415
This course concentrates on how teachers plan, teach, and assess in ESL classes. Students will create unit plans that incorporate both language and content area objectives and learn a variety of research-based instructional methods to support language acquisition and student learning.

BLED 40421: Teaching Bilingual/Bicultural Education: Process and Practice 3 s.h.
The course examines current programs and pedagogical practices in bilingual education appropriate to a range of content areas and grade levels. Dual language pedagogy, microteaching, and advocacy activities are practiced to provide a basis for reflective teaching. State-approved examinations in oral and written English and the target language are required for certification.

BLED 40422: Integrating Language, Literacy, and Content in ESL and Bilingual Classrooms 3 s.h.
This course examines the theory and practice of integrating language and content in K-12 ESL, bilingual and content-area classrooms. Specific focus is given to methods pertaining to implementing sheltered instruction models, content-based ESL, students' proficiency levels, proficiency testing, and strategies for collaborating with other teachers and school leaders.

BLED 40424: Biliteracies & Translanguaging in the Bilingual Education Classroom 3 s.h.
Prerequisite: BLED 40421
This course builds on introductory content in BLED 40.421 to address language use and literacy development in bilingual classrooms. Theoretical perspectives on literacy development will be reviewed with a focus on sociocultural, critical, and translanguaging perspectives. Planning for strategic use of both languages, and reading and writing instruction that strengthens the connections between languages, will be the primary foci of course work.

BLED 40510: Issues Of Language And Cultural Diversity In ESL/Bilingual Programs 3 s.h.
This course focuses on foundational theories and areas of research related to the field of TESOL and bilingual education. Special emphasis is placed on the forces affecting students and policies related to second language schooling in state, national and international contexts. Students will develop a reflective philosophy for educating English Language learners.

BLED 40512: Linguistics And Second Language Acquisition For Teaching Languages 3 s.h.
This course addresses basic concepts of linguistic theory and second language acquisition research. Students will compare and contrast second language acquisition pradigms and investigate their applicability to the classroom. Discussion will also focus on components of the language system in the context of second language teaching.

BLED 40515: Understanding Immigrant-Origin Students: Language, Culture, and Mobility 3 s.h.
In this course, students examine the experiences and identities of immigrant-origin and emergent bilingual students, focusing on language, culture, immigration, and transnationalism. Special issues related to socioeconomic status, race, religion, disability, gender, and forms of discrimination that immigrant-origin students encounter are addressed. Students also examine advocacy issues and ways to support partnerships with families and communities.

BLED 40521: Teaching Bilingual/Bicultural Education: Process And Practice 3 s.h.
The course examines current programs and available materials in bilingual education appropriate to a range of content areas and grade levels. Microteaching and peer coaching are practiced to provide a basis for reflective teaching. The course is open to candidates who possess or are eligible for a standard or provisional New Jersey instructional certificate. State-approved examinations in oral and written English and the target language are required for certification.

BLED 40522: Integrating Language And Content In The ESL/Bilingual Education Classroom 3 s.h.
This course examines the theory and practice of integrating language and content in K-12 ESL, bilingual and content-area classrooms. Specific focus is given to methods pertaining to implementing sheltered instruction modles, content-based ESL, students' proficiency levels, proficiency testing, and strategies for collaborating with other teachers and school leaders.

CASE 90531: Critical Consciousness: Sharing Power and Voice with Students 3 s.h.
Students will learn to use dialogic instructional strategies to create student-teacher partnerships that respect student voice and affirm the lived experiences of students. Participants will learn strategies to engage students and themselves in critical inquiry about identify, privilege, and social justice, and to share power and voice in their classrooms.

CASE 90532: Working with Families and Communities 3 s.h.
This course will help teachers to develop a robust, critical, and theory-based understanding of the interaction of families and schools. Students will also learn to work collaboratively within their schools to equitably and purposefully engage with the families of their students and the communities surrounding their schools. By the end of this course, students will develop a set of research questions and vignettes for a community-based participatory research project. Students will identify and closely examine several models of family and community engagement in schools, connecting these models with current school and classroom practices of engaging with families and communities. Students also will engage in coursework toward two products: 1) a conceptual framework for interacting with families as education professionals, and 2) analysis and reconstruction of a school-based family and community event.

CASE 90533: Critical Pedagogy 3 s.h.
The theoretical framework for this course builds upon conceptualizations of critical pedagogy that supports educators to challenge traditional beliefs about the ways that school works. This requires a commitment to the construction of knowledge by sharing power and authority between students and teachers, challenging the hegemonic or "common sense" notions of what school is and should be, and sharing control of the curriculum and pedagogy of the classroom.

EDUC 01270: Creating Supportive Middle & High School Learning Environments 3 s.h.
This course will enable Subject Matter Education (SME) teacher candidates to gain an understanding of the effect of the learning environment on student achievement. Candidates will learn strategies for creating and maintaining a positive learning environment in which all learners can achieve their potential. The course will focus on student-centered instruction that promotes civil discourse and strategies to address no-engagement. Clinical (field) experiences will provide the opportunity for teacher candidates to begin to make the connection between the content of the course and its application in secondary SME classrooms.

EDUC 01272: Teaching Content in Diverse Classrooms 3 s.h.
This course will enable Subject Matter Education (SME) candidates to gain a multifaceted understanding of the individual and institutional elements that impact student achievement and schooling experiences. Candidates will then learn about specific approaches and instructional practices that they can use in the classroom to promote learning for culturally and linguistically diverse students, including teaching academic language, differentiating instruction and assessments, and supporting home, community, and school partnerships.

FNDS 21150: History Of American Education 3 s.h.
This course provides an in-depth study of American education from 1600 to the present, covering preschool through post-secondary education. It focuses on the social forces, sources of conflict, major educational figures and patterns of schooling during each period. In addition, the course will highlight the ways in which diversity has been accommodated, marginalized, or rejected in American education. Students will be able to identify and discuss ways in which diversity has been accommodated, marginalized, or rejected in American education.

READ 17100: Improving Personal Reading Skills 3 s.h.
This basic skills course helps students whose reading skills need improvement in order to cope with the demands of college course work. Instruction in the full semester course emphasizes vocabulary, comprehension and study skills. This course is not counted toward graduation. It is a required course for entering students who do not pass the Rowan University Basic Skills competency requirement in Reading.

READ 30100: Critical Thinking and Reading of Academic Texts 3 s.h.
This course is designed to address the needs of any university student who wishes to become a more critical, proficient college reader. The course is characterized by providing multiple opportunities for students to apply critical thinking and reading skills to a variety of academic texts. It will provide multiple opportunities to learn and apply a variety of strategies needed to successfully negotiate academic texts and academic vocabulary across a broad spectrum of majors. Critical thinking and reading skills, effective communication, decision making and self-management skills will be emphasized.

READ 30120: Literacies In Today's World 3 s.h.
This course will provide students with historical and cultural perspective of how and why people acquire and use literacy to meet personal and societal needs. By viewing literacy through different lenses students will acquire an understanding of the interrelationship of language, thought, and social practice.

READ 30280: Teaching Literacy 3 s.h.
A basic understanding of the reading process and its relationship to the other language arts is the focus of this course. Topics pertaining to reading/writing instruction in grades K-12, ranging from emergent literacy to comprehension of narrative and expository discourse are covered. There is an emphasis on strategies for developing phonemic awareness, word recognition skills, fluency, vocabulary, and comprehension through various instructional settings and across all curricular areas. The importance of literature-enrichment activities and making curricular connections is highlighted. Field component is required.

READ 30310: Teaching Reading In The Content Areas 3 s.h.
This course helps students integrate reading methods and strategies into subject matter instruction. Students learn a basic format for lesson planning. They acquire an understanding of the reading process and examine a variety of instructional techniques for assessing pupil abilities, selecting suitable materials, and fostering language, comprehension, and study skills needed for mastery of academic subjects.

READ 30311: Literacy Pedagogy I 3 s.h.
This course explores the broadening nature of literacy and literacy instruction in the 21st century. The course addresses both the theory and pedagogy of literacy instruction. Topics range from emergent literacy to comprehension of narrative and expository discourse and address reading and writing instruction that engages students in the K-5 classroom. This course has a particular focus on designing literacy instruction for culturally and linguistically diverse students that positions the literacy teacher as a reflective practitioner with a focus on teaching for social justice.

READ 30319: Teaching Reading And Writing In The Content Area 3 s.h.
This course helps students integrate reading and writing methods and strategies into subject matter instruction in grades K-12 ranging from emergent literacy to comprehension of narrative and expository text. There is an emphasis on strategies for developing phonemic awareness, word recognition skills, fluency, vocabulary, and comprehension through various instructional settings as well as integrating writing to learn strategies. Students acquire understanding for assessing pupil abilities, selecting suitable materials and fostering language, comprehension, and study skills needed for mastery of academic subjects. The importance of literature-enrichment acitivities and making curricular connections is highlighted.

READ 30320: Language Development, Emergent Literacy, And Reading In Young Children 4 s.h.
Corequisites: ECED 23320 OR INCL 02210
Students will gain an understanding of five phases of Literacy: Awareness and Exploration; Experimental Reading and Writing; Early Reading and Writing; Transitional Reading and Writing; Independent Reading and Writing. Students will learn how to integrate literacy across all curricula in the forms of reading, writing speaking, listening, and viewing. They will be able to identify, assess, adapt and implement a variety of strategies that take into account children with special needs. Further, students will be able to recognize the impact of cultural, linguistic, and other diversities that affect engagement in literacy learning and they will be able to identify and utilize effective teaching strategies that address these differences. This course also requires a weekly field experience in a pre-school setting.

READ 30347: Phonics And Spelling Instruction 3 s.h.
Prerequisites: READ 30280 or REED 30280 or READ 30311 or READ 30320
This course prepares prospective teachers to blend evidence-based phonemic awareness, phonics, word identification, and spelling instruction strategically into an integrated language arts approach to teaching literacy. Major topics include the development of children's phonic/spelling knowledge; what teachers should know about language; informal techniques to assess children's early literacy, word identification, and spelling understandings; systematic and meaningfully applied instruction to meet development, cultural, and linguistic differences; and communicating with parents and professionals

about phonics and/or spelling.

READ 30350: Using Children's Literature In The Reading/Writing Classroom 3 s.h.
Prerequisites: REED 30280, READ 30280, READ 30311 or READ 30320
This course prepares prospective teachers to integrate reading and writing in a language arts program through the use of book selections that reflect quality writing in the genres typically found in children's literature. The course will provide students with sufficient background and knowledge in children's literature so that they may teach reading by using trade books, emphasizing process writing and developing thematic units. Language, literacy, and learning will be enhanced by integrating children's literature across the curriculum.

READ 30351: Literacy Pedagogy II 2 s.h.
Prerequisite: READ 30280
This course prepares teacher candidates to provide differentiated literacy instruction in diverse classrooms with a wide range of developmental levels, instructional needs, interests, and backgrounds. Teacher candidates will learn how to select, administer, and analyze various assessment tools to inform instruction. Field experience is required.

READ 30421: School Reading Problems-Writing Intensive 3 s.h.
Prerequisites: COMP 01112 and READ 30347
In this course, students learn to teach struggling readers by applying their knowledge of literacy instruction learned in prerequisite coursework. They use assessments and observations to identify students' reading levels. Students are required to use on-going diagnostic teaching techniques to plan, teach, and adjust instruction according to the needs and interests of struggling learners. Process writing is used throughout. As a course requirement, students work in the Rowan Reading Clinic. Students tutor a K-12 student for 20 hours and write a final report.

READ 30451: Supervised Clinical Practice In Reading 3 s.h.
Prerequisites: READ 30421 or READ 30350
Students in this course apply diagnostic, reflective teaching procedures in order to teach struggling readers in a clinical setting. They select materials and instructional strategies that meet the specific needs of the child. Emphasis is placed on on-going, diagnostic teaching that integrates the language arts in instruction that adjusts to the needs and interests of struggling readers. Students will conduct informal reading assessments at the end of the clinic session in order to write a formal report that includes assessment data; students' strengths and needs; and recommendations to parents, classroom teachers, and future tutors for further instruction.

READ 30452: Advanced English Language Arts Methods for the Inclusive Classroom-WI 3 s.h.
Pre-requisite: INCL 02115, READ 30311, READ 30351, and SPED 08307
This is a specialized literacy and writing methods course that addresses topics focused on including pedagogy and strategies for developing and implementing reading and writing interventions to support students with a range of needs and characteristics in inclusive environments. This is a writing intensive course where students will apply knowledge of inclusive practices, research-based reading instruction, and assessment and evaluation to develop an intervention plan. A field placement is required for this course.

READ 30495: Workshop In Reading 3 s.h.
This course examines current developments related to reading instruction. It is suitable for students who have experience working in a school. Emphasis is given to effective practices related to teaching reading. Specific topics are selected by the instructor and students. Examples include: reading in vocational programs, interrelating language arts instruction, evaluating software, managing reading instruction, etc. This course may not be offered annually.

READ 30515: Teaching Reading And Writing Across The Grades 3 s.h.
Students acquire a background in current theory and practices related to emerging literacy, word identification, fluency, comprehension, study skills, and recreational reading in grades K-12. The relationships between reading and the other language arts and between reading and other subject areas are addressed. Additionally, students become familiar with various methods, materials and technology used in teaching reading, assessing reading performance, and organizing and managing a reading program in the K-12 classroom. This course is required for those seeking the M.A. in reading education and/or reading specialist certification. Teachers and administrators who wish to increase their knowledge in the K-12 reading curriculum and instruction may also enroll.

READ 30520: Content Area Literacy 3 s.h.
This course is designed for reading and non-reading majors interested in increasing knowledge and skills in teaching reading in the content areas. It is a required course for those seeking an M.A. in reading. Instruction is provided in the developmental aspects of reading with little emphasis on corrective or remedial practices. The content of the course may be oriented toward the subject matter areas represented by the students enrolled in the course. Special emphasis is also given to developing vocabulary, comprehension, and study skills as well as to assessing pupil ability to read content material and to select suitable materials for instruction.

READ 30530: Teaching Reading to Students with Disabilities 3 s.h.
The primary purpose of the course is to present the philosophy of teaching reading to exceptional children along with the appropriate methods and materials. Major topics include the nature and needs of children who deviate from normal assessment of reading ability, emerging literacy, the role of parents and the child study team, intervention strategies, settings for instruction, word recognition, comprehension and study skill techniques appropriate for exceptional learners, adaptations of methods and materials, and organizational patterns. This course may not be offered annually.

READ 30535: Word Study: Phonics, Spelling, And Vocabulary Instruction 3 s.h.
This course develops understandings for teaching phonics, spelling, and vocabulary in integrated language arts classrooms. The importance of knowing what to teach and when is emphasized. Major topics include: the development of word knowledge from emergent literacy to adulthood, strategies for instruction, the role of assessment, and parental involvement.

READ 30545: Using Multicultural Literature In The K-12 Reading And Writing Classroom 3 s.h.
This course will focus on reading and actively engaging with a wide variety of multicultural texts for children and adolescents. Multicultural literature will be broadly defined to include an examination of difference that looks closely at those traditionally absent or marginalized in texts for young readers. Course readings will emphasize issues of selection versus censorship and the ability of multicultural literature to provide enjoyment while allowing for the development of cultural awareness/sensitivity.

READ 30550: Diagnosis Of Remedial Reading Problems 3 s.h.
Prerequisite(s): READ 30540 and READ 30535 andREAD 30530; Corequisite: READ 30560
Students in this course will become aware of the factors which influence reading achievement. They will learn to administer standardized and informal tests to individuals as well as to small groups. Furthermore, they will recognize the need to modify some procedures for exceptional learners. Throughout the course, the importance of on-going assessment will be emphasized. Finally, strategies for interpreting and reporting test results will be delineated. As a course requirement, students will administer selected tests to a student and summarize the results in a report.

READ 30560: Corrections Of Remedial Reading Problems 3 s.h.
Corerequisite: READ 30550 with minimum grade of B
Students in this course become aware of factors that are considered when planning instruction for readers experiencing difficulty. In planning lessons students design and adapt instructional materials, develop computer-based teaching strategies, and implement instructional procedures in an integrated language arts perspective. The course instructor supervises students as they use diagnostic teaching strategies to instruct remedial readers in field-based settings.

READ 30570: Clinical Experiences In Reading 6 s.h.
Prerequisite: READ 30560
Students plan and execute reading lessons for groups of remedial readers. They integrate the results of testing, observation and the assessment of reading-related factors in order to devise appropriate sequences of corrective instruction. Students select and use varied teaching strategies, including remedial techniques in order to adjust to the individual needs of their pupils. Following weekly observations, students discuss their performance with the instructor. During the seminar portion of the class, students learn to administer, interpret and evaluate diagnostic instruments. They are taught to use corrective procedures which integrate the language arts and utilize computers.

READ 30600: Reading Research Seminar II 3 s.h.
Prerequisite(s): READ 30570 and READ 30599
The most commonly used techniques employed in educational research are studied. Guided reading and discussion of research articles in reading education are provided. Research studies are analyzed and critiqued with special attention given to the methodology of the studies. Enrollment is limited to matriculated graduate students with permission of the graduate advisor.

SECD 03350: Teaching Students Of Linguistic And Cultural Diversity 1 s.h.
Corequisites: ECED 23446 and ECED 23447 or ELEM 02445 and ELEM 02448 or SECD 03435 and SECD 03436
The issues of inclusion form an integral part of a teacher preparation program. The schooling of all children demands that diversity in multiple forms be addressed in the inclusive classroom, including cultural and linguistic diversity. Knowledge about diversities and the performance of appropriate instructional strategies are emphasized in this course, and attention is directed to the sensitivity needed to assist the learning of students of linguistic and cultural diversity.

SMED 40450: Schools & Society: Foundations for Secondary Teaching 3 s.h.
This introductory course addresses a number of foundational questions in the field of education, including: Who goes to school and for what purposes? What is taught and who decides? How are schools organized and who funds them? How are schools different now than they were 100 years ago? What legal precedents and reform movements have shaped education today? How are schools in the United States similar to and different from those abroad?

SMED 40462: Clinical Practice I 3 s.h.
Corequisites: READ 30319 OR SELN 40477 OR SMED 51330 OR SMED 52330 OR SMED 50330
This course serves as the first semester of the yearlong residency required for BA Subject Matter Education teacher candidates. Each resident is placed in a middle or high school classroom during the Fall semester for an extended time, allowing for opportunities to apply pedagogy and principles from the co-requisite subject specific Teaching and Learning A course. This course is graded as Pass/No Credit, with a "Pass" indicating a grade of C- or better.

SMED 40463: Clinical Practice II 9 s.h.
Prerequisite: SMED 40462 AND Corequisites: SMED 52331 OR SMED 51331 OR SMED 50331
This is the second of the two field experiences required for candidates in the BA SME program. Continuing in their field placement from Clinical Practice I, candidates will attend their field placements 5 full days per week during the Spring semester, while taking the co-requisite subject Teaching and Learning B course. This course is graded as Pass/No Credit, with a "Pass" indicating a grade of C- or better.

SMED 40464: SME Professional Seminar 3 s.h.
Prerequisite: SMED 40462; Corequisite: SMED 50331 or or SMED 51331 or SMED 52331
This is a capstone course in the B.A. in Subject Matter Education program and will prepare candidates for their teaching positions by focusing on issues critical to new teachers. The course is designed to support candidates in their final transition from teacher candidate to teacher. Topics include understanding school climate, developing a professional development plan, and developing a plan for communicating with families.

SMED 50330: Teaching/Learning A: English Language Arts 3 s.h.
Prerequisite: C- or better in EDUC 01272
This first of two content-specific pedagogy courses, this one with a middle school emphasis, is designed for teacher candidates majoring in English and planning careers as K-12 English language arts teachers. In conjunction with a co-requisite practicum, the course includes building a functioning learning community, including English language arts pedagogy, national and New Jersey standards for English language arts, lesson and unit planning, classroom management, and attention to learning among the diverse populations who attend New Jersey schools.

SMED 50331: Teaching/Learning B: English Language Arts 3 s.h.
Prerequisite: SMED 50330; Corequisite: SECD 03332
This second of two content-specific pedagogy courses, this one with high school emphasis, is designed for teacher candidates majoring in English and planning careers as K-12 English language arts teachers. In conjunction with a co-requisite practicum, the course includes both campus and public school-based experiences dealing with a range of topics necessary to building a functioning learning community, including English language arts pedagogy, national and New Jersey standards for English language arts, lesson and unit planning, classroom management, and attention to learning among the diverse populations who attend New Jersey schools.

SMED 51330: Teaching/Learning A: World Languages 3 s.h.
Prerequisite: C- or better in EDUC 01272
This course is the first of two sequential junior level courses designed for the teacher candidate preparing to teach foreign languages K-12. The focus of this course is the instruction of students in grades K-8. The course treats a variety of topics essential to development of the knowledge, skills, and dispositions of the professional foreign language teacher, including second language acquisition, using the state and local standards to plan units and lessons, and contemporary instructional strategies. The course includes a public school field experience in an elementary or middle school.

SMED 51331: Teaching/Learning B: Foreign Language 3 s.h.
Prerequisites: SMED 51330 Minimum Grade of C
This course is the second of two sequential junior level courses designed for the teacher candidate preparing to teach foreign languages K-12. The focus of this course is the instruction of students from 9-12 grades. The course treats a variety of topics essential to development of the knowledge, skills, and dispositions of the professional foreign language teacher, including content planning and organization and contemporary instructional strategies. The course includes a public school field experiences in a middle or high school.

SMED 52330: Teaching/Learning A: Social Studies 3 s.h.
Prerequisite: C- or better in EDUC 01272
This first in a sequence of two three-credit courses is designed for students majoring in one of the social studies disciplines and planning careers as K-12 social studies teachers. Teacher candidates will learn to organize instructional materials into standards-based social studies units and daily lessons appropriate for the elementary and middle school grades. In conjunction with a co-requisite practicum, this course includes both community- and public school-based experiences dealing with a range of topics necessary to building a functioning learning community in social studies classrooms, including an introduction to theories of social studies education, standards-based lesson and unit planning, social studies pedagogy, classroom management, and learner diversity.

SMED 52331: Teaching/Learning B: Social Studies 3 s.h.
Prerequisite: SMED 52330 Minimum Grade of C; Corequisite: SECD 03332
This second in a sequence of two three-credit courses is designed for teacher candidates majoring in one of the social studies disciplines and planning careers as K-12 social studies teachers. Building upon understandings of elementary and middle-grade content and instructional planning as developed in Teaching and Learning A, teacher candidates will learn to create standards-based social studies units and daily lessons for the middle and/or high school grades. In conjunction with a co-requisite practicum, this course includes both community- and public school-based experiences dealing with a range of topics necessary to building a functioning learning community in social studies classrooms, including standards-based lesson and unit planning, social studies pedagogy, classroom management, learner diversity, and ongoing professional development.

SMED 60550: Schools & Society: Foundations for Secondary Teaching 3 s.h.
This introductory course addresses a number of foundational questions in the field of education, including: Who goes to school and for what purposes? What is taught and who decides? How are schools organized and who funds them? How are schools different now than they were 100 years ago? What legal precedents and reform movements have shaped education today? How are schools in the United States similar to and different from those abroad?

SMED 60562: Clinical Practice I 3 s.h.
Prerequisite: SMED 60553; Co-requisite: SMED 60560 OR READ 30520 OR SELN 60577
This course is the first of two state-mandated field experiences required for candidates in the MST Program. Candidates will attend their field placements 3 full days per week during the semester, while taking the co-requisite subjects Curriculum, Instruction, and Assessment I (SMED 60560), Content Area Literacy (READ 30520), and Effective Inclusive Instruction (SELN 60577). This course is graded as Pass/No Credit, with a "Pass" indicating a grade of C- or better.

SMED 60563: Clinical Practice II 9 s.h.
Prerequisite: SMED 60562; Co-requisite: SMED 60561
This is the second of the two state-mandated field experiences required for candidates in the MST program. Continuing in their field placement from Clinical Practice I, candidates will attend their field placements 5 full days per week during the semester, while taking the co-requisite subject Curriculum, Instruction, and Assessment II (SMED 60561).This course is graded as Pass/No Credit, with a "Pass" indicating a grade of C- or better.

SMED 60564: MST SME Professional Seminar 3 s.h.
Prerequisite: SMED 60.562 and Co-requisite: SMED 60.561
This is the capstone course in the MST SME and will prepare candidates for their teaching positions by focusing on issues critical to new teachers. The coures is designed to support candiddates in their final transition from teacher candidate to treacher. Topics include understanding school climate, developing a professional development plan, developing a plan for communicating with families, planning for the first six weeks (or unit) of schoiol, and preparing for a substitute teacher.

LAWJ 05116: Introduction To Corrections - Wi 3 s.h.
This course studies the historical development of correctional practices in the handling of criminals from early to modern times. Students survey contemporary correctional organizational structures and treatment processes, as well as institutional and community based programs and problems.

LAWJ 05120: Introduction To Security 3 s.h.
This course presents the organization and management of the security function in industry, business, government and institutions. It also covers the protection of personnel, facilities and other assets as well as the administrative, legal and technical problems of loss prevention and control.

LAWJ 05175: Survey Of Criminal Justice 3 s.h.
This general education approved social science elective course deals with the nature of crime and criminal responsibility, and elements of social control. It also surveys the criminal justice process from original law enforcement contact through the judicial and correctional phases. It includes professional roles and opportunities in the criminal justice field.

LAWJ 05200: Introduction To Corrections 3 s.h.
This course studies the historical development of correctional practices in the handling of criminals from early to modern times. Students survey contemporary correctional organized structures and treatment processes, as well as institutional and community based programs and problems.

LAWJ 05201: Introduction To Courts 3 s.h.
This course covers the organization of both the state and federal court systems; the management and administration of those courts; the relationship of courts to the police, corrections, and community; the criminal trial process, including pre-trial and post-trial processes; and the judiciary and judicial power, including the areas of separation of powers and judicial behavior.

LAWJ 05202: American Police 3 s.h.
This course covers the philosophy and history of the police role in society. It surveys organizational forms and basic procedures of police work; police ethics and professional preparation for law enforcement; and, major police problems confronting the police today.

LAWJ 05205: Minorities, Crime And Criminal Justice 3 s.h.
In this course students critically examine the involvement of minorities with crime in the U.S. both as perpetrators and victims. Additionally, they will be afforded the opportunity to understand, critically examine, and apply significant theoretical perspectives for the study of minority criminality. They will develop an understanding of the impact of race and class within the law-making process, the content of the law, and the quality of justice afforded minorities within the American criminal justice system.

LAWJ 05210: Restorative Justice 3 s.h.
This course surveys the major theoretical and applied concepts of Restorative and Community Justice. Students will examine how the Restorative and Community Justice processes differ from the traditional, retributive criminal justice system and how Restorative Justice models attempt to benefit the victim, offender and the community. Some of the issues to be covered are: informal justice practices, reintegrative shaming, forgiveness and resentment, and the efficacy of Restorative and Community Justice initiatives. Additionally, students may have opportunities to interact with adjudicated youth from New Jersey's Restorative Justice Project.

LAWJ 05220: Victimology 3 s.h.
This course gives students insight into the "forgotten" party in a crime, the victim. The course covers victims' rights in the Justice System with specific coverage of the following: the social, economic and racial impacts of crime on victims; victims and courts; police reaction to victims; restitution; offender accountability and the dramatic increase in victims programs and services.

LAWJ 05225: Media and Crime 3 s.h.
This undergraduate level course aims to provide students with an understanding of the role that media plays in our understanding of criminal justice problems and solutions as well as the role that popular media plays in the lif ecysle of criminal justice issues and policies. This course demostrates to students how the portrayal of crime and justice in the media has real and lasting impacts on the public's perception of crime, fear of crime, and attitudes toward the criminal justice system and thosse involved at all levels of the criminal justice system, as well as significant effects on criminal justice policy.

LAWJ 05229: Introduction to Gangs 3 s.h.
The course introduces students to the historical development of gangs in the United States and current violent gang subculture. Particular attention is placed on “super-gangs” (i.e., non-local gangs) and outlaw motorcycle clubs. The concept of hybrid gangs is also introduced and examined. The course examines the theoretical and empirical evidence surrounding the frequency, prevalence and causes of gang-related crime. The course also examines the effectiveness of formal and informal gang-suppression policies and programs.

LAWJ 05250: The Scholarship Of Criminal Justice 3 s.h.
This course is designed to augment required composition courses with a specific focus on writing within the discipline. The course is designed to prepare students to be more effective scholars in criminal justice in preparation for criminal justice research and other advanced law and justice courses.

LAWJ 05255: Criminal Law 3 s.h.
This course offers a comprehensive review of the major common law and statutory crimes including homicide, rape and all related personal and property offenses. The students will be introduced to domestic violence offenses. Considerable attention is given to the social, moral and constitutional frameworks of the criminal law with a review of recent and standard judicial interpretations. It also offers a review of defenses and mitigation.

LAWJ 05274: Criminal Justice And Community Relations 3 s.h.
This is a broad-based course on the relationship between the community and crime and the criminal. The course covers such topical areas as police-community relationships, the culture of the inner city, human service delivery systems, the role of citizen and business groups and the criminal justice system, and the various ways in which criminal justice agencies have an obligation to the community at large.

LAWJ 05276: Parole, Probation And Community Corrections 3 s.h.
A comprehensive review of the noninstitutional response to criminal behavior, this course covers probation, parole and community corrections in depth. It includes topics like work release, education release, half-way houses, drug and alcohol centers, legal aspects of these processes and the effectiveness of these programs.

LAWJ 05280: Homeland Security 3 s.h.
This course explores the development of homeland security and provides a foundational knowledge of homeland security definitions, trends and issues. Specifically, this course introduces the student to the legal foundations of homeland security, vulnerabilities, policy debates, and response and recovery. Students will gain knowledge of the actors, institutions and processes involved in homeland security decision-making. Finally, the course will introduce the current and future efforts of homeland security in the United States.

LAWJ 05285: Criminal Investigation 3 s.h.
Students study the criminal investigation process. Analysis of problems encountered in interviewing, interrogating and investigating is included. The course covers investigative techniques that may be applied to investigative problems and develops application of criminal investigation theories to the administration of justice.

LAWJ 05287: Police Use of Force 3 s.h.
This course will provide a framework to understand issues surrounding the lawful implementation of force by police personnel. Areas to be explored include a historical assessment of police use of force in the United States, state and federal legal constraints on police use of force, civil rights violations, analyses of statistical findings regarding police use of force, and a survey of ideas regarding increased professionalism and accountability in the lawful application of both deadly and non-deadly police force.

LAWJ 05288: Casino Crime 3 s.h.
This course explores the various criminal activities and regulatory violations that are unique to and/or facilitated by the cash rich environment which casinos provide. Not only are the overt crimes associated with gaming examined, but students will gain insights into aspects of white collar crime, terrorism, risk assessment and others. Further, students will understand the theoretical and contextual background of how to manage these crimes/violations. Additionally, the ideas of hospitality security, the oversight of state and local authorities, and how private corporations work with those agencies.

LAWJ 05290: Forensic Law 3 s.h.
This class offers a comprehensive analysis of legal issues involving forensic techniques in the justice systems. This course examines the importance of admissibility, relevance and materiality as it relates to the evidence and the various experts in Forensics. The topics include bloodstain patter and trace evidence, pathology and gunshot wounds, DNA fingerprinting, micrography, postmortem determinations and case studies in Forensic Science.

LAWJ 05295: Religion, Crime and Punishment 3 s.h.
This course provides an overview of how religion, faith and spirituality predicts and explains individual and community levels of criminality and deviant behavior and attitudes toward punishment of offenders. The course also delves into how religion, faith and spirituality affects forgiveness as well as the role of forgiveness, mercy and repentance within the criminal justice process. Overall, the course allows students to see how religiosity and religion is measured and how these correlate with criminality, deviant behavior, punitiveness and other measures related to crime, criminality and punishment.

LAWJ 05305: Law And Evidence 3 s.h.
This course covers the basic principles of criminal evidence, including burdens of proof, judicial notice, presumptions, testimonial privileges and hearsay; the rule of exclusion of evidence, confessions, identifications and electronic eavesdropping; and the use of physical and demonstrative evidence including fingerprints, exhibits, photographs, documents and writings, scientific evidence and the polygraph.

LAWJ 05310: Criminal Jurisprudence 3 s.h.
Students study the history and philosophy of modern criminal law. This course covers problems of contemporary jurisprudence and especially the typology of constitutional issues as it relates to due process and its requirements.

LAWJ 05312: Criminal Procedure II 3 s.h.
This course will examine the legal procedures by which the criminal justice system operates. Students will assess United States Supreme Court opinions so as to explore issues related to the Fourth, Fifth, Sixth, Eighthm, and Fourteenth Amendments to the Constitution, including pre-trial processes, speedy trial, the prosecution function, bail, the identification of suspects, the right to counsel, the adjudication process, the law of confessions and interrogation, and the privilege against compelled selp-incrimination. This course has two primary objectives. The first is to introduce students to the analysis of judicial opinions, a primary sourse of law in the American legal system. The second is to become familiar with both the fundamental doctrines of constitutional criminal procedure and the important policy issues that emanate therefrom.

LAWJ 05315: Criminal Justice And Social Conflict 3 s.h.
This course covers the major crises in our basic American institutions. Students examine the various aspects of social mobility, population explosion, social stratification, sex revolution, militarism, and the generation gap as they relate to problems of social justice in our society.

LAWJ 05320: Civil Aspects Of Law Enforcement 3 s.h.
Students undertake an analysis of those areas in civil law with which law enforcement professionals frequently encounter. Topics include family law, torts, administrative and environmental issues, property disputes, liens, business and consumer transactions.

LAWJ 05322: Drugs And Crime In America 3 s.h.
This course explores and analyzes the relationship between illegal drugs and crime and all the relevant issues and ramifications. These include, but are not limited to: national and international trafficking, control of the problem, legalization, and explanations for drug use.

LAWJ 05323: Maritime Crime And Criminality 3 s.h.
The course is designed to give the students a broad survey of the myriad issues surrounding crime in the maritime environment. The course examines the macro and micro factors surrounding deviant behavior that takes place either on the seas or where the seas are a principle component to the criminal enterprise. Some of the main areas of study include, but are not limited to: contemporary and early piracy, criminal and corporate negligence within commercial shipping, admiralty law, marine pollution, illegal commercial fishing, marine insurance fraud, drug and human trafficking, and analysis of state recreational and commercial vessel laws and policies. Using policy analysis and criminological theory we explore the underlying causes of maritime crime and policy responses to maritime crime.

LAWJ 05324: Sentencing And The Rights Of The Convicted 3 s.h.
Students explore, analyze, and critique the relevant structures, processes, and impacts of criminal sentencing and sentences. The course is designed to examine critically the relevant political, philosophical and social driving forces of change and their impacts on the system and society.

LAWJ 05325: Comparative And International Criminal Justice 3 s.h.
The course is an introduction to comparative and international criminal justice. It compares the criminal justice system in the Unit States with other national systems in the five continents and major regions of the world. Areas examined include crime, criminal law, policing, court processes, and corrections. This course also provides an introduction to the globalization of crime including terrorism, drug trafficking, human smuggling, and war crimes and the development of domestic and international efforts in fighting these crimes. The goal of this course is to help students develop comparative and international perspectives in addressing problems facing the criminal justice system.

LAWJ 05326: International Terrorism 3 s.h.
This course explores the historical development of international terrorism and provides a foundational knowledge of current terrorist groups and their tactics. Specifically, this course introduces the student to the definition, origin, and evolution of international terrorism; the roles of world-views, ideologies, mind sets, and motivations; and the different types of terrorism. Students will also study the organization, tactics, operational capabilities and threats posed by terrorist groups. Finally, the course will introduce the current status of anit- and counterterrorism efforts in the United States.

LAWJ 05327: Terrorism in the U.S. 3 s.h.
This course will introduce students to the phenomena of contemporary terrorism and extremism in the U.S. Emphasis will be placed on extremism as a foundation for terrorist behavior, types of terrorism, and how governments and law enforcement agencies respond to terrorism. In light of domestic terrorist incidents in Oklahoma City and Fort Hood, and international terrorist incidents occurring on U.S. soil such as the tragedy of September 11, 2001, as well as domestic hate crimes, the course will also weave a thread of extremist literature and perspectives throughout the semester. The role of law enforcement and other public administrative agencies will also be highlighted.

LAWJ 05329: Intelligence, Policing, and Counterterrorism 3 s.h.
This course will examine the role of local police in the war on terror within the operations of local, state and federal law enforcement practices and procedures in response to terror attacks and the threat of terrorism. Addressing issues, such as, homeland security planning, information gathering, intelligence analysis and surveillance.

LAWJ 05330: Problems In World Justice 3 s.h.
This multidisciplinary course examines the principles of justice and their application to the criminal justice system and society at large. Additionally, a critical examination of significant issues and concerns of world justice will be offered.

LAWJ 05335: Criminal Procedure I 3 s.h.
This course will examine the legal procedures by which the criminal justice system operates. Students will assess United States Supreme Court opinions so as to explore issues related to the Fourth Amendment to the Constitution, including search and seizure of premises and persons, the arrest and detention of suspected criminals, and the remedies available for constitutional violations. This course has two primary objectives. The first is to introduce students to the analysis of judicial opinions, a primary sourse of law in the American legal system. The second is to become familiar with both the fundamental doctrines of constitutional criminal procedure and the important policy issues that emanate therefrom.

LAWJ 05337: Treatment Of The Offender 3 s.h.
This course covers the major therapeutic approaches to the correction of criminal and delinquent behavior and a review of processes and procedures of corrections and of research on the outcome of various treatment approaches. Students analyze the ethical and legal problems related to rehabilitation in a correctional setting.

LAWJ 05342: Counseling And Guidance Of The Offender 3 s.h.
A survey of basic principles and techniques of counseling of offenders, this course includes interviewing, case conferences, case histories, individual and group counseling, classification procedures, and team treatment participation.

LAWJ 05343: Offender Re-entry, Reintegration & Recidivism 3 s.h.
This course explores the importance of offender re-entry, the barriers to effective reintegration, and what "works and doesn't work" in reducing recidivism. This course will further examine the evolution and importance of classification and assessment instruments in the principles of offender classification. Specific attention will be given to specialized offender populations including sex offenders, substance users, juveniles, and female offenders, as well as the importance of implementing evidence based practices.

LAWJ 05346: Women, Crime And Criminal Justice 3 s.h.
This course covers the many facets of women, crime and criminal justice, including past and present trends of female crime along with its relationship to the three major components of the criminal justice system: police, courts and corrections. Furthermore, this course addresses gender as a significant variable in all aspects of society, both criminal and non-criminal.

LAWJ 05350: Mass Murder 3 s.h.
This course introduces students to the social phenomenon of multiple homicide and mass public shootings. It is designed to provide an advanced understanding of the scholarship in the field, including, but not limited to, the demographic and background characteristics of offenders and the causes, historical trends and spatial distributions of these crimes. The course will also address the methodological challenges to the empirical investigation of mass murder, such as how different definitions and data collection strategies may impact the validity of findings.

LAWJ 05356: Criminal Justice Internship I 3 to 6 s.h.
Prerequisites: COMP 01112 or HONR 01112
The course will remove the student from the academic theoretical classroom and place the student into a rich blend of practical field experiences in various criminal justice or similar agencies. The student must follow strict guidelines set forth to uphold University and agency rules, policies and expectations.

LAWJ 05357: Criminal Justice Internship II 3 s.h.
Prerequisites: COMP 01112 or HONR 01112
This course provides students with an additional opportunity to pursue practical or research experience in a criminal justice setting. Students may continue with a previously approved internship in a different area of criminal justice. This course is not to replace Criminal Justice Internship I (LAWJ 05356) but is intended to allow students additional opportunities for field experience. Students are advised to complete Criminal Justice Internship I (LAWJ 05356) prior to enrolling in this course. Students are also encouraged to discuss this course with the internship coordinator prior to enrolling.

LAWJ 05361: Introduction To Juvenile Justice 3 s.h.
This course covers the history and philosophy of the juvenile justice system, which includes the development of the system through the 19th and 20th centuries and the decisions rendered by the United States Supreme Court. The student also scrutinize the various steps in the police, courts and corrections stages of the juvenile justice system.

LAWJ 05364: Critical Issues in American Law Enforcement 3 s.h.
This course introduces students to the most topical issues in the law enforcement field today. Students are introduced the current and innovative law enforcement tactics and managerial philosophies including problem-oriented policing, hot spots policing and intelligence-led policing. The course focuses on understanding what "works" in policing to reduce crime and disorder while also considering potential negative side effects that different policing strategies may elicit. The course also covers topics such as the current trends in police technologies, the role of crime analysis in policing, police-community relations, police legitimacy and the use of force.

LAWJ 05367: Theories Of Justice 3 s.h.
This course covers the nature and varieties of justice, including numerous historical perspectives on justice and the relationship between justice and society.

LAWJ 05369: Theories Of Crime And Criminality 3 s.h.
Prerequisite(s): LAWJ 05175 and 6 credits of Law and Justice Courses
In this course students explore the extent of crime and delinquency in the United States and the full range of relevant theories of causation. They also synthesize and apply appropriate theories to such concepts and topics as race, social class, gangs, drugs, family, schools, and neighborhoods.

LAWJ 05370: Theories Of Crime And Criminality - Wi 3 s.h.
This is a writing intensive course in which students explore the extent of crime and delinquency in the United States and the full range of relevant theories of causation. They also synthesize and apply appropriate theories to such concepts and topics as race, social class, gangs, drugs, family, schools, and neighborhoods.

LAWJ 05379: The "Political Prisoner" 3 s.h.
This course examines the causes and significance of the political prisoner concept on the criminal justice system generally and the U.S. prison systems specifically. The course deals with varying perceptions of different segments of the population about the existence and scope of this phenomenon in depth.

LAWJ 05380: Criminal Justice Research 3 s.h.
Prerequisites: LAWJ 05369
Students study the basic principles of research and statistics. This course undertakes a review of contemporary criminal justice research projects, emphasizing evaluation of journal studies and basic planning and writing of the research paper.

LAWJ 05381: Crime Mapping and Crime Analysis I 3 s.h.
This course introduces students to the fundamentals of crime mapping and crime analysis. This hands on course teaches students how to use databases, spreadsheets and other tools to analyze crime, produce crime analysis products for police commanders and how to effectively communicate analysis results to decision-makers. Emphasis is placed on using the analyses that are learned to influence the thinking of police decision-makers so that they can implement effective responses to crime and disorder problems.

LAWJ 05382: Crime Mapping and Crime Analysis II 3 s.h.
Prerequisite(s): LAWJ 05381 and GEOG 16260 or GEOG 16260 (may be taken concurrently)
This course teaches students advanced crime analysis methods. This course builds on the skills acquired in Crime Mapping and Crime Analysis I. This hands on course teaches students how to operate a Geographic Information System (GIS) to produce crime maps and analyze geographic crime data. Emphasis is placed on using the analyses that are learned to influence the thinking of police decision-makers so that they can implement effective responses to crime and disorder problems.

LAWJ 05392: Criminal Justice Administration 3 s.h.
This course provides upper level students with the concepts, theories, and principles of managing and administering criminal justice organizations. The content of the course is applied to police, courts, and corrections agencies and gives the student a total system approach to the subject.

LAWJ 05395: The Incarceration Experience 3 s.h.
This course focuses on the exploration of various aspects of incarcerating criminals. It includes the history of incarceration, the prisonization process, prison subcultures, violence and victimization, and the underground prison economy.

LAWJ 05399: Crime Prevention Analysis 3 s.h.
This course will examine crime prevention strategies, emphasizing situational crime prevention approaches. We will concentrate on theories that are inextricably linked to crime prevention practices such as lifestyle, rational choice, and routine activities theories. Using a case study approach, the student will learn a variety of tools for analyzing crime patterns, developing appropriate prevention responses, and evaluating the effectiveness of the crime prevention technique employed.

LAWJ 05401: Law And Human Rights 3 s.h.
Prerequisite(s): LAWJ 05175 and 6 credits of Law and Justice Courses
This course reviews individual civil rights and liberties in detail with a particular emphasis on federal-state legislation on discrimination, substantive and procedural due process materials and 1st amendment problems. Specific attention is given to the role police, courts and correctional systems play in the enforcement and enhancement of such rights.

LAWJ 05415: Selected Topics In Criminal Justice 3 s.h.
This course promotes intensive research and analysis in Special Topics in Criminal Justice. Students engage in either theoretical or applied research in topics that can be mutually agreed upon between faculty and student. Topics will vary but may include female criminality, XYY theory, insanity, mental health and the justice systems, advanced security systems or radical criminology.

LAWJ 05461: Seminar In Corrections-Wi 3 s.h.
Prerequisites: LAWJ 05175, LAWJ 05255, LAWJ 05380 andone of: LAWJ 05200, LAWJ 05201, or LAWJ 05202

LAWJ 05465: Seminar Is Social Justice- Wi 3 s.h.
Prerequisites: LAWJ 05175, LAWJ 05255, LAWJ 05380 andone of: LAWJ 05200, LAWJ 05201, or LAWJ 05202
This seminar is a capstone experience offering in particular depth a number of special areas concerning social justice. The student will engage in class discussions, conduct research, write papers, and participate in problem solving examinations, all of which will be centered around a variety of aspects of social justice.

LAWJ 05467: Seminar In Law - Wi 3 s.h.
Prerequisites: LAWJ 05175, LAWJ 05255, LAWJ 05380 andone of: LAWJ 05200, LAWJ 05201, or LAWJ 05202
This seminar is a capstone experience offering in particular depth a number of special areas concerning law and the court system. The student will engage in class discussions, conduct research, write papers, and participate in problem solving examinations, all of which will be centered around a variety of aspects of the law/court process.

LAWJ 05468: Seminar In Police Science - WI 3 s.h.
Prerequisites: LAWJ 05175, LAWJ 05255, LAWJ 05380 andone of: LAWJ 05200, LAWJ 05201, or LAWJ 05202
This seminar covers a wide variety of police science topics, including constitutional review and police process, investigation and forensic problems, special problems in the criminal law and its enforcement, and any other appropriate senior level topics in police studies. Students are expected to participate in a research paper, design, or project and to present oral presentations.

LAWJ 05469: Seminar In Law/Justice - Wi 3 s.h.
Prerequisites: LAWJ 05175, LAWJ 05255, LAWJ 05380, one of: LAWJ 05200, LAWJ 05201, or LAWJ 05202 and senior standing.
This seminar will cover topics relating to how law and justice are put into practice by the police, courts, and corrections system. Important issues affecting society and the criminal justice system as a whole will be examined in depth. Students will be expected to read scholarly work exploring these issues; participate in class discussions; conduct library research; write short, informal memos and a senior level research paper; present oral reports on their research; and demonstrate their understanding of assigned readings and the research reported by classmates in a final examination.

LAWJ 05479: Seminar In Police Science - Wi 3 s.h.

BUS 01105: Business Perspectives 3 s.h.
Providing an overview of the business functions, students will explore the impact of acceleration of change and environment complexity on contemporary business organizations. This course will not meet any major requirement for majors offered by the Rohrer College of Business.

BUS 01600: Special Topics In Business Administration 3 to 6 s.h.
Students will study advanced level topics in specific disciplines as identified through participation in indepth seminars on topics to be determined by faculty in consultation with the Graduate Committee of the College of Business. Students will complete research or projects on specialized topics in various disciplines in Business Administration. Students may take each topic only once. This course may not be offered annually.

ENT 06110: Interdisciplinary Perspectives on Entrepreneurship 3 s.h.
This course provides students with an introduction to entrepreneurship. Students explore topics such as entrepreneurial mindset, business model innovation, social entrepreneurship, global problems and innovative solutions. Students walk away equipped to discuss and present business model fundamentals, ideate solutions, creatively solve problems, and develop basic prototypes.

ENT 06240: Entrepreneurship and Innovation 3 s.h.
Restriction: Freshman Classification Excluded
This course provides a broad framework for understanding the nature of entrepreneurship and the mindset of entrepreneurs. The course introduces students to the innovation and idea generation process and helps students determine the most desirable educational path for them to achieve their career goals.

ENT 06312: SCALING NEW VENTURES 3 s.h.
This course provides the student with insights into the development and growth of seed and early stage startup organizations. Active participation in the Rohrer New Venture Competition (NVC) and the Global Scaling Challenge (GSC) will be the primary basis of the learning process. Students will serve as consultants for clients that are New Venture organizations that have voluntarily elected to participate in the Rowan annual New Venture Competition and the Global Scaling Challenge.

ENT 06326: Entrepreneurship and Small Business Management 3 s.h.
Prerequisites: Junior standing, 57 credits required
This course provides complete coverage of entrepreneurial models of organization and decision making. Topics include making the decision to go into business, what to expect, and the areas of small business operations (finance, purchasing, production, and sales) and management (planning, organizing, directing, and controlling). Students will develop an entrepreneurial profile of an existing entrepreneur or do a preliminary feasibility analysis for a complete business plan for a business of their choice. This course will acquaint students with the opportunities and perils of starting and managing their own firms.

ENT 06327: Small and Family Business Venturing 3 s.h.
Prerequisites: Junior standing, 57 credits required
This course focuses on small and family ventures. A special focus is placed on understanding the systems on which these ventures are run as well as how these organizations can be built to scale. Through the college's Project Based Learning Initiative, students will work with live small businesses and/or family firms to help them either position their venture for growth or succession.

ENT 06328: Evaluating Franchising Opportunities 3 s.h.
Prerequisites: Junior standing, 57 credits required
This course is designed for students who are interested in learning about the opportunities and threats that abound in the modern world of franchising. Franchising is pervasive in our economy. The practice spans virtually every retail and wholesale product category. The logic of this course is that franchising is one of the development models that minimize risk for the ¿small business¿ focused student. Many of these opportunities offer the chance for high incomes if the model is developed fully. Some franchising oriented people may want to start a franchise and grow it rapidly. This option is often a first step into business ownership for inexperienced owners.

ENT 06333: Special Topics in Entrepreneurship 0 to 6 s.h.
This course will allow students studying Entrepreneurship the opportunity to investigate specific topic areas within this discipline. The course will be made up of lectures, class discussions, and a variety of assignments involving entrepreneurship.

ENT 06342: Financing and Legal Aspects of Entrepreneurship 3 s.h.
Prerequisite(s): Junior standing (completion of 57 credit hours) and ENT 06240 or permission of instructor.
This course provides an overview of the legal and financing issues most frequently encountered by entrepreneurs and others involved by both new and growth oriented ventures. The course covers various aspects of financing an entrepreneurial venture, (venture capital, angel investors, banking, etc.), as well as various legal aspects, (entity selection, employment law, intellectual property, valuation, etc.).

ENT 06344: Global Entrepreneurship Growth Strategies 3 s.h.
Prerequisite(s): Junior standing (completion of 57 credit hours) and ENT 06240 or permission of instructor.
Through a global lens this course challenges students to develop a growth mindset. Students will learn how ventures, small and large, are capitalizing by expanding to service the global economy. Through a combination of cases, guest speakers, learning journeys, and multimedia tools, students will gain a firsthand look at entrepreneurship in the global environment.

ENT 06346: Social Entrepreneurship 3 s.h.
Prerequisites: Junior standing, 57 credits required
The Social Entrepreneurship course provides a broad theoretical perspective and practical framework for understanding social entrepreneurs and the social ventures they create ranging from local social organizations to large international social ventures leading global change. The course introduces students to the possibilities of social entrepreneurship and an introduction to the entire social venture creation process and life cycle.

ENT 06361: Supervised Internship in Entrepreneurship 3 s.h.
This course prepares students to become entrepreneurs through internships in which they engage in entrepreneurial activities under the supervision of business, industry, or non-profit managers or entrepreneurs. Interns are given assignments that prepare them for productive employment upon graduation. The learning process is monitored by the College of Business faculty members.

ENT 06415: Entrepreneurship Capstone 3 s.h.
Prerequisites: Entrepreneurship major or minor Senior standing, and ENT 06426 New Venture Development OR permission of instructor
This capstone course for entrepreneurship majors and minors is run using a live field consulting model where students work toward the launch of a new venture, scaling of an existing venture, or entrance into a new industry. Students will be interact with multiple serial entrepreneurs and receive faculty mentorship advance their projects forward. The course is highly individualized, hands on and experiential. Students should expect to be pushed outside of comfort zones and challenged to be bold.

ENT 06426: New Venture Development 3 s.h.
Prerequisite(s): Junior standing (completion of 57 credit hours) and ENT 06240, or permission of instructor.
This course focuses on the business model components that drive new ventures. Students participate in in-depth customer discovery, market and industry research, and financial modeling, all of which then aggregate into a more formal business plan or dossier.

ENT 06450: Technology Entrepreneurship 3 s.h.
Prerequisites: Junior standing, 57 credits required
This course provides the student with a strong foundation of what it takes to launch a technology based venture, (software programming, IoT, biomedical, autonomous vehicles, etc.). Topics include technology evaluation, prototyping, customer discovery, funding mechanisms, and intellectual property protection.

ENT 06505: Entrepreneurship And Innovation 3 s.h.
Prerequisites (effective Spring 2009): ACC 03500 andMGT 06502 and MKT 09500
This course provides a broad framework for understanding the nature of entrepreneurship in multiple organizational settings. The course introduces students to the innovation and idea generation process and helps students apply an alternative way of "thinking" to assist in solving difficult issues for government, business, and the non-profit sector.

ENT 06599: Special Topics In Entrepreneurship 0 to 6 s.h.
Students will study advanced level topics in Entrepreneurship. The exact topics will change over time to remain relevant as practices in industry and markets evolve. Contact the MBA office for additional details.

HRM 06302: Management of Human Resources 3 s.h.
Prerequisite: Junior standing 57 credits required
This course examines the human resource management system: staffing and organization, recruitment, employee development, motivation, performance evaluation, management-labor relations, remuneration and security.

HRM 06315: Recruitment and Selection 3 s.h.
Prerequisite: HRM 06302 or PSY 08220
This course focuses on the human resource recruitment and selection functions of organizations. Topics covered include recruitment, organizational chocie, validation, interviewing, and testing. Both the theoretical foundations fo the recruitment and selection functions as well as the practical application of these activites are presented.

HRM 06318: Human Resource Information Systems 3 s.h.
Prerequisite: MIS 02334 or HRM 06302 or PSY 08220
This course will provide students with a working knowledge of the structure, use, and evaluation of human resource information systems

HRM 06319: Special Topics in Human Resource Management 3 s.h.
Prerequisite: Junior standing, 57 credits required
This course presents human resource management topics related to recent development in HRM practice and research.

HRM 06420: Principles of Training and Training Management 3 s.h.
Prerequisite(s): MGT 06300 or HRM 06302 or PSY 08220 or FNDS 21230 and Admission to any Business major or the Human Resource Management minor or CUGS in Training and Development
This course will expose students to various theories and methodologies used to plan, design, conduct and evaluate training and management development programs in organizations. The learning experience within the course is designed to provide the student with the knowledge, information and skills required to develop and implement a training program. The course material offers a practical ¿how-to¿ approach to training and development, as well as managing the training function. Each student in the course will participate in the development of a training program or module, which will be presented and critiqued at the end of the semester.

HRM 06425: Management of Compensation 3 s.h.
Prerequisite: HRM 06302 or PSY 08220
This course will expose students to various theories and methodologies used to plan, design, conduct and evaluate training and management development programs in organizations. The learning experience within the course is designed to provide the student with the knowledge, information and skills required to develop and implement a training program. The course material offers a practical ¿how-to¿ approach to training and development, as well as managing the training function. Each student in the course will participate in the development of a training program or module, which will be presented and critiqued at the end of the semester.

HRM 16401: Labor and Employee Relations 3 s.h.
Prerequisites: HRM 06302 or PSY 08220
This advanced course studies union-management relations. The course provides students with the essentials of labor law, collective bargaining, contract administration, and dispute settlement. The course uses case studies and simulations extensively.

HRM 98335: Legal Aspects of Human Resource Management 3 s.h.
Prerequisites: MGT 98242 and (HRM 06302 or PSY 08220)
This course introduces students to three areas of human resources management which are extensively regulated by federal and state legislation. Legislation studied includes the Occupational Safety and Health Act (OSHA), the Equal Employment Opportunity Act (EEO), and the Employee Retirement Income Security Act (ERISA). The course emphasizes practical applications to the human resource function.

HRM 98337: Legal Aspects of Human Resource Management (Wi) 3 s.h.
Prerequisites: MGT 98242 and (HRM 06302 or PSY 08220)
This course introduces students to three areas of human resources management which are extensively regulated by federal and state legislation. Legislation studied includes the Occupational Safety and Health Act (OSHA), the Equal Employment Opportunity Act (EEO), and the Employee Retirement Income Security Act (ERISA). The course emphasizes practical applications to the human resource function.

MGT 01414: Global Business Simulation 3 s.h.
Prerequisite(s): Senior standing plus matriculation in the Global Business and Leadership specialization of the BS in Business
This course is designed to provide students with the opportunity to experience many of the problems of risk and uncertainty that managers face when making decisions in global business environments. Students work in teams while managing a simulated corporation in a highly competitive business environment. Students are challenged to use and improve their business and leadership skills utilizing knowledge from previous global business courses.

MGT 01510: Professional, Legal and Managerial Responsibilities 3 s.h.
Admission into the MBA program or admission into the COGS in Business.
In that business leaders have become personally and professionally responsible for the legal and ethical behaviors of the individuals within their organizations, the need for formal training in ethical and legal decision making is essential. In this course students will learn how to effectively apply a variety of legal and ethical frameworks within the global marketplace. Students will also learn appropriate and effective legal and ethical issue reporting practices, principles and responsibilities.

MGT 06123: Introductory Management Perspectives for the 21st Century 3 s.h.
Prerequisites: Freshmen enrolled in a major offered by the Department of Management and Entrepreneurship or Permission of the College
The objective of this course is to have students explore current theory, practices, and issues in management from the perspective of the management functions of planning, organizing, leading, controlling, and monitoring.

MGT 06222: Introduction to Sports Management 3 s.h.
The emphasis of this new course will be on core management principles and their application in a sporting context. Particular emphasis will be on the conceptualization of sport strategic planning, sport organizational culture, sport organizational structure, sport human resource management, sport leadership, sport governance, sport financial management, sport marketing, sport performance management, sport management theory, sport media, and the effective and efficient manager in a sport organizations or industry.

MGT 06300: Organizational Behavior 3 s.h.
Prerequisite(s): Junior standing
This course examines human relations in management. The course studies the concern for both task and process in the light of structure, goals and human relationships found in organized efforts. It also covers the application of new management theories in the areas of motivation, leadership and group problem-solving by a variety of means, including simulation, case studies, and role playing.

MGT 06304: Organizational Change and Development 3 s.h.
Prerequisite(s): MGT 06300 or PSY 08220 or CMS 04260 and Admission to any Business major or CUGS in Management & Leadership or CUGS in Training & Development
This course studies factors that facilitate or inhibit organizational change as well as research findings and theory which deal with methods for diagnosing organizational climate, and selecting and utilizing techniques for bringing about change and overcoming resistance to change. It also analyzes and evaluates roles and strategies used by change agents to initiate structure and direct organizational change.

MGT 06305: Operations Management 3 s.h.
Prerequisites: Grades of C- or better in: STAT 02260 and(MATH 01130 or MATH 03125 or MATH 01140)
This course provides a critical study of the operational functions of the business enterprise. Its topics include capital costs and investment criteria, plant location and layout, process planning and production design, job designs, work methods and cost controls.

MGT 06309: Organizational Behavior (Wi) 3 s.h.
Prerequisites: COMP 01112 and 57 credits required
This course examines human relations in management. The course studies the concern for both task and process in the light of structure, goals and human relationships found in organized efforts. It also covers the application of new management theories in the areas of motivation, leadership and group problem-solving by a variety of means, including simulation, case studies, and role playing.

MGT 06310: Leadership and Supervision for Managers 3 s.h.
Prerequisite(s): MGT 06300 and Admission to the Management major or CUGS in Management and Leadership
The course is designed for undergraduate business students. Course content will cover the theories of business leadership and supervision- with the focus on first line supervisors. Students will focus on the theory and acquisition of various business leadership and supervisory tasks and skills necessary to work with other business managers in a global market world and to supervise workers with diverse backgrounds. These business skills will include establishing workplace goals, organizing work units for productivity, conducting interviews, giving feedback to subordinate employees, designing and implementing employee motivation programs, and supervising workteams. By the end of the course, students will be able to effectively diagnose the complex dynamics of leadership and supervision in business environments and take action as leaders and supervisors to improve individual and organization performance.

MGT 06311: Foundations of Analytics 3 s.h.
Prerequisite(s): STAT 02260 and (MATH 03125 or MATH 01130) and Admission to the Management major or CUGS in Business Analytics
The course introduces students with fundamental concepts and tools needed to understand the emerging role of business analytics in organizations and to effectively use analytical tools in business decision making. It takes a balanced approach in viewing business analytics from descriptive, predictive, and prescriptive perspectives.

MGT 06312: Selected Topics in Management I 3 s.h.
Prerequisites: 45 credits required
The course will provide students with the opportunity to learn about and respond to situations which are causing changes in the current business environment. Students will collect business information about the change and analyze it, make business decisions, discuss implementation of these decisions, and modification of those decisions in these situations. Students will also have the opportunity to become thoroughly familiar with all of the business aspects of the industries in South Jersey in which most of them will be employed.

MGT 06313: Selected Topics in Management II 3 s.h.
Prerequisites: 45 credits required
The course will provide students with the opportunity to become thoroughly familiar with all of the business aspects of the industries in the local economic environment in which most of them will be employed. Students will become knowledgeable about a specific industry in the multiple business facets of accoutint, finance, human resources, use of information systems, facilities, etc. Industries can include the gaming and hospitality industries, the manufacturing sector, the health-care industry.

MGT 06321: Managing Teams in Organizations 3 s.h.
Prerequisite: MGT 06300
This course is designed for undergraduate students in the Management program. Course content will cover the theories of teamwork, team development, team dynamic, team creativity, team decision making, team productivity, team communication, team performance, team evaluation, team feedback and team leadership in business. By the end of the course, students will be able to effectively diagnose the complex dynamics of team leadership in business organizational environments and take action as team members and team leaders to improve industry or business organizations.

MGT 06330: Managing International Business 3 s.h.
Prerequisites: MGT 06300, ECON 04101 and ECON 04102
Students will learn about the evolution and current environment for international trade and investment and understand the challenges and issues facing business organizations with international operations. They will apply these insights to the analysis of actual business decision-making situations by means of case studies and research projects.

MGT 06350: Analytics for Quality Management 3 s.h.
Prerequisite: STAT 02260
The course is about building organizations that are continuously trying to achieve and sustain organizational excellence by using quality management principles, tools, and paradigms. This course will aim to improve the vitality of organizations to make them customer focused. The focus is on developing and implementing behavioral and quantitative tools to deliver the "best net value" to customers. In this course, students will investigate the aspects of forming organizational alliances and consensus thinking; deriving functional synergies; using quality analytics such as Six Sigma, Design of Experiment, Control Charts, etc.; developing customer orientation, facilitating teamwork, and will be exposed to a real-world perspective.

MGT 06354: Managerial Data Analysis 3 s.h.
Prerequisites: MATH 03125, STAT 02260 and 57 credits required
This course is designed to acquaint management students with the knowledge to collect and analyze business information from a variety of sources and under various conditions of uncertainty in order to analyze this data in order to increase the productivity and effectiveness of the businesses by which they are employed. The focus is placed upon the ability to collect relevant business data and report the findings of their analysis in order that the findings may be applied in specific business situations. The emphasis will be on the use of realistic business data, business analysis processes, business applications, and business reporting techniques.

MGT 06361: Supervised Internship 3 to 6 s.h.
Prerequisites: MGT 06300 and 57 credits required
This course includes field experience in government, business, industry or non-profit organizations. Trainees are given assignments that prepare them for productive employment upon graduation. The learning process is monitored by the College of Business faculty members.

MGT 06375: Managing Services 3 s.h.
Prerequisites: MGT 06304 and MGT 06309
This course is oriented to service industries, such as medical services, financial institutions, airlines, transportation companies and retail establishments. The course covers understanding services, designing and delivering services, managing capacity and demand, service quality, customer service, human resources in service organizations, information systems and service strategies.

MGT 06381: Sustainable Business 3 s.h.
Must be a junior or senior (this requirement may be waived with the permission of the instructor).
Students will examine the notion of "sustainable business" in this course. Students will learn about different types of 'green' and sustainable businesses and evaluate many case studies of businesses that have been successful in improving their environmental and social performance while also remaining profitable. Students will develop their own approaches to evaluating the sustainability of a business while also learning about emerging norms and frameworks. Students will examine sustainability as a concept impacting all aspects of a business, from operations and product design to finance, marketing, and human resources management. Students will continue to develop entrepreneurial skillsets and mindsets as they approach solutions to sustainability challenges. The impacts of "green" industries, products, and business practices are also examined. This course may be offered online.

MGT 06401: Independent Study - Management 1 to 6 s.h.

MGT 06402: Business Policy 3 s.h.
Prerequisites: MIS 02334 and MGT 98242, MKT 0920 0, MGT 06300, MGT 06305, FIN 04300 and Senior Standing
This capstone course in business policy provides students with an opportunity to integrate what they have learned in separate business fields and use this knowledge in the analysis of complex business problems. There is an emphasis on the skills of identifying, analyzing and solving problems which are not pre-judged as being marketing problems, finance problems, etc. Students are encouraged to consider issues from the viewpoint of general management rather than as a functional specialist or researcher.

MGT 06404: Quality Management 3 s.h.
Prerequisites: MGT 06305 and 57 credits required
This course is designed to acquaint students with a fundamental knowledge of the principals and techniques of quality management and operational control. Emphasis will be given to systems and the function of quality, technical methods and tools used in quality management, quality improvement and problem solving, and managerial issues of quality management as a new paradigm. Practical application with actual case studies for both product- and service-oriented fields will be provided.

MGT 06405: Business Management Simulation 3 s.h.
Prerequisites: FIN 04300, MKT 09200, MGT 06310, MGT 06311,MGT 06330 and WA 01408
This course is designed to provide students with the opportunity to experience many of the problems of risk and uncertainty that managers face when making decisions in the real world. Students work in teams while managing a computer simulated corporation in a highly competitive international business environment. Students are challenged to use and improve their business and leadership skills utilizing knowledge from previous business courses.

MGT 06406: Improving Business Processes 3 s.h.
Prerequisite: MGT 06305
This course introduces the fundamental Lean Six Sigma principles that underlay modern continuous improvement approaches for industry, government and other organizations. Lean emerged from the Japanese automotive industry, and is focused on the creation of value through the relentless elimination of waste. Six Sigma is a quality system developed at Motorola which focuses on elimination of variation from all processes. The basic principles have been applied to a wide range of organizations and sectors to improve quality, productivity, customer satisfaction, employee satisfaction, time-to-market and financial performance.

MGT 06407: Business Analytics 3 s.h.
Prerequisites: MGT 06305 and MIS 02234
This course provides an introduction to the field of business analytics, which has been defined as the extensive use of business data, analytical tools, exploratory and predictive skills, and fact-based management to drive decisions and actions. The development and usse of business analytics is discussed. This course will use Enterprise Resource Planning systems as a platform to retrieve the data and draw meaningful information for business analytics.

MGT 06408: Visual Business Intelligence 3 s.h.
Prerequisite(s): MGT 06305 and MIS 02234 and Admission to any Business major or CUGS in Business Analytics
Thanks to the increasing amount of valuable data in every corner of our society, the visualization industry is growing rapidly and visual business intelligence is becoming a crucial skill for knowledge workers. Effective analysis of data through visualization will become more and more crucial because it is almost impossible to understand big, messy data without any visual aid. This course will explore effective ways of consuming business data by looking back at the history of visualization, by analyzing and criticizing existing visualizations, and by applying our own visualization with data from business cases or a research problem.

MGT 06430: Business Field Research Experience 3 s.h.
Prerequisites: MGT 06305, and 57 credits required
Students will choose a business activity approved by their instructor and do an in-depth research study of that activity. It will include library research as well as interviews with local businesses. Students will be guided by the instructor with the help of a classroom component during which students will share their research and experience with other students.

MGT 06500: Designing, Developing, And Leading High Performance Organizations 3 s.h.
Students will study and develop skills in interpersonal behavior in organizations and groups. They will learn about issues in leadership, how groups function, elements of power and influence, conflict management, management of time and stress, creative and rational problem solving in groups. In addition, they will study theories of motivation and methods of empowerment in organizations.

MGT 06501: Advanced Operations Management And Strategy 3 s.h.
Prerequisite: MBA Foundation Courses
This course is designed to familiarize students with the complexities of operating a manufacturing, as well as a service, organization. The focus is primarily on gaining a competitive edge by improving functions of operations management. Concepts and tools pertaining to business forecasting, operations decision-making, resources allocation, location and capacity planning, inventory control and management, facility layouts, scheduling, project management, and quality control and management will be covered. Case studies and team projects will also be used to provide practical applications in a realistic business context.

MGT 06502: International Business And Society 3 s.h.
This course addresses numerous aspects of the increasingly global business environment and implications for business organizations and key stakeholders. Frameworks for comparing political, legal, social, economic, and governmental differences across nations are utilized. Macro issues include trade theories, trade regimes, roles of governments and global institutions. Strategies and structures adopted by various types of international firms and functional approaches to international finance, management, and marketing are also included.

MGT 06503: Organization Development 3 s.h.
Students study the application behavioral science in the management of planned organizational change and development. In addition to the analysis of issues facing the change agent, students also develop skills in implementing and intervening in the effort to improve organizational effectiveness. This course may not be offered annually.

MGT 06520: Global Leadership And Organization Culture 3 s.h.
The course is designed for graduate business students. Course content will cover the theories of business leadership and the focus of this course will be on leadership from a variety of perspectives--organizational leadership in the external environment, as well as leadership at the top, middle and lower levels inside organizations. Students will focus on the theory and implementation of various business leadership tasks and responsibilities including working with other leaders in a multinational world, supervising workers with diverse backgrounds. These business skills will include establishing workplace goals, organizing work units for productivity, conducting interviews, giving feedback to subordinate employees, designing and implementing employee motivation programs, changing organization culture, the capacity to lead globally, leading work teams and managing workforce diversity. By the end of the course, students will be able to effectively diagnose the complex dynamics of leadership in business environments and take action as leaders and to improve individual and organization performance.

MGT 06601: Strategic Planning For Operating Managers 3 s.h.
This course prepares the operating manager for the responsibilities of performing strategic planning. The course will identify what goes into and how strategic planning is performed. Strategy formation and evaluation will be assisted by computer decision models and management games. The interrelationships of organizational units and pro-active management posture with respect to environmental forces will be stressed. This course may not be offered annually.

MGT 06629: Managing Organizational Strategy 3 s.h.
Prerequisites: Completion or Concurrent with Financial Decision Making (FIN 04500) AND Designing, Developing and Leading High Performances Organizations (MGT 06500), International Business and Society (MGT 06502), AND Marketing Management (MKT 09500) OR Permissions of Instructor.
As understanding organizations in the context of their general and competitive environments is vital, future managers must learn how to utilize the perspectives and frameworks designed for strategic analyses and decision making. In this course students will learn how to conduct analyses across organizational functions and levels and effectively manage goals and strategies for different types of organizations.

MGT 07500: Prospective Analytics 3 s.h.
Prerequisite: Admission to the MBA program
Students in this course will learn knowledge and methods for prescriptive analytics that include optimization, decision-analysis, and simulation. These techniques and knowledge can be applied not only to improvement of operations but also healthcare and service industries. Prescriptive analytics is essential in guiding managers and business professionals to understand current and future situations and to derive concrete decision alternatives from the business data. Using a fundamental and applied methods in prescriptive analytics, the course charts a course for moving forward on the horizon of the immediate and long-term future.

MGT 07600: Predictive Analytics 3 s.h.
Prerequisite: Admission to the MBA program or CAGS in Management
This course is designed to acquaint the graduate student with the advanced statistical forecasting techniques. Upon completion of the course, the student should be able to identify a forecasting problem, gather data and use computerized statistical packages to obtain solutions, analyze results, determine the validity and reliability of the model, and if necessary, recommend alternative methods to solve the model. This course may not be offered annually.

MGT 98242: Legal Environment of Business 3 s.h.
Students in this course examine the legal process and the legal environment within which business must operate, as well as the interrelationship of government and business. Students develop an understanding of the methods by which legal decisions are formulated as they affect both individual rights and business transactions.

BUS 01303: Business Practicum 3 s.h.

BUS 01401: Issues in Business: Directed Research (WI) 3 s.h.
Pre-reqs: COMP 01.111, COMP 01112, BUS 01.101COLLEGE COMP 1 & 2 AND BUSINESS PERSPECTIVESOPEN ONLY TO LIBERAL STUDIES: HUMANITIES AND SOCIAL SCIENCEMAJORS
An upper-division course for students in Liberal Studies: Humanities & Social Sciences, Sequence B Perspectives of Business, Issues in Business: Directed Research is a course that focuses on the current issues and trends in business as found in the business media. The course is designed to allow students to explore areas of personal interest through the collection of research and the presentation of such material in written and spoken formats.

BUS 01444: Business Consultancy 3 s.h.
Prerequisite: MGT 06402 (Allows Concurrent Registration) AND Senior Standing
This elective, project-based course is designed as a multi-disciplinary course targeting the inclusion of a variety of disciplines with the goal of assisting organizations with a business problem while providing the students with the opportunity to develop a variety of diverse, career-ready skills. Students work in multi-disciplinary teams to consult with businesses in various projects. Client-team meetings occur regularly throughout the semester.

DA 01451: Risk Simulation Queuing 3 s.h.
Prerequisite(s): STAT 02260 and CS 01104 and CS 04210
This course covers three modeling techniques. Students will learn how to construct and implement simulations to model the uncertainty in decision input variables (e.g. price, demand, etc.) and supplement the overall estimate of interest by a risk interval of possible other outcomes using risk simulation, model the variability in arrivals over time and ensuing queues using queuing theory, and how to employ decision trees to incorporate information derived from models to actually make optimal decisions

DA 01453: Forecasting Analytics 3 s.h.
Prerequisite(s): STAT 02260 and CS 01104 and CS 04210
This course focuses on business forecasting methods: regression models, smoothing methods including Moving Average and Exponential Smoothing, and Autoregressive models. It also discusses enhancements such as second-layer models and ensembles, and various issues encountered in practice.

DA 01454: Customer and Client Analytics 3 s.h.
Prerequisite(s): STAT 02260 and CS 01104 and CS 04210
In this course students will work through a customer analytics project from beginning to end, using R. They will start by gaining an understanding of the problem and the context, and continue to clean, prepare and explore the relevant data. They'll work on feature engineering, handling dates, summarization, and how to work with the customer lifecycle concept in data analysis. The course culminates with a report that they will write, and a recommendation that they will prepare for a hypothetical company.

MIS 02150: Integrated Business Software Tools-RS 3 s.h.
Students will expand their use of integrated software tools that include database management systems, spreadsheets, and other business applications. They will apply these tools to actual business decision-making situations by means of case studies and research projects.

MIS 02210: Enterprise Resource Planning Systems Laboratory 1 s.h.
Prerequisite: MIS 02233
Students will learn the role of enterprise resource planning systems (ERPS) in supporting key business processes. There will be hands-on computer laboratory exercises where students will gain experience in executing key business processes using a simulated ERP environment.

MIS 02233: Principles Of Management Information Systems 3 s.h.
Prerequisite: Sophomore standing
Today, information systems are an integral part of all business activities and careers. This course is designed to introduce students to contemporary information systems and demonstrate how these systems are used throughout organizations. The course will focus on the key components of information systems - people, software, hardware, data, and telecommunications, and how these components can be integrated and managed to create competitive advantage. Students will also gain hands-on experience with business software tools commonly applied to business data analysis and database management.

MIS 02234: Management Information Systems 3 s.h.
Information systems are an integral part of all business activities and careers. This course is designed to introduce students to contemporary information systems and demonstrate how these systems are used throughout organizations. This course focuses on the key components of information systems - organizations, people, software, hardware, data, and telecommunications - and how these components can be integrated and managed to create competitive advantage. Students will gain hands-on experience with business software tools commonly applied to business data analysis and database management. It is expected that students entering this class have completed College Algebra or its equivalent.

MIS 02301: Emerging Technologies I 1 to 4 s.h.
Prerequisite: Permission of Instructor
As future business leaders, our students need to stay abreast of emerging technologies and the potential impact that technology might have on organizations. The purpose of this course is to provide students the opportunity to develop new knowledge/skills in emerging technologies. As such, course content will be determined at the time of offering. Specific prerequisites will also be determined based on the nature of the course content when it is announced.

MIS 02302: Emerging Technologies II 1 to 4 s.h.
Prerequisite: Permission of Instructor
As future business leaders, our students need to stay abreast of emerging technologies and the potential impact that technology might have on organizations. The purpose of this course is to provide students the opportunity to develop new knowledge/skills in emerging technologies. As such, course content will be determined at the time of offering. Specific prerequisites will also be determined based on the nature of the course content when it is announced.

MIS 02305: Business Applications of Blockchain 3 s.h.
This course surveys the application of blockchain technology across business functions in organizations. These uses span from digital currency to the execution of smart contracts. The versatility of the technology to control, secure, and execute transactions makes its use ubiquitous in the transformation of business processes.

MIS 02310: Integrated Business Processes & Enterprise Resource Planning 3 s.h.
Prerequisites: MIS 02210 OR MIS 02234, and Junior standing, major or minor in business.
Students will learn the various key business processes, the role of enterprise resource planning systems (ERPS) in integrating and supporting these processes, and the many challenges an organization faces during implementation and management of such systems. There will be key hands-on computer laboratory exercises where students wil gain experience in executing the key business steps and extracting meaningful information about the business processes using a well-regarded ERP software solution.

MIS 02315: Principles of Information Security 3 s.h.
Prerequisite: 60 credit hours completed
This course is designed to introduce students to the principals of information security and demonstrate how it can be used to reduce the risk of using information technology in business and our personal lives. The course will cover topics in information security such as policies, standards, best practices, risk management, legal and ethical security issues, and security of computer systems. In addition to reviewing the topic of information security, students will review real examples and case studies of common issues with information security. As a result, students will obtain valuable knowledge and skills for making their business and personal lives more secure.

MIS 02318: Information Systems Risk Management 3 s.h.
Pre-requisites: MIS 02315 or CS 01211
This course will provide students with a comprehensive understanding of how to identify and mitigate security risks within an organization's networks, systems, and data. Students will gain the skills needed to strategically lead an organization through the complexities of the information systems risk management landscape.

MIS 02320: Seminar In Management Information Systems 3 to 16 s.h.
Prerequisite: 57 credits completed
A seminar course providing a broad overview of information system management technology, this course emphasizes investigation and application of state-of-the-art concepts. Topics will be relevant to current trends in the industry.

MIS 02322: Principles Of System Design 3 s.h.
Prerequisite: 57 credits completed
This course explores the methodology and techniques in analysis and design of computer information systems. The systems analyst, the architect of information systems, is a liaison between user and programmer. The roles and responsibilities of the systems analyst are emphasized at all stages of the systems development life cycle.

MIS 02325: Project Management 3 s.h.
Prerequisite: 57 credits completed
In this course, students will learn the Project Management Body of Knowledge (PMBOK) as put forward by the professional association, the Project Management Institute (PMI). Students will not only study the various phases and documents of project management, they will also have experience creating each of the documents for a given project.

MIS 02327: Network Management 3 s.h.
Prerequisite: 57 credits completed
This course introduces students concepts associated with managing a network within a business setting. Furthermore, to solve business problems, students will apply theoretical concepts to fully design, specify, and justify networking solutions.

MIS 02330: Business Systems 3 s.h.
Prerequisites: 57 credits required
This course introduces students to the different tiers of an information system, with specific emphasis placed on design concepts and tools used to develop the presentation tier for web-enabled business information systems.

MIS 02331: Data Mining for Business 3 s.h.
This course introduces the basic concepts, principles, methods, implementation techniques, and applications of data mining, with a focus on practical skills for applying data mining techniques to solve real-world business problems.

MIS 02332: E-Business - Information Systems Perspectives 3 s.h.
Prerequisites: 57 credits required
Students will explore the issues involved in e-business from a business, technological and societal viewpoint. Topics will include: B2C and B2B e-business models and strategies, concepts for building an effective e-business site, e-business security and encryption, e-payment systems, legal, ethical and international issues in e-commerce.

MIS 02333: E-Business - Information Systems Perspectives - WI 3 s.h.
Prerequisites:COMP 01112 and Junior standing
Students will explore the issues involved in e-business from a business, technological and societal viewpoint. Topics will include: B2C and B2B e-business models and strategies, concepts for building an effective e-business site, e-business security and enctryption, e-payment systems, legal, ethical and international issues in e-commerce.

MIS 02337: Applied Database Technologies 3 s.h.
Prerequisite(s): Must be enrolled in the BA in Computing & Informatics Major or the CUGS in MIS; May not be enrolled as the following classifications: Freshman or Sophomore
This course covers the practical aspects of relational database systems, including database modeling using ER and EER diagrams, physical database design, the relational database query language SQL, normal forms, database integrity and transaction management. Includes a project involving an RDBMS.

MIS 02338: Design Of Database Systems 3 s.h.
Prerequisite: Junior standing and enrollment in MIS Major or MIS Minor or CUGS Business Analytics or CUGS Information Systems
This course covers the principles, practices, design, and development of database management systems (DBMS). More specifically, it focuses on logical modeling, physical data modeling, normalization, and database query languages. This course provides students with hands-on experience of designing, creating, and querying relational databases using a relational database management system (RDBMS) with emphasis on Structured Query Language (SQL) for data access and manipulation.

MIS 02339: Business Intelligence 3 s.h.
Prerequisite: MIS 02338 with Minimum Grade of C-
This course covers the concepts, principles, and tools of Business Intelligence (BI) as components and functionality of information systems. It explores how business problems can be solved effectively by using operational data to create Data Warehouses (DW) to gain new insights into organizational operations. More specifically, it introduces the approaches, roles and responsibilities in the design and implementation of a Data Warehouse. This course leverages a portfolio of SQL Server tools to provide hands-on experience in implementing a reporting solution through assignments, lab exercises and projects

MIS 02344: Supervised Internship In Management Information Systems 3 s.h.
Prerequisite: 57 credits completed

MIS 02428: Business Web Applications 3 s.h.
Prerequisites: Senior standing as a Rohrer Collegeof Business major or minor and have completed MIS 02330and have completed or be currently enrolled in MIS 02338
Students will use web development tools and technologies, including markup languages, scripting languages, programming languages, and databases, to create dynamic web applications that integrate the different tiers of a business information system.

MIS 02450: MIS Capstone Experience 3 s.h.
Prerequisite(s): Senior Standing as a MIS Major and have completed MIS 02322 AND MIS 02338 & have completed or be currently enrolled in MIS 02325
This course is an accumulative learning experience of the material covered in the MIS program and the introduction of IS strategy so that students can interpret the need to identify and solve business issues with technology. An integrated class project is used to understand the impact of information systems on organization objectives and business processes.

MIS 02500: Issues In Management Information Systems 3 s.h.
Prerequisite: Admission to the MBA Program oradmission to the COGS in Business oradmission to the COGS in MIS
Information technology and systems are pervasive in business today and will become more so in the future. Therefore, this course is designed to provide skills for managing this changing environment. The primary focus of the course is on the management of technology. The management of technology and systems is not left solely to information systems professionals; it is the responsibility of all managers.

MIS 02515: Electronic Commerce 3 s.h.
Prerequisite: Admission to the MBA Program or Admission to Certificate of Graduate Study (COGS) in MIS or Admission to Certificate of Advanced Graduate Study (CAGS) in MIS
This course will introduce students to electronic business. It will cover such diverse issues as: e-commerce payment mechanisms, encryption and authentication of data, web assurance, electronic data interchange, legal issues on the web, and web marketing. There will also be a lab component that will provide students with exposure to and practice in web page design and creation.

MIS 02526: Project Management For Engineers 3 s.h.
In this course, students will learn the Project Management Body of Knowledge (PMBOK) as put forward by the professional association, the Project Management Institute (PMI). Students will not only study the various phases and documents of project management, they will also have experience creating each of the documents for a given project.

MIS 02599: Special Topics In Management Information Systems 3 s.h.
Prerequisite(s): Admission to the MBA Program or Admission to Certificate of Graduate Study (COGS) in MIS or Admission to Certificate of Advanced Graduate Study (CAGS) in MIS
Students will study advanced level topics in Management Information Systems. The exact topics to be covered will change over time. Contact the MBA office or the Management and MIS Department for details.

MKT 09101: Marketing and the Business Environment - RS 3 s.h.
Prerequisite(s): No more than 12 earned semester hours (freshman standing) & Admitted to the Marketing, MIS, Supply Chain and Logistics majors or permission of the marketing department
A required course for freshman majoring in Marketing, MIS, or Supply Chain Logistics. This Rowan Seminar (RS) is designed to help students adjust to college, provides information needed to be a successful Rowan student, and introduces students to their chosen program of study. Upon completing the course, students will understand the current trends in business and scope of marketing in the modern business organizations. The course is limited to freshman students in the marketing major.

MKT 09112: MKBIS Engagement and Career Exploration 0 s.h.
Prerequisite: Admission into the Marketing, MIS,or Supply Chain & Logistics
This is a non-credit course that all Marketing, MIS and Supply Chain Logistics majors are enrolled in each semester. The course is graded on a Pass/No Credit basis. Each student will be required to complete a set of extracurricular activities in accordance with the program requirements.

MKT 09113: MKTBIS Engagement and Career Exploration 0 s.h.
Prequisite(s): Admission to Marketing, MIS or Supply Chain & Logistics
This is a non-credit course that all Marketing, MIS and Supply Chain & Logistics majors are enrolled in each semester. The course is graded on a Pass/No Credit basis. Each student will be required to complete a set of extracurricular activities in accordance with the program requirements.

MKT 09200: Principles Of Marketing 3 s.h.
Prerequisite(s): COMP 01105 or COMP 01111 and 12 Credits completed
This course provides an overview of the theory and practice of marketing within a corporate and societal context in a dynamic environment. The major functions of marketing are covered from the perspective of management strategy seeking competitive advantage.

MKT 09212: MKTBIS Engagement & Career Exporation 0 s.h.
Prerequisite: Admission to Marketing, MIS, or Supply Chain & Logistics
This is a non-credit course that all Marketing, MIS and Supply Chain & Logistics majors are enrolled in each semester. The course is graded on a Pass/No Credit basis. Each student will be required to complete a set of extracurricular activities in accordance with the program requirements.

MKT 09213: MKTBIS Engagement & Career Exporation 0 s.h.
Prerequisite: Admission to Marketing, MIS, or Supply Chain & Logistics
This is a non-credit course that all Marketing, MIS and Supply Chain & Logistics majors are enrolled in each semester. The course is graded on a Pass/No Credit basis. Each student will be required to complete a set of extracurricular activities in accordance with the program requirements.

MKT 09305: Digital Marketing 3 s.h.
Prerequisite(s): MKT 09200 and Junior status
This course examines the Internet and mobile devices as tools to enhance firms' marketing activities. The course provides the theoretical understanding of the internet and mobile marketplace necessary to adapt to its many changes and presents various online and mobile marketing skills to perform vital daily functions.

MKT 09312: MKTBIS Engagement & Career Exploration 0 s.h.
Prerequisite: Admission to Marketing, MIS, or Supply Chain & Logistics
This is a non-credit course that all Marketing, MIS and Supply Chain & Logistics majors are enrolled in each semester. The course is graded on a Pass/No Credit basis. Each student will be required to complete a set of extracurricular activities in accordance with the program requirements.

MKT 09313: MKTBIS Engagement & Career Exporation 0 s.h.
Prerequisite: Admission to Marketing, MIS, or Supply Chain & Logistics
This is a non-credit course that all Marketing, MIS and Supply Chain & Logistics majors are enrolled in each semester. The course is graded on a Pass/No Credit basis. Each student will be required to complete a set of extracurricular activities in accordance with the program requirements.

MKT 09315: Personal Selling 3 s.h.
Prerequisite(s): MKT 09200 and Junior status
This course examines the role of personal selling in the marketing mix. Students learn theory and gain practice in prospecting, presenting, overcoming objections, closing, and follow-up.

MKT 09330: Marketing Channels 3 s.h.
Prerequisite(s): MKT 09200 and Junior status
This course discusses how channels can be managed strategically to serve as a competitive advantage for the firm. Key topics include power and conflict within the channel, middlemen, vertical marketing systems and managing channel members.

MKT 09350: Management Of Advertising And Promotion 3 s.h.
Prerequisite(s): MKT 09200 and Senior status
A project-based learning course, students will learn how to create a promotion plan and apply that knowledge as part of a group serving a specific client. The course involves at least 6 weeks of extensive project/client work involving the meeting with clients and outside-of-class meetings with the instructor. The course is available to seniors only (87 or more completed semester hours).

MKT 09360: Services Marketing 3 s.h.
Prerequisite(s): MKT 09200 and Junior status
The course provides students with an understanding of the unique characteristics of services and the application of standard marketing tools in service marketing. It emphasizes consumer decision-making, marketing planning, and development of the marketing mix. Students will apply theoretical knowledge learned in class to real world case studies and projects.

MKT 09372: Retailing 3 s.h.
Prerequisite(s): MKT 09200 and Junior status
This course examines retailing as marketing distribution strategy. Specifically, the course focuses on the development and implementation of strategies and tactics in a highly competitive and changing environment. Projects and team-work are a key component of the course requiring students to engage in field study and report on the findings.

MKT 09374: Research Methods In Marketing 3 s.h.
Prerequisite(s): MKT 09200, STAT 02260 and 57 credits completed
This course focuses on the relevant methodologies and analytic tools that marketing researchers apply to obtain information for decision-making. Students are expected to get hands-on experience and develop proficiency in using primary and secondary sources of data.

MKT 09375: Business Logistics 3 s.h.
Prerequisite(s): MKT 09200 and Junior status orC918 Systems Engineering Concentration.
This course focuses on the logistics of physical distribution and supply chains. Topics include traffic routing, inventory analysis and control, warehousing, location of production and storage facilities, and transportation.

MKT 09376: Consumer Behavior 3 s.h.
Prerequisites: MKT 09200 with a minimum grade of C- and Junior status
This course analyzes both the societal norms and the internal processes which impact on the consumer's purchase decisions. How consumers process product information and make decisions is evaluated for strategic marketing implications.

MKT 09378: Product, Price, New Venture Management 3 s.h.
Prerequisite(s): MKT 09200 and 57 credits completed
In this course, students analyze new product development and new product management. The course covers idea screening, concept testing, new product evaluation, pricing theory and practice. Students study the use of marketing techniques, including advertising, promotion and pricing for each phase of the product life cycle.

MKT 09379: International Marketing 3 s.h.
Prerequisites: MKT 09200 with a minimum grade of C- and Junior status
Basic marketing concepts as they relate to foreign markets are analyzed in depth in this course. Two approaches are used: the environmental approach introduces the setting in which international marketing takes place; and the managerial approach incorporates marketing strategies of firms that choose to venture abroad.

MKT 09382: Sales Force Management 3 s.h.
Prerequisite(s): MKT 09200 and Junior status
From the viewpoint of a district manager, this course focuses on planning, directing, and controlling the marketing plan through a sales force. Topics include recruiting, selecting, training, motivating, and evaluating the sales force, as well as sales forecasting and time and territory management. Additionally, this course examines the role of personal selling in the marketing mix. Students learn theory and gain practice in prospecting, presenting, overcoming objections, closing and follow-up.

MKT 09384: Research Methods In Marketing-Wi 3 s.h.
Prerequisite(s): COMP 01112 & STAT 02260 & MKT 09200 with minimum grade of C- & Junior status
This course focuses on the relevant methodologies and analytic tools that marketing researchers apply to obtain information for decision-making. Students are expected to get hands-on experience and develop proficiency in using primary and secondary sources of data. Writing is an essential component of the course as students will learn to present the results of their data analysis in professional and understandable written form.

MKT 09386: The Marketing Plan 3 s.h.
Prerequisite(s): MKT 09200 and 6 s.h. of Upper Level Marketing Courses
The course is designed to provide students with a thorough understanding of the market planning process and the creation of the market plan. Students will be exposed to the use of market information, data analysis, and forecasting in the development of market plans. Case analysis and project-based learning will be utilized in order to provide students with hands-on experience.

MKT 09387: Supply Chain Planning 3 s.h.
Prerequisites: MKT 09375
The dynamic nature of consumer demand and dramatic advances in information technology make the supply chain planning critical to competitive success. The course is designed to assist students in developing the analytical skills necessary to manage the processes and functions existent in modern supply chains. This course focuses on several supply chain planning areas such as demand planning, replenishment planning, to name a few, and provide hands-on learning for how best to understand key tradeoffs and phenomena. Lectures, models, methods and computer exercises are used.

MKT 09388: Advanced Marketing Research Methods 3 s.h.
Prerequisite(s): MKT 09384, MIS 02234, Marketing major and Junior status
This course is a continuation of MKT 09384 Research Methods in Marketing. It extends students' understanding of the relevant marketing research methodologies and analytic tools through hands-on experience. Students will develop proficiency in using primary and secondary sources of data; the students will collect primary and secondary data, use statistical software (such as SPSS or SAS) to analyze data, and develop skills needed to present findings professionally. Particular emphasis will be given to the use of databases and data mining as a data collection strategy and the challenges such data collection strategies present.

MKT 09390: Selected Topics In Marketing 3 s.h.
Prerequisite(s): MKT 09200 and 57 credits completed
Students will investigate new areas and developments in theory, research and practice in Marketing. Specialized topics will vary each semester. Course activities will include in-depth study of current topics and preparation of case analyses and/or research papers. Students may consult with the department chair or the instructor for course details.

MKT 09391: Business To Business Marketing 3 s.h.
Prerequisite(s): MKT 09200 and Junior status
Students will investigate key concepts and strategic issues associated with marketing to business and organizational customers. Strategic differences between business and consumer marketing will be examined. Students will apply course concepts by means of analysis of case studies of actual decision situations.

MKT 09402: Marketing Consultancy 3 s.h.
Prerequisite(s): MKT 09384 and 6 semester hours of upper division marketing classes
This course provides the students with an opportunity to apply the skills and knowledge gained to solve real marketing challenges. Students work in small teams to consult with businesses in various marketing projects. They evaluate, plan, and design marketing plans by conducting research and analyzing data. Client-team meetings occur regularly throughout the semester.

MKT 09403: Strategic Marketing Management 3 s.h.
Prerequisite(s): 9 Earned Semester Hours of Upper Division Marketing Courses and 87 total Earned Semester Hours
Students will investigate the approaches and problems of developing marketing plans and marketing decision making under conditions of uncertainty. The course focuses on the major types of decisions facing marketing executives in their attempts to harmonize the objectives and resources of the firm with the opportunities in the market place.

MKT 09406: Strategic Supply Chain Management 3 s.h.
Prerequisite: MKT 09375
This course is the capstone experience for students majoring in Supply Chain & Logistics. The course utilizes the SAP software to provide students with a real-world experience in managing supply chains and developing competitive advantage through the effective development and maintenance of logistical systems.

MKT 09411: Supervised Internship In Marketing 3 s.h.
Prerequisite(s): 6 earned semester hours of upper division Marketing Courses and 60 credits completed.
This course is intended to provide students with actual business experience. Fieldwork is combined with reports and online discussion sessions in the classroom. Registration in the course and prior approval from the instructor are required.

MKT 09412: MKTBIS Engagement & Career Exporation 0 s.h.
Prerequisite: Admission to Marketing, MIS, or SupplyChain & Logistics
This is a non-credit course that all Marketing, MIS and Supply Chain & Logistics majors are enrolled in each semester. The course is graded on a Pass/No Credit basis. Each student will be required to complete a set of extracurricular activities in accordance with the program requirements.

MKT 09413: MKTBIS Engagement & Career Exploration 0 s.h.
Prerequisites: Admission to Marketing, MIS, or Supply Chain & Logistics
This is a non-credit course that all Marketing, MIS and Supply Chain & Logistics majors are enrolled in each semester. The course is graded on a Pass/No Credit basis. Each student will be required to complete a set of extracurricular activities in accordance with the program requirements.

MKT 09500: Marketing Management 3 s.h.
Prerequisite: MBA Foundation Courses
This course focuses on managing the marketing function in a dynamic, competitive environment in coordination with other organizational functions to enhance the overall performance of an organization. Attention will be devoted to the design of strategies for the achievement of competitive advantage in product/service offerings, pricing, promotion and distribution. Students will build upon their existing knowledge base of marketing concepts and will develop or extend competencies in analytical decision-making, ability to identify market opportunities, and ability to develop and evaluate

marketing plans.

MKT 09600: International Marketing 3 s.h.
Students will examine all issues facing marketing managers in the light of the unique challenges posed by the internationalization of the economy. The cultural, economic, political, and legal environment will be examined. Market research in world markets, the planning and development of consumer and industrial products, promotion, pricing and distribution will also be analyzed. This course may not be offered annually.

SCL 01320: Principles of Transportation 3 s.h.
Prerequisite: MKT 09375
This course is designed to assist students in developing the analytical skills necessary to manage the processes and functions existent in modern transportation networks. Using the Case Method and recommended textbook, students will analyze realistic situations and problems confronting transportation managers. Consequently, they will identify solutions and develop implementation plans for their recommended solutions. Cases for analysis and discussion will include topics such as transportation planning, traffic management, rail and air operations, and maritime operations.

SCL 01330: Warehousing 3 s.h.
Corequisite(s): MKT 09375
This course will familiarize students with the concept of warehousing and how warehousing can contribute in enhancing the performance of a supply chain. Specifically, the course will focus on topics like warehouse operations, warehouse management systems, material handling equipment, warehouse layout, and warehouse performance measurement.

SCL 01350: Procurement 3 s.h.
Prerequisite(s): MKT 09375 and Junior status
This course provides an in-depth analysis of the procurement process and supplier management, with strong emphasis placed on managing a supplier base for both products and services. Elements examined include the strategic role of procurement in supply chains, the identification and evaluation of requirements, the strategic make-versus-buy decision, how to identify, evaluate, and select potential suppliers and conduct a post-purchase evaluation; and the impact of information technology on strategic procurement. Both theoretical and quantitative perspectives will be offered. In addition, the topics will be addressed from strategic, financial, and global perspectives.

SCL 01380: Global Supply Chain 3 s.h.
Prerequisite: MKT 09375
The course is designed to assist students in developing the analytical skills necessary to manage the processes and functions existent in modern global supply chains. Using the case method and recommended textbook, students will analyze realistic situations and problems confronting supply chain managers in a global setting. They will also identify solutions and develop implementation plans for their recommended solutions. Within this process, students will develop an acceptance, understanding, and appreciation of the economic, political, and cultural differences that make up a global market. Cases for analysis and discussion will include topics such as supply chain strategy, operations management, inventory management, lean systems and six sigma quality issues, and sustainability supply chain management.

SCL 01382: Supply Chain Analytics 3 s.h.
Prerequisite(s): MKT 09375 & Stat 02260
This course focuses on several key supply chain functions and provide hands-on learning for how to best understand and analyze data that may be available for the supply chain. The design aspect of a supply chain is emphasized. Modeling and deriving insights are facilitated through the extensive use of excel-based approach.

SCL 01390: Selected Topics in Supply Chain Management 3 s.h.
Prerequisite(s): MKT 09375 and Junior status
Students will investigate new areas and developments in theory, research and practice in Supply Chain Management. Specialized topics will vary each semester. Course activities will include indepth study of current topics, preparation of case analyses, research papers, and/or projects. Students may consult with the department chair or the instructor for course details.

SCL 01410: Supervised Internship in Supply Chain and Logistics 3 s.h.
Prerequisite(s): MKT 09375 and 58 credits completed
The course is designed to assist students in developing the skills necessary to target diverse industries that align with the student's skills, interests, and goals. The internship will help supply chain students evaluate the nature, culture, work environment, and career advancement opportunities within an organization. The internship will also help students develop and refine oral and written communication skills and identify areas for future knowledge and skill development.

MATH 01000: Mathematics Learning Community 0 s.h.
Prerequisite: Declared mathematics major
This course is a component of the mathematics department's learning community. Registration in this course provides a mechanism for learning community students to engage in various Learning Community activities.

MATH 01090: Foundations of Mathematical Reasoning 3 s.h.
Foundations of Mathematical Reasoning is a semester-long quantitative literacy-based course designed to provide students with the skills and conceptual understanding to succeed in a college-level statistics or quantitative literacy course. The 3 credits for this course do not count toward graduation requirements.

MATH 01103: Topics from Fractal Geometry and Graph Theory 1 s.h.
Prerequisite: Current Enrollment in the Cooperman Scholars Summer Program
Topics from Fractal Geometry and Graph Theory is a three-week course designed for the students in the Cooperman Scholars Summer Program. The first half of the course covers topics from fractal geometry such as self-similarity, the Koch Snowflake, the Sierpinski Gasket, the Menger Sponge, and the Mandelbrot Set. After introducing basic definitions, the second half of the course covers topics from graph theory such as Euler paths and circuits, the Euler theorems, Hamiltonian paths and circuits, complete graphs, the Traveling Salesman strategies, the Game of Sprouts, and the Knight's Tour.

MATH 01115: Contemporary Mathematics 3 s.h.
Prerequisites: Old SAT score of 400+ or New SAT Score of 440+ or ACT score of 17+ or Elementary Algebra score of 62+ or QAS score of 249+ or "S" in MATH 01090
This course is designed to develop an appreciation of what mathematics is and how it is used today. Topics covered include: statistics and probability; graphs, trees and algorithms; geometrical perspectives including transformations, symmetry, and similarity; and the mathematics of social choice. Students are expected to have completed equivalents Basic Skills Reading and either Basic Algebra 1 or Foundations of Mathematical Reasoning.

MATH 01118: Quantitative Reasoning 3 s.h.
Quantitative Reasoning serves students who are focused on developing quantitative literacy skills that will be meaningful for their professional, civic, and personal lives. Such reasoning is a habit of mind, seeking pattern and order when faced with unfamiliar contexts. In this course, an emphasis is placed on the need for data to make good decisions and an understanding of the dangers inherent in basing decisions on anecdotal evidence rather than data.

MATH 01122: Precalculus Mathematics 4 s.h.
Prerequisites: Old SAT score of 550+ or New SAT score of 570+ or ACT score of 24+ or Elem Algebra score of 77+ or AAF score of 263+ or "S" in MATH 01095
This course helps prepare students for Calculus I or Calculus T&A. The contents include: a brief review of intermediate algebra, the structure of the real number system, elementary analytic geometry, and algebraic, exponential, logarithmic and trigonometric functions (including their inverses and related functions). Graphs of functions and conic sections also are studied. A graphing calculator is required. Students are expected to have completed an equivalent of Basic Algebra II.

MATH 01123: College Algebra 3 s.h.
This course is designed to help students who are weak in algebra prepare for Statistics I or Calculus Techniques & Applications. The contents include: a brief review of intermediate algebra, the structure of the real number system, elementary analytic geometry, and algebraic, exponential and logarithmic functions (including their inverses and related functions). Graphs of functions are also studied. A graphing calculator is required. Students are expected to have completed Foundations of Mathematics Reasoning or its equivalent.

MATH 01124: Reasoning with Functions 4 s.h.
Prerequisites: Old SAT score of 400+ or NEW SAT score of 440+ or ACT score of 17+ or Elem Algebra score of 62+ or QAS score of 249+ or "S" in MATH 01090
This college level course is designed to prepare students to enter Calculus T&A (or Precalculus) and succeed in coursework that requires a thorough knowledge of functions and algebraic reasoning. It provides students a strong foundation in functions and their behavior by using multiple representations and explicit covariational reasoning to investigate and explore quantities, their relationships, and how these relationships change. Additionally, this course provides students with the algebraic tools necessary to analyze a variety of function types.

MATH 01125: Trigonometry 1 s.h.
Prerequisite: MATH 01124 with minimum grade C-
This course helps prepare students for Calculus I . The contents include trigonometric functions, inverse trigonometric functions, the unit circle, and trigonometric identities. Graphs of trigonometric functions also are studied. A graphing calculator is required. Students are expected to have completed an equivalent of Reasoning with Functions.

MATH 01130: Calculus I 4 s.h.
Prerequisites: C- or better in MATH 01122 or (MATH 01124 and MATH 01125) or (MATH 03125 and MATH 01125)or CLM score of 60+ or AAF score of 276+ or Old SAT score of 600+ or New SAT score of 620+ or ACT 27+
Calculus is a subject about functions. This course deals primarily with the two most fundamental concepts in Calculus: derivatives and definite integrals. It begins with a discussion of notions of the limit and continuity of a function. Then the definition of a derivative is introduced, and techniques of computing derivatives are studied. Through applications to analysis of functions, optimizations and problems in sciences, a student can appreciate the importance of the derivative. The concept of a definite integral as a limit of approximating sums emerges naturally in the context of problems of areas. Hidden links between the two concepts are formulated in the Fundamental Theorems of Calculus, which also provide a convenient shortcut for computing definite integrals. A graphing calculator is required for this course, and so is the use of computer software, such as Mathematica.

MATH 01131: Calculus II 4 s.h.
Prerequisites: C- or better in MATH 01130
This course begins with applications of integration (such as volume of a solid of revolution work, arc length, area of a surface of revolution, center of mass) and derivatives of inverse trigonometric functions. Integration by parts, partial fractions and other more advanced integration techniques are introduced, along with a discussion of numerical integration, improper integrals, indeterminate form, sequences and infinite series. A graphing calculator is required for this course, and so is the use of computer software, such as Mathematica.

MATH 01201: Structures of Mathematics I 3 s.h.
This course is designed primarily for elementary education majors. The course concerns the development of number systems and algebraic structures, including the natural numbers, the integers, rational numbers, and real and complex numbers. Concrete examples of selected algebraic structures are included. Students will be required to reason mathematically, solve problems, and communicate mathematics effectively at different levels of formality, using a variety of representations of mathematical concepts and procedures. Use of calculators is required.

MATH 01202: Introduction to Geometry 3 s.h.
Prerequisites: Old SAT score of 550+ or New SAT score of 570+ or ACT score of 24+ or Elem Algebra score of 77+ or AAF score of 263+ or "S" in MATH 01095
This course develops the fundamental concepts of Euclidean geometry from a modern point of view. Its topics include sets, points, lines, space, betweenness, incidence, congruence, parallelism, similarity, transformations, volumes, and areas. Non-Euclidean geometries are introduced. Not open to mathematics majors. Use of calculators is required. Students are expected to have completed an equivalent of Basic Algebra II.

MATH 01203: Mathematics Learning Assistant Course 1 s.h.
Pre-requisites: Permission of the learning assistant coordinator AND the recommendation of at least one other professor.
This course is designed to introduce students to the theory and practice of a learning assistant for the Math Department and support them in their first semester as one. Students will be assigned to another mathematics course as a learning assistant and will assist the instructor of that course by helping them to facilitate learning in the classroom. After completing this course, a student may be selected to continue to act as a learning assistant for the Math Department.

MATH 01204: Structures of Mathematics II 3 s.h.
Prerequisite: MATH 01201
This course is designed primarily for elementary education majors. The course will require students to investigate problems in order to deepen their conceptual and procedural understanding in the areas of algebra, data analysis, probability, geometry, measurement, systematic listing and counting.

MATH 01205: Technological Tools for Discovering Mathematics 2 s.h.
Prerequisites: C- or better in each of CS 01104 and MATH 01131 and MATH 03150
This course will use mathematics-specific technologies to help students discover mathematics and to develop a better understanding of new content. Throughout the course students will become aware of the broad range of mathematics-specific technologies available to mathematicians, become proficient in the use of these, and pursue the advantages, disadvantages, and limitations of such technologies. Students will solve problems and advance their understanding of topics in the areas of pre-calculus, calculus, geometry and statistics.

MATH 01210: Linear Algebra 3 s.h.
Prerequisite: C- or better in MATH 01131
This course includes: linear equations and matrices, vector spaces, linear dependence and independence, dimension and basis of a vector space, linear transformations, inner product and cross product, orthogonality, eigenvalues and eigenvectors. Use of graphing calculators is required and computers may be used at the option of the instructor. It is recommended that MATH 03150 or MATH 03160 should be taken prior to this course.

MATH 01230: Calculus III 4 s.h.
Prerequisites: C- or better in MATH 01131
This course includes: vectors, vector functions, velocity, acceleration, partial differentiation, directional derivatives, multiple integration, and vector calculus. The student is expected to use computer software, such as Mathematica, in addition to the graphing calculator.

MATH 01231: Ordinary Differential Equations 3 s.h.
Prerequisites: C- or better in both MATH 01210 and MATH 01230
Applications of ordinary differential equations and their methods of solution form the major part of this course. It also includes the solution of nth order equations, particularly of first and higher degree linear differential equations, and series and Laplace Transform solutions. Students might be asked to use computers and/or graphics calculators as an aid in solving equations.

MATH 01232: Mathematical Modeling for Educators 3 s.h.
Prerequisites: C- or better in MATH 01210 AND MATH 01230
This course provides an introduction to mathematical modeling, including probability models, theoretical and empirical modeling, and modeling with simple differential equations. Students will frequently use technology in solving problems, and all students will complete a group modeling project.

MATH 01235: Mathematics for Engineering Analysis 4 s.h.
Prerequisite: C- or better in MATH 01230
This course provides a comprehensive introduction to Linear Algebra and Ordinary Differential Equations. Topics in Linear Algebra include solutions to linear systems of equations, matrices, determinants, vector spaces, eigenvalues, eigenvectors, symmetric matrices and orthogonality. The ODE part consists of separable equations, exact equations, linear differential equations of first, second and higher orders, systems of linear differential equations, numerical methods, and applications.

MATH 01310: College Geometry 4 s.h.
Prerequisites: C- or better in each of PHIL 09130 and MATH 01210 and MATH 01230 and MATH 03150
This geometry course will use both synthetic and analytic approaches to study advanced concepts in Euclidean geometry, to introduce non-Euclidean geometry, to explore the basics of Transformational geometry and Higher Dimensional geometry, and to trace the historical development of geometry. Computer use will be emphasized throughout the course.

MATH 01330: Introduction to Real Analysis I 3 s.h.
Prerequisites: C- or better in both MATH 01230 and MATH 03150
This course prepares students for more advanced courses in analysis as well as introducing rigorous mathematical thought processes. Topics included are sets, functions, the real number system, sequences, limits, continuity and derivatives.

MATH 01331: Introduction to Real Analysis II 3 s.h.
Prerequisites: C- or better in MATH 01330
This course is a continuation of Introduction to Real Analysis I. The purpose is to extend student's understanding of basic analysis and the calculus. Topics included are: the mean-value theorem, existence of the Riemann integral, Riemann-Stieltjes integration, infinite series, convergence tests and Fourier series.

MATH 01332: Numerical Analysis 3 s.h.
Prerequisites: C- or better in each of (CS 01104 or CS 04103 or CS 04113) and MATH 01131 and (MATH 01210 or MATH 01235)
This course includes: elements of error analysis, real roots of an equation, polynomial approximation by finite difference and least square methods, interpolation, quadrature, numerical solution of ordinary differential equations, and numerical solutions of systems of linear equations. The student should expect to program a computer in addition to using a graphing calculator.

MATH 01340: Modern Algebra I 3 s.h.
Prerequisites: C- or better in each of MATH 03150 and MATH 01210 and PHIL 09130
This course includes: the natural numbers, integers, rationals, and reals as mathematical systems, and the introductory theory of groups, rings, integral domains, and fields. Also included are homomorphisms and isomorphisms, subgroups, kernels, rings and ideals and polynomial rings. At the option of the instructor, computer use can be required.

MATH 01341: Modern Algebra II 3 s.h.
Prerequisites: C- or better in MATH 01340
This course extends the study begun in Modern Algebra I to a more detailed investigation of abstract algebraic structures. Included are Sylow theorems, rings and ideals, polynomial rings, ring and field extension and Galois theory.

MATH 01352: Theory of Numbers 3 s.h.
Prerequisite: C- or better in both MATH 01210 and MATH 03150, or C- or better in both MATH 01210 and MATH 03160
This course includes divisibility properties of integers, theory of congruence, Diophantine Analysis, congruences of higher degree, quadratic residues and famous problems of number theory.

MATH 01354: Introduction to Topology 3 s.h.
Prerequisites: C- or better in MATH 01330
This course covers the properties of general topological spaces, separation, compactness, connectedness and the Heine-Borel and Bolzano-Weierstrass theorems.

MATH 01361: Introduction to Real and Complex Variables 3 s.h.
Prerequisites: C- or better in both Math 01230 and MATH 01210
The course introduces the basic ideals of real analysis: sequences, continuity, differentiability and their rigorous treatment, and introduces the basic elements of complex analysis up to derivatives rules.

MATH 01386: Introduction to Partial Differential Equations 3 s.h.
Prerequisites: C- or better in MATH 01231 and MATH 01210) or MATH 01235
This course is a study of partial differential equations and their applications. Topics include the derivation of the wave equation, Laplace's equation and the heat equation, Fourier series and integrals, boundary value problems, Bessel functions and Legendre Polynomials.

MATH 01390: Mathematics Research 3 s.h.
Prerequisites: MATH 01210 and MATH 03150 and MATH 01230 and permission of instructor
This course focuses on developing students' skills in conducting mathematical research at the undergraduate level. Moreover, students will develop skills in writing mathematics at a rigorous and professional level and to disseminate their work through seminar and conference presentations.

MATH 01410: History of Mathematics 3 s.h.
Prerequisites: C- or better in two 300-level (or higher) Math major courses
This course includes a survey of the development of mathematical ideas from early times up to present day college mathematics. Emphasis is on historical mathematical problems and their solution. Readings and reports on selected topics are required.

MATH 01421: Mathematics Field Experience 3 s.h.
Prerequisites: MATH 01131 and STAT 02360 and permission of instructor
Students accept assigned projects in a professional environment. These projects normally involve applied mathematics or statistics. Students are expected to work at least 150 hours during the semester for which they receive credit. Written reports are required.

MATH 01430: Introduction to Complex Analysis 3 s.h.
Prerequisites: C- or better in MATH 01330
This course includes properties of complex numbers and their conjugates, functions of a complex variable, limits, continuity and derivatives for complex functions. Also included are: Integration and the Cauchy integral theorems, uniform convergence, Taylor's and Laurent's series and conformal mapping.

MATH 01497: Mathematics Seminar for Educators - WI 3 s.h.
Prerequisites: Senior Standing and C- or better in MATH 01340 and MATH 01232 and MATH 01361 and MATH 01310
This course for future mathematics teachers is designed to integrate students' knowledge of mathematics and to further developing their problem-solving abilities. The course content includes problem-solving techniques, a review of the literature of mathematics, solving problems drawn from a variety of current resources, a review of the content of high school mathematics from an advanced standpoint, and study of techniques of proof and issues in the philosophy of mathematics and its foundations. Additionally, each student is required to write and to present orally a research report on a mathematical topic.

MATH 01498: Math Seminar (WI) 3 s.h.
Prerequisite(s): Senior standing and C- or better in STAT 02320 and MATH 01340 and MATH 01231 and MATH 01330or (STAT 02360 and STAT 02361)
This course is designed to integrate students' knowledge of mathematics and to further develop their problem solving abilities. The course content includes problem-solving techniques, a review of the literature of mathematics, solving problems drawn from a variety of current resources, and study of techniques of proof and issues in the philosophy of mathematics and its foundation. Additionally, each student is required to write and to present orally, a research report on a mathematical topic.

MATH 01502: Linear Algebra and Matrix Theory 3 s.h.
This course includes linear systems, linear dependence and independence, linear transformation theory, multilinear forms, matrices, determinants, inner product spaces.

MATH 01505: Probability and Mathematical Statistics I 3 s.h.
This course is an introduction to the theory and application of probability and mathematical statistics. After a brief introduction to the concepts of descriptive and inferential statistics, the emphasis is on probability theory and its applications. Topics covered include introduction to probability theory, transformations and expectations, common families of discrete and continuous distributions, multivariate distributions and properties of a random sample.

MATH 03125: Calculus: Techniques and Applications 3 s.h.
Prerequisites: C- or better in MATH 01122 or MATH 01123 or MATH 01124 or CLM score of 60+ or AAF score of 276+ or Old SAT score of 600+ or New SAT score of 620+ or ACT 27+
This course introduces students to the fundamental concepts and techniques of differential and integral calculus. Emphasis is placed on practical and informative applications of limits, derivatives and integrals in today's world, with those in business highlighted. A graphics calculator is required. Students are expected to have completed an equivalent of the course of College Algebra.

MATH 03150: Discrete Mathematics 3 s.h.
Prerequisites: Old SAT score of 550+ or New SAT score of 570+ or ACT score of 24+ or Elem Algebra score of 77+ or QAS score of 255+ or "S" in MATH 01095
This course provides an overview of the branch of mathematics commonly known as discrete mathematics. Topics included are sets, relations, functions, induction and other methods of proof, recursion, combinatorics, graph theory, and algorithms. Emphasis is placed on the solution of problems and proofs. The use of graphing calculator is required.

MATH 03160: Discrete Structures 3 s.h.
Prerequisites: Old SAT score of 550+ or New SAT score of 570+ or ACT score of 24+ or Elem Algebra score of 77+ or QAS score of 255+ or "S" in MATH 01095
This course covers mathematical topics essential for work in computer science. This material includes number bases, mathematical induction, sets, relations, functions, congruence, recursion, combinatorics, graphs, trees, logic, Boolean algebras, and proof techniques. While this is a course in mathematics, many of the examples and applications will be taken from computer science. The instructor may require use of a graphing calculator and/or computer. This course covers much of the same material as Discrete Mathematics (MATH03.150), but with a computer science focus. In no case will a student be allowed to receive credit for both courses. Both courses will be treated as equivalent for the purposes of satisfying prerequisites and course requirements.

MATH 03305: Patterns in Nature I: Visual Geometry 3 s.h.
Prerequisites: C- or better in each of BIOL 01105, CS 01102, CS 01200, STAT 02260, (PHYS 02150 or PHYS 00150) and CHEM 05102
This course for students in the natural/science track of the Liberal Studies major illustrates the connections between geometry and the natural sciences, using computers, manipulatives, and hands-on models. Concepts covered include properties of two- and three-dimensional shapes, transformations, dimension, and non-Euclidean geometries.

MATH 03315: Patterns in Nature II: Projects in Calculus 4 s.h.
Prerequisite: C- or better in MATH 03305
This project-oriented course for students in the Liberal Studies Math/Science program provides an introduction to the mathematics of change. Topical coverage includes a review of functions, limits, continuity, the notion of the derivative and its applications, and the notion of integration and its applications. The use of numerical methods will be included in the context of mathematical modeling and various types of technologies, including graphing calculators, spreadsheets, and mathematical software packages will be utilized.

MATH 03400: Applications of Mathematics 3 s.h.
Prerequisites: C- or better in each of MATH 01210, MATH 01230, and MATH 01231
This course may include examples of mathematical models applied to the various fields of the biological, physical and social sciences. The process of building a mathematical model to describe a real world system will be demonstrated. Emphasis will be placed on the value of mathematical models for solving problems and obtaining new results. Computers and graphing calculators will be used.

MATH 03411: Deterministic Models in Operations Research 3 s.h.
Prerequisites: C- or better in (MATH 01230 or MATH 01141) and C- or better in (MATH 01210 or MATH 01235)
This course is an introduction to mathematical modeling, analysis, and solution procedures applicable to decision-making problems in deterministic environment. Methodologies covered include the simplex and interior point methods of solving linear programming models, inventory theory, assignment and transportation problems, dynamic programming and sensitivity analysis. Solutions will be obtained using theoretical methods and software packages.

MATH 03412: Stochastic Models in Operations Research 3 s.h.
Prerequisites: C- or better in each of STAT 02360 and MATH 03411, or C- or better in each of STAT 02360 and (MATH 01230 or MATH 01141) and (MATH 01210 or MATH 01235)
This course is an introduction to mathematical modeling, analysis, and solution procedures applicable to decision-making problems in an uncertain (stochastic) environment. Methodologies covered include dynamic programming, Markov chains, queuing theory, decision trees, system reliability and inventory theory. Solutions will be obtained using theoretical methods and software packages.

MATH 03501: Mathematical Modeling for Biological Systems 3 s.h.
Prerequisite(s): MATH 01210 or MATH 01231 or permission of instructor
This course introduces students to modeling biological systems using ordinary differential equations. It focuses on the modeling process including the construction, analysis, and interpretation of mathematical models. It introduces new techniques for studying the solutions to these mathematical models and develops precedures for making the models more realistic.

MATH 03525: Partial Differential Equations in Biomathematics 3 s.h.
Prerequisite(s): MATH 01231 or permission of instructor.
This course covers topics in partial differential equations as it applies to biomathematics. These include second order linear and nonlinear partial differential equations, diffusion and conservation laws, waves and pattern formation, Chemotaxis and other forms of cell and organism movement. Computer software, such as Mathematica, will be used.

MATH 03610: Applied Statistical Epidemiology 3 s.h.
Prerequisite: MATH 01505, MATH 01502 AND CS 01104 or equivalent or Permission of Instructor
This course introduces the basic concepts of epidemiology and focuses on analyzing epidemiological data using a statistical programming language such as R, one of the most efficient programming languages for statistical computing and graphics. This course will lay the ground work to successfully design, conduct, analyze and interpret findings from epidemiological studies using the appropriate statistical methods.

MATH 03611: Special Topics in Biomathematics 3 s.h.
This course covers in depth a wide-range of advanced topics in biomathematics inspired by applications of mathematics in biology and health sciences problems. The course will offer students the opportunity to learn modern emerging cutting-edge research approaches not covered by other courses.

STAT 02100: Elementary Statistics 3 s.h.
This course gives a basic introduction to the fundamental concepts and methods of statistics. Its topics include: basic measures of central tendency and variability, graphical displays, elementary design of experiments, descriptive simple linear regression, elementary probability, the normal and t-distributions, confidence intervals and hypothesis testing. Use of a statistical calculator, graphing calculator or software package is required. Note: many majors require a different introductory statistics course; students should check their major requirements before signing up for this course.

STAT 02102: Statistical Literacy 3 s.h.
This course aims to introduce non-STEM majors to the critical thinking skills they need to understand statistical topics that they may encounter in the popular media or their future careers. Students will learn to critically evaluate the statistical information they encounter during everyday life, with a focus on becoming intelligent consumers, rather than producers, of data. Emphasis will be placed on discussing and analyzing case studies drawn from a variety of professional disciplines as well as the popular press. Note: many majors require a different introductory statistics course; students should check their major requirements before signing up for this course.

STAT 02260: Statistics I 3 s.h.
Students learn to use various graphical displays and measures of location and variability to describe data. The course considers elementary probability and sampling distributions, and uses the normal and t-distributions in estimation and hypotheses testing. It includes descriptive techniques for simple linear regression and correlation. Use of a graphing calculator is required; computer software may be used. Students are expected to have completed an equivalent of College Algebra.

STAT 02261: Statistics II 3 s.h.
Prerequisite: C- or better in STAT 02260
This course is a continuation of Statistics I. Confidence intervals and hypothesis tests are studied in more detail, beginning with two sample inference for means and proportions. The inferences in simple linear regression and multiple regression are presented. Analysis of variance and experimental design are introduced. Other topics include chi-square tests for goodness-of-fit and independence, and the principles of nonparametric tests. Use of statistical software such as Minitab, SPSS or JMP, is also required.

STAT 02280: Biometry 4 s.h.
Prerequisites: MATH 01130 and (BIOL 01104 and BIOL 01106) or (BIOL 01100 and BIOL 01101) or BIOL 01202
This laboratory course considers elementary data analysis, probability and sampling distributions. It uses the normal and t-distributions to introduce estimation and hypotheses testing. It includes descriptive techniques and inference for simple linear regression and correlation. Analyses of variance, nonparametric tests and chi-square tests are covered in this course. Emphasis is placed on experimentation and the application of statistical methods to the biological sciences. Computer software is used regularly in data manipulation, statistical analyses, and formal presentation of results.

STAT 02284: Statistics for the Biomedical Sciences 3 s.h.
Prerequisites: C- or better in MATH 01140 or MATH 01131
This course introduces statistical concepts and analytical methods as applied to data encountered in the biomedical sciences and engineering. It emphasizes the basic concepts of experimental design, quantitative analysis of data, and statistical inference. Topics include probability theory and distributions; population parameters and their sample estimates; descriptive statistics for central tendency and dispersion; hypothesis testing and confidence intervals for means and proportions; categorical data analysis including relative risk, odds ratios, and the chi-square statistic; correlation and simple linear regression.

STAT 02286: Probability and Statistics for Electrical & Computer Engineering 3 s.h.
Corequisite: ENGR 01303 (may be taken concurrently)
This is a Junior level course covering concepts in probability and statistics useful to those studying electrical and computer engineering. Assuming knowledge of descriptive statistics and basic probability from earlier courses, topics will include more advanced probability, continuous and discrete random variables, sampling distributions, interval estimation, and hypothesis testing for one and two parameters. Also explored will be topics in linear regression, analysis of variance, chi-square tests, and an introduction to distribution free tests. Emphasis will be placed on problems with applications to engineering. While this course is directed at students pursuing a major in Electrical and Computer Engineering, it is open to other Engineering majors.

STAT 02290: Probability and Statistical Inference for Computing Systems 3 s.h.
Prerequisites: C- or better in each of (MATH 03150 or MATH 03160) and MATH 01131 and (CS 04113 or CS 01104 or CS 04103)
This laboratory course considers descriptive techniques for presenting and summarizing data, techniques in probability, discrete and continuous random variables, estimation and hypothesis testing. Emphasis is placed on concepts and simulation, regularly using computer software for data manipulation and presentation, function manipulation and presentation, simulation, and statistical analyses. Examples will be drawn from the field of Computer Science.

STAT 02311: Introduction to Statistical Computing 3 s.h.
Prerequisite(s): Minimum Grade of C- in the following: STAT 02260 or STAT 02320 or STAT 02284 or STAT 02280 or STAT 02290
This is an introductory course in programming-based statistical software packages, such as SAS, R, and Matlab, intended for students with statistics background. Students will learn the core of ideas of programming such as objects, data structures, looping, and functions. Students will also learn how to read data from different types of files, format them appropriately and use them to perform basic statistical analyses, such as graphing and computing numerical summaries, or more advanced statistical analyses, such as one and two sample T-tests, Chi-square for comparisons of proportions, regression, non-parametric analyses, bootstrapping, and simulations.

STAT 02320: Concepts in Statistical Data Analysis 3 s.h.
Prerequisites: C- or better in each of MATH 01131 and MATH 01210 and (CS 01104 or CS 04103 or CS 04113)
This course examines the concepts behind statistical thinking in data analysis. Using rudimentary programming, simulation, and mathematical techniques, students will see what is behind the meaning of statistical significance (and the P-value), as well as the conclusions that can justifiably be made from a study. They will use a statistically software package, be introduced to the modern techniques of randomization of bootstrapping, and learn some classical statistical techniques as well. This course is required for all mathematics BA and BS majors

STAT 02323: Special Topics in Statistics 3 s.h.
Prerequisite(s): Minimum Grade of C- in the following: STAT 02260 or STAT 02320 or STAT 02284 or STAT 02280
This course will provide students with the opportunity to study a topic in statistics that is not a part of the existing curriculum, such as biostatistics, non-parametric methods, Bayesian analysis, etc. Course title and content will vary. May be repeated for credit.

STAT 02331: Applied Statistical Analysis in Healthcare Professions 3 s.h.
Prerequisite(s): Athletic Training, Exercise Science, or Nutrition program, STAT 02260 and a grade of C- or better
This undergraduate course examines statistical design and methods necessary to develop proper experiments and analyze data related to athletic training and other healthcare professions, as well as recognizing the strengths and limitations of studies in the literature. Students will learn 1) how to design an experiment, including the use of power analysis; 2) how to assess the validity of the underlying assumptions of statistical methods, in order to determine which statistical method should be used to analyze data; 3) use statistical software to analyze data; and 4) perform assessments of existing studies. General scenarios to be examined will include 1) two independent samples, 2) three or more independent samples, and 3) dependent samples. Linear and multiple regression models will also be covered.

STAT 02340: Elements of Statistical Learning 3 s.h.
Prerequisite(s): (STAT 02320 or STAT 02360) and MATH 01210 and (CS 01104 or CS 04103 or CS 04113)
This course will provide students an accessible overview of the field of statistical learning, an essential toolset for making sense of the vast and complex data sets that have emerged in fields ranging from biology to finance to marketing to astrophysics. This course presents some of the most important modeling and prediction techniques, along with relevant applications. Topics include linear regression, classification, resampling methods, shrinkage approaches, tree-based methods, support vector machines, clustering and more. Students will receive clear and intuitive guidance regarding how to implement cutting-edge statistical and machine-learning methods to real-world examples. The goal of this course is to teach students the use of statistical learning techniques used by practitioners in science, industry, and other fields.

STAT 02350: Regression Analysis 3 s.h.
Prerequisites: C- or better in (MATH 01210 and STAT 02260) or STAT 02320 or STAT 02284 or STAT 02280
This course will provide a comprehensive introduction to simple and multiple linear regression. Students will learn the principles of least squares estimation, model diagnostics and remedies, through simple linear regression. Students will extend what they learned to the techniques of multiple regression, including models for numerical predictors, and numerical and categorical predictors; analyses, model diagnostics, multicollinearity, and transformations of variables; and model selection techniques. Students will be exposed to the matrix foundations of regression and introduced to nonlinear regression, such as logistic and Poisson regression. Concepts taught in this course will be enhanced through the use of appropriate statistical software.

STAT 02360: Probability and Random Variables 3 s.h.
Prerequisites: C- or better in both of MATH 03150 and (MATH 01230 or MATH 01141)
This course is an introduction to the theory and application of probability and random variables, with a short introduction to mathematical statistics, as the post-calculus level. Topics covered include sample spaces, random variables, discrete and continuous probability distributions, mathematical expectation, and multivariate distributions. At the end of the course the concept of estimation, from mathematical statistics, will be introduced. A few of the concepts of descriptive statistics will be introduced as needed. Use of a graphing calculator is required.

STAT 02361: Mathematical Statistics 3 s.h.
Prerequisites: C- or better in STAT 02360
A continuation of STAT 02.360, the course emphasizes the theory of inferential statistics and its applications. The Central Limit Theorem is more fully developed as are the concepts of estimation and hypothesis testing. The properties of estimators are covered and tests using normal, t, chi-square, and F distributions are studied. Nonparametric methods, regression, and correlation are also covered. Use of a graphing calculator is required.

STAT 02371: Design of Experiments: Analysis of Variance 3 s.h.
Prerequisites: (MATH 01210 and MATH 01235) and (STAT 02260 or STAT 02280 or STAT 02284 or STAT 02286 or STAT 02290 or STAT 02320 or STAT 02361)
Students will gain an understanding of the major theoretical and practical concepts in the design of experiments using the statistical technique called the analysis of variance (ANOVA). A brief discussion of the concept of power, and the minimum number of experimental trials to achieve that power, will be used as this motivation for careful design. Students will be introduced to several aspects of the design of experiments beyond one- and two-way ANOVA, such as blocking, factorial designs, fractional designs, and random factors.

STAT 02510: Introduction to Statistical Data Analysis 3 s.h.
Prerequisites: Probability & Random Variables (STAT 02.360) or equivalent, and Linear Algebra (MATH 01.210) or equivalent.
This course examines the principles behind statistical data analysis, and introduces students to major areas of statistical data analysis needed by a practicing biomathematician. Using simulation, students will use bootstrapping to develop the mechanics of confidence intervals, use randomization to develop the mechanics of hypthesis tests, and learn the types of conclusions that can justifiably be made from a study. They will also be introduced to models of analyzing data that is categorical, numerical, and a combination of both, through the study of contingency tables, linear regression, and the analysis of variance. They will use at lease one statistical software package.

STAT 02513: Applied Stochastic Processes 3 s.h.
Prerequisite(s): STAT 02360 and MATH 01210 or ECE 09433 or permission of instructor.
This course introduces the concept of a sequence of random events known as a stochastic process, as well as the mathematical methods used to model variety of types of stochastic processes and analyze their short and long-term behavior. A broad spectrum of examples from bilogy, health, and medicine will be included throughout the course. Topics include the basic classifications of stochastic processes, Markov chains, Poisson processes, continuous-time Markov chains, renewal processes, and branching processes. Statistical and computer algebra system software will be used when relevant.

STAT 02515: Applied Multivariate Data Analysis 3 s.h.
Prerequisite(s): Graduate standing in M.S. in Data Analytics or (MATH 01131 and MATH 01210) and (STAT 02360 and STAT 02260 or STAT 02290) or permission of the instructor.
This course examines the principles behind statistical data analysis for multivariate data, and introduces the students to major areas of multivariate I data analysis. Topics include multiple and logistic regression, principal component analysis, factor analysis, cluster analysis, MANOVA, multidimensional scaling, discriminant analysis and canonical correlation. The students will use at least one statistical software package.

STAT 02525: Design and Analysis of Experiments 3 s.h.
Prerequisite(s): Graduate standing and an introductory statistics course at at-least the 200 level, or permission of the instructor.
This is a graduate level course that investigates fundamental topics in experimentation as well as design methods. The course also introduces the analysis associated with various experiments. Examples and case studies based on real-world events will be used to illustrate course concepts. Students will be required to complete and end-to-end project that will include an experiment's design, data collection and analysis.

ME 10101: Introduction To Mechanical Design 3 s.h.
Corequisite(s): CS 01104
This course introduces the student to mechanical design process, synthesis techniques, and modern analysis tools. It focuses on synthesis of linkage and cam mechanisms. Laboratory experience will include computer simulation and analysis. Design experience will be integrated throughout the course and culminate in a design project.

ME 10210: Manufacturing & Measurement Techniques 2 s.h.
Prerequisite: ME 10101 OR PHYS 00220
This course focuses on the use of standard machine tools and rapid prototyping technologies in the manufacturing process. Measurement techniques for quantities such as voltage, strain, pressure, and temperature are introduced. The course also covers basics of engineering drawings, concepts of GD&T (geometric dimensioning and tolerancing), measurement uncertainty, signal conditioning, and sensor/microprocessor interface. This is a 2 semester hour laboratory course.

ME 10211: Mechanical Engineering Laboratory 2 s.h.
This course introduces the student to many of the tools used by practicing mechanical engineers, including CAD software, mathematical modeling software, analysis software, rapid prototyping techniques and data acquisition.

ME 10301: Machine Design 4 s.h.
Prerequisites: ENGR 01291 and ENGR 01273
This course introduces students to machine design. It deals with the design and selection of machine elements such as shafts, couplings, bearings, gears, springs, screws and fasteners. Significant emphasis will be placed upon stress analysis and failure theories. Laboratory experience will include computer simulation and analysis. Design experience will be integrated throughout the curriculum and culminate in a design project.

ME 10310: Introduction to Thermal-Fluid Sciences 4 s.h.
Prerequisite(s): (CHEM 06100 OR CHEM 06105) AND PHYS 00220 AND MATH 01230 with minimum grade of C-
Introduces students to the thermal-fluid sciences through treatment of classical thermodynamics expanded by emphasis on conservation principles and introduction to the three modes of heat transfer. Course covers thermodynamic properties, equations of state, thermodynamic laws, analysis of select elementary cycles, and conservation principles for mass and energy. A practical design project will integrate computer simulation and analysis.

ME 10320: Principles Of Mechanical Engineering For Ece Majors 3 s.h.
Prerequisite(s): PHYS 00220 and MATH 01230
This course introduces Electrical and Computer Engineering students to basic concepts in statics, dynamics and the thermal/fluid sciences. Special emphasis is placed upon the design and analysis of systems relevant to electrical engineers including actuators, motors and other electromechanical devices. Heat generation and removal from electronic devices will also be given significant coverage.

ME 10321: Thermal-Fluid Sciences I 6 s.h.
Prerequisite(s): CHEM 06100 and (MATH 01235 or MATH 01231 with C- or better) and PHYS 00220
This course introduces students to thermal-fluid sciences. It deals primarily with thermodynamic property relations, energy transfer, and mass, momentum, and energy balance principles. Students will be able to analyze engineering systems from a mass, momentum, and energy standpoint as well as perform heat transfer, thermodynamic, fluid static, fluid momentum, and fluid energy calculations. Laboratory experience will include computer simulation and analysis. Design experience will be integrated throughout the curriculum and culminate in a design project.

ME 10322: Thermal-Fluid Sciences II 6 s.h.
Prerequisite: ME 10321 with C- or better
This course advances student knowledge of the thermal-fluid sciences. It deals primarily with the second law of thermodynamics, internal/external flow, and stead flow devices. Students will be able to design systems for power production, propulsion, and heating/cooling. Design experience will be integrated throughout the curriculum and culminate in a design project.

ME 10330: Fluid Mechanics for Mechanical Engineers 3 s.h.
Prerequisite(s): Minimum grade of C- in the following: (MATH 01231 OR MATH 01235) AND ENGR 01271 AND ME 10310
Introduces students to the thermal-fluid sciences through treatment of elementary fluid mechanics and its relation to thermodynamics and heat transfer. Course covers theory and applications of hydrostatics; conservation of mass, momentum, and energy; mechanical energy balances; dimensional analysis and similitude; and laminar/turbulent flow in internal and external geometries.

ME 10335: Heat Transfer for Mechanical Engineers 3 s.h.
Corequisite: ME 10330
Introduces students to the thermal-fluid sciences through treatment of heat transfer and its relation to thermodynamics and fluid mechanics. Course covers fundamentals of conduction, convection, and radiation; steady and unsteady heat conduction; boundary layer flows; forced and free convection for both internal and external flow geometries; blackbody radiation; and non-ideal surface radiation properties. Heat transfer applications and design of thermal-fluid systems components are treated.

ME 10342: Quality & Reliability In Design And Manufacture 3 s.h.
Prerequisite(s): MATH 01131 or MATH 01141
This course introduces concepts of quality and reliability for application in design and manufacture. Basic aspects of dimensioning, tolerancing, and fits are introduced through application of the normal distribution and its variations. Geometric tolerances of form, orientation, position and runout are presented. Aspects of process capability and statistical process control are discussed. Concepts of failure and reliability are presented.

ME 10343: System Dynamics And Control I 3 s.h.
Prerequisite(s): ENGR 01291 and MATH 01235
This course introduces students to system modeling, analysis and control. The course focuses on modeling, simulation and design of mechanical, electrical, electromechanical and fluid systems. Time- and frequency-domain analysis of engineering systems will be covered.

ME 10344: System Dynamics And Control II 3 s.h.
Prerequisite: ME 10343
This course introduces students to modern control systems. The course focuses on modeling, simulation and design of engineering systems with control. Time- and frequency-domain analysis of control systems will be covered. The course will culminate in a large-scale design project incorporating a modern control system.

ME 10345: Dynamic Systems and Control 4 s.h.
Prerequisite(s): ENGR 01291 AND (MATH 01235 OR MATH 01201 and MATH 01231)
This course introduces students to modeling, analysis and control of dynamic systems. The course focuses on modeling, simulation and design of mechanical, electrical, electromechanical and fluid systems. Time- and frequency-domain analysis of engineering systems will be covered. The course will include 3 credit hour of lecture and 1 credit hour of lab.

ME 10401: Introduction To Computer Integrated Manufacturing And Automation 3 s.h.
Prerequisites: ENGR 01283
The course covers the basic aspects of computer integrated manufacturing and automation systems. Hard and flexible automation concepts are introduced. Various automation strategies are presented. Coding and classification ideas of group technology are related to computer aided process planning. Topics of numerical control, industrial robotics, and artificial intelligence are discussed.

ME 10405: Special Topics In Mechanical Engineering 3 s.h.
This course covers special topics in individual areas of Mechanical Engineering. Specific prerequisites are determined by the nature of the course when it is announced.

ME 10406: Introduction To Computational Materials Science 3 s.h.
Prerequisite(s): (ENGR 01283 or INTR 01486) and MATH 01235 and CS 04203
This course is intended to introduce two classes of computational stimulation techniques used in materials science: molecular structure and molecular statics. In addition, emphasis is placed on the numerical methods utilized in each. Topics to be covered include molecular gelation/polymerization stimulations, basic Monte Carlo methods, use of the Lennard-Jones potential, static minimum energy unit-cell crystallographic configurations and nonlinear minimization techniques. Students should have a working knowledge of computer programming methods.

ME 10411: Introduction To Combustion 3 s.h.
Prerequisites: ME 10335
This course serves as an introduction to combustion, chemically reacting flow systems and flames. It covers the fundamental concepts of chemically reacting systems along with many practical applications. Specific topics include chemical equilibrium, chemical kinetics, premixed laminar flames, detonations, diffusion flames and environmental issues.

ME 10412: Introduction To Rocket Propulsion 3 s.h.
Prerequisite: ME 10335
In this course, the principles of rocket propulsion theory are presented along with practical applications of rocket propulsion design. Theoretical topics include performance analysis of ideal rocket engines, departure from ideal performance and detailed thermochemical propellant calculations. Practical design issues are addressed for both liquid propellant engines and solid rocket motors. The course also includes an introduction to electric propulsion.

ME 10413: Advanced Heat And Mass Transfer 3 s.h.
Prerequisite: ME 10322
The topics covered in this course extend and complement the Transfer Processes I course. While Transfer Processes I provides an overview and introduction to the engineering fundamentals of heat transfer , Advanced Heat Transfer will provide a deeper knowledge of heat transfer principles, and will allow more rigorous and open-ended problems to be examined. The course will include two additional topics: radiation and mass transfer. Students successfully completing this course will be able to solve a wider range of heat and mass transfer problems encountered in industry.

ME 10414: Introduction To Energy Conversion Systems 3 s.h.
Prerequisite: ME 10335
This course will introduce energy conversion technologies for the generation of electrical power. Topics will include a review of power cycles, steam and gas cycles, generation of thermal power, combustion and fuels, steam power plant design considerations, gas turbine power plant operation and design considerations, combined cycles, co-generation, nuclear power, alternative energy sources, fuel cells, and environmental considerations in power generation.

ME 10421: Introduction To Gas Dynamics 3 s.h.
Prerequisite: ME 10330
This course emphasizes application of the conservation equations of mass, momentum and energy to solve problems in one-dimensional and two-dimensional compressible flow. Specific applications of one-dimensional compressible flow include one-dimensional isentropic flow, flow with area change, adiabatic flow with friction, normal shock waves and flow with heat addition. The method of characteristics is introduced to solve two-dimensional compressible flow problems.

ME 10422: Introduction To Computational Fluid Dynamics 3 s.h.
Prerequisite: ME 10330
This course introduces computational fluid dynamics (CFD) using a primarily software-based approach. Following an overview of the key steps involved with CFD, the class reviews the fundamental mathematics that govern fluid dynamics. An overview of governing equation descretization techniques is presented with assignments that involve building custom algorithms to solve simplified CFD problems. CFD essentials such as consisitency, stability and convergence are covered in-depth. Several modeling labs are used to build software skill and explore internal and external flows that are largely incompressible and viscous. The final weeks of this class are dedicated to a final project on a student-selected topic.

ME 10430: Introduction to Reliability Engineering 3 s.h.
Prerequisite(s): MATH 01235 or (MATH 01235 and MATH 01231)
This course introduces the background, important topics, and practical aspect of reliability engineering. It covers critical concepts such as reliability mathematics, life data analysis, probability plotting, reliability prediction, reliability modeling, design for reliability, design of experiments, and analysis of variance. The course also examines how reliability engineering can be used in applications, especially in mechanical systems.

ME 10433: Introduction to Renewable Energy: Photovoltaics & Energy Harvesting 3 s.h.
This course covers concepts and technologies related to renewable energy. The emphasis will be placed upon photovoltaics and energy harvesting. Topics include energy economy, renewable energy concepts and resources, photovoltaics, semiconductors, p-n junctions, solar cells using crystal materials, thin films, and organic materials, and energy harvesting using piezoelectric and thermoelectric devices.

ME 10440: Introduction to Advanced Manufacturing 3 s.h.
Prerequisite: ENGR 01283
This course will provide students with knowledge of modern manufacturing processes, how design is optimized for manufacture, and information on future directions of manufacturing, such as additive (3D printing) manufacturing techniques and the use of digital data across the product life cycle. The course will also discuss the taxonomy of manufacturing processes and provide an examination of current state of the art manufacturing with an emphasis on trends and directions in manufacturing, the relationship of digital data to design and production, and the impact of supply chain on production decisions.

ME 10441: Advanced Mechanism Design For Undergraduates 3 s.h.
Prerequisite(s): ME 10101 and MATH 01235
This course presents an indepth coverage of the design of mechanisms using matrix methods as the platform to model, synthesize, analyze and simulate mechanisms. It covers advanced design techniques that include type synthesis, numerical optimization techniques as applied to mechanism design synthesis, as well as branch defects and circuit defects that occur during mechanism synthesis. In addition, it covers the modeling and simulation of mechanical systems using appropriate mechanism design software. Students will perform analysis and simulation of mechanisms.

ME 10442: Mechatronics 3 s.h.
Prerequisite: ECE 09205
This course introduces the students to the design and development of mechatronic systems. It introduces the students to the multidisciplinary nature of mechatronic products and teaches them to design and develop such products. Students will learn about mechatronic design philosophy, mechatronic system modeling, sensors, actuators, microprocessors and their interfaces. The course project will involve the design of a real-world mechatronic system.

ME 10443: Design For X 3 s.h.
Prerequisite: ENGR 01303
This course introduces the students to the design of systems from Design for X perspective. The Design for X course teaches how to deal with conflicting and ever increasing number of constraints in the design process. It teaches the students to adopt a systematic design approach that addresses issues related to manufacture, assembly, environment, reliability and other factors from concept design stage to product manufacture. Students also learn to customize CAD systems with their own intelligent design assistants to help them in the design process.

ME 10444: Automotive Engineering 1 - Internal Combustion Engines 3 s.h.
Prerequisites: ENGR 01291, ME 10101, ME 10301, ME 10310
This Course deals with the engineering of automobiles at the undergraduate level. The course draws upon knowledge fromthe fields of dynamics, thermodynamics, fluid mechanics, heat transfer, and machine design. Topics covered include vehicle dynamics, internal combustion engines, power transmission, and advanced technology vehicles. The course includes appropriate exams and automobile related design project.

ME 10445: Automotive Engineering - Powertrains 3 s.h.
Prerequisite: ME 10301
This course deals with the engineering of automotive powertrains. The course draws upon knowledge from the fields of dynamics, thermodynamics, fluid mechanics, heat transfer, machine design, and internal combustion engines in the design of powertrains. Topics covered include powertrain matching, automatic, manual, and CVT transmissions, hybrid vehicle transmissions, final drive units, and AWD/4WD systems.

ME 10446: Automotive Engineering - Vehicle Dynamics 3 s.h.
Prerequisite: ENGR 01291
This course deals with automobile dynamics and motion. The course draws upon knowledge from the fields of dynamics, fluid mechanics, machine design, internal combustion engines, and vehicle powertrains in the study of vehicle dynamics. Topics covered include lateral dynamics, tire dynamics, braking, steady-state handling, transient handling, vehicle stability, vehicle ride and comfort, and suspension design.

ME 10450: Introduction To Advanced Solid Mechanics 3 s.h.
Prerequisite(s): ENGR 01273 and MATH 01235
This course will provide students with a basic understanding of the methods involved in solving problems that combine stresses, strains, and displacement in solid bodies. The course extends topics covered in the sophomore-level solid mechanic course to include derivations of well-used solutions, transformations between coordinate systems, strength, and failure used in design, and, most importantly, application of these topics to the solution of relevant problems.

ME 10451: Introduction To The Mechanics Of Continuous Media 3 s.h.
Prerequisite(s): ENGR 01273 and MATH 01235
The fundamental concepts governing the behavior of continuous media, primarily solids, are introduced. Governing equations are derived for classical problems such as the spinning disk. Constitutive laws are employed in the solution of boundary value problems in both Cartesian and cylindrical coordinate systems. Classical solutions are examined using symbolic mathematics and finite element software.

ME 10452: Introduction To Structural Acoustics 3 s.h.
Prerequisite(s): ENGR 01273 and MATH 01235
The control of noise is an important part of engineering practice in many industries today. Vital to effective noise control is an understanding of wave behavior in structures. This course will teach engineers the fundamentals of the generation of noise in structures, with an emphasis on the phenomena of mechanical resonance and modal behavior. Topics covered include vibration of strings, bars, beams and plates. An introduction to simple acoustic sources will be given.

ME 10453: Introduction To Analytic Dynamics 3 s.h.
Prerequisite(s): ENGR 01291 and MATH 01235
Newton/Euler and Lagrangian formulations for three-dimensional motion of particles and rigid bodies. Modern analytical rigid body dynamics equation formulation and computational solution techniques applied to mechanical multibody systems. Kinematics of motion generalized coordinates and speeds, analytical and computational determination of inertia properties, generalized forces, Lagrange's equations, holonomic and nonholonomic constraints, constraint processing, computational simulation.

ME 10454: Introduction To The Elastic Stability Of Structures 3 s.h.
Prerequisite(s): ENGR 01291 and ENGR 01273
Many important structures (e.g. buildings, bridges, aircraft frames) have buckling as a primary mode of failure. Because of this, it is important for structrual engineers to have at least a cursory knowledge of elastic stability phenomena. This course will provide senior level Mechanical Engineering students with an overview of elastic stability in structures, and a brief introduction to dynamic stability, as applied to rotating shafts. Applications of mathematical theory to real-world structural design problems will be emplasized.

ME 10455: Introduction To Nanotechnology 3 s.h.
Prerequisite(s): PHYS 00222 and CHEM 06100
This course explores the science and engineering at the nanometer scales. Topics include fundamentals of nanotechnology; types and properties of nanomaterials; methods of fabrication; how these materials are characterized and the potential applications.

ME 10456: Introduction to Special Topics in Mechatronics 3 s.h.
Prerequisite: ME 10442
This course builds on the skills and background knowledge obtained from the Mechatronics course. The students will further their exploration on more advanced topics as well as expand their exposure to various related fields. The topics include advanced mechatronics components such as sensing, actuation, and power management, integrated mechatronic systems such as robots (including forward and inverse kinematics of robotics), unmanned vehicles, and automations, as well as related areas such as Programmable Logic Controller, Internet of Things, blockchain, ethics, and regulations. As the field of mechatronics is rapidly evolving, more front-line topics will be included to reflect the future development.

ME 10460: Introduction to Composite Materials 3 s.h.
Prerequisite: ENGR 01273 with C- or better
This course presents the fundamental concepts in the mechanics and manufacturing of composite materials. Topics include micromechanics (rule of mixtures and its applications in homogenization and the effective property determination) and macromechanics of composites. Classical laminate theory and its application to calculate properties of lamina and laminate, effects of stacking sequence, etc. are covered. The course briefly discusses failure theories and basic testing of composite laminates. Simulation and hands-on projects (including composite laminate fabrication) are included to help students gain a better understanding of composite materials.

ME 10461: Introduction To Engineering Optimization 3 s.h.
Prerequisite(s): MATH 01235
Objective function for minimization and setting up the constraints are presented for engineering problems. Solution techniques using gradient based methods, zero order methods, and penalty techniques are discussed. Formulation and solution of linear programming, non-linear programming, integer and discrete programming problems in engineering are covered. Algorithms are implemented in computer programs for problem solution.

ME 10462: Intro to FEA with ANSYS 3 s.h.
Prerequisite: ENGR 01410
This course presents the fundamentals of finite element analysis & simulation using Ansys (a commercial FEA code). Ansys is widely used by mechanical and aerospace engineering industry. The course introduces methods to model material properties, describe boundary conditions, and discretize solid bodies into proper finite elements. The Static Structural Module of ANSYS workbench is covered in some details. Dynamics and transient simulations are also covered using ANSYS Explicit module. Concepts related to topology optimization and analysis of composite materials (including multi-scale modeling) are briefly discussed.

ME 10466: Introduction to Soft Robotics 3 s.h.
Prerequisite: ECE 09205 or ME 10320
This course introduces students to the fundamentals of the soft robots, wearable robotics, and other bioinspired soft intelligent systems. A survey of the field will be provided, including recent advancements and comparison to traditional rigid bodied robotic counterparts. The course focuses on principles of the design, fabrication and modeling of soft, flexible sensors and actuators. Various actuation and sensing principles as well as modeling and simulation of soft materials and structures will be discussed.

ME 10470: Introduction To Biomechanics 3 s.h.
Prerequisites: ENGR 01291
This course presents an introduction to biomechanics of human motion. The course will encompass the use of engineering principles to describe, analyze and assess human movement. Topics will include kinematics, kinetics, anthropomethy applied to the synthesis of human movement and muscle mechanics.

ME 10471: Introduction To Biotransport 3 s.h.
Prerequisites: ME 10335
This course introduces biotransport in terms of heat transfer, mass transfer, and fluid mechanics related to the human body. Some examples include cryosurgery of warts and drug delivery from skin patches. Beginning with biotransport problem formulation, the course explores software tools that enable mathematical modeling. Fundamental principles of model validation, mesh convergence, sensitivity analysis, and objective functions are presented. Several modeling labs are used to build software skill and explore various heat and mass transfer processes inside and around the human body. Medical device development concepts are presented, making a connection between modeling activities and product development. The final weeks of this class are dedicated to a final project on a student-selected topic.

ME 10472: Introduction To Biomaterials 3 s.h.
Prerequisites: ENGR 01283
The goal of this course is to present an introduction to the numerous issues that factor into the choice of material selection for biomedical devices. Issues to be examined include mechanical properties, biocompatibility, production costs, and ease of manufacture. This course will familiarize students with relevant material issues and highlight the process for matching material performance with the desired design characteristics and functionality.

ME 10474: Introduction to Additive Manufacturing & Characterization 3 s.h.
Prerequisite(s): ENGR 01283
This course covers topics related to the fundamental concepts of additive manufacturing (AM) and materials characterization. The first 60% of the class focuses on the introduction and basic principles of additive manufacturing, including but not limited to AM of polymeric, ceramic, and metallic parts. Topics such as ink-based direct writing, laser-assisted additive manufacturing, thermal spray, and hybrid AM technologies will be discussed. The second part of the class covers topics on a variety of techniques used to characterize the structure and composition of engineering materials, including metals, ceramics, polymers, and composites with a special focus on structures fabricated by AM. The emphasis

will be on microstructural characterization techniques, including optical and electron microscopy as well as X-ray diffraction techniques. Topics related to the novel mechanical characterization techniques will be discussed briefly. Real-world examples of materials characterization will be presented throughout the course, including microstructural, mechanical, and failure characterization of additive manufactured structures.

ME 10480: Intro to Aerospace Vehicles 3 s.h.
Prerequisite: ENGR 01291
This course provides an introduction to the design of aerospace vehicles, with a focus on passenger jet and combat aircraft. Fundamental concepts of aerodynamics, aircraft performance, flight dynamics, and structural design are covered. Unmanned air vehicles and space launch vehicles are also discussed briefly. Student teams are required to perform airplane conceptual design and submit their project report.

ME 10482: Intro to Flight Dynamics 3 s.h.
Prerequisite: ME 10480
This course provides an introduction to flight dynamics of airplanes. Flight dynamic equations of unsteady motion and linearized EOM are presented. Stability and control of longitudinal and lateral - directional motions are studied. Student teams are required to perform S&C analysis of an airplane and submit a project report.

MET 07102: Engineering Graphics for MET 3 s.h.
This course covers fundamentals in drafting techniques, graphics, computer-aided design and manufacturing. Students will gain a foundation in CAD and also get an introduction to manufacturing models and cutter location data using CAD/CAM software as AutoDesk Fusion 360 and SolidWorks. This will prepare them for advanced engineering tech design and CNC programming.

MET 07252: CNC Programing 4 s.h.
Prerequisite(s): MET 07102
This course is a study of the capabilities, programming procedures, advantages, and disadvantages of numerical control (N/C) and computerized numerical control (CNC) metalworking machine tools. Manual methods for generating, debugging, and running point-to-point and continuous path programs including linear and circular interpolation, canned cycles, loops, and subroutines to produce work pieces of increasing complexity. Lecture and laboratory.

MET 07255: Matlab Programming for MET 3 s.h.
This course is designed to create complex solutions to typical engineering challenges. The solution to these challenges can be completed utilizing the use of a structured programming code.

MET 07271: Statics for MET 3 s.h.
Co-Requisite(s): MATH 01130
This course covers vector calculation of forces, moments, and equilibrium of particles and rigid bodies, centroid and moment of inertia. Students will gain an adequate knowledge of concentrated and distributed forces and develop the necessary skills to analyze a moderately complicated system.

MET 07291: Dynamics for MET 3 s.h.
Prerequisite(s): MET 07271
This course covers Kinematics and Kinetics, the work-energy principle, impulse and momentum, rigid body motion.

BINF 05355: Bioinformatics: Biological Applications 3 s.h.
Prerequisite: BINF 07250
This course in bioinformatics covers the application of modern computational and functional genomics methods to current questions in biological and biomedical sciences. Bioinformatics approaches and philosophy will be highlighted through exploration of research problems in cell and developmental biology, molecular biology, population genetics, evolutionary biology, and ecology. Collaborative learning and problem-solving using computational, statistical and genomics methods will be emphasized.

BINF 05360: Programming for Molecular Biology 3 s.h.
Prerquisites: (MCB 01102 with minimum grade of C- OR BIOL 01203 with minimum grade of C-) AND BINF 05250
This lecture course is designed for third or fourth year students in the Bioinformatics major. Students will learn the programming skills necessary to be competent in writing programming to analyze primary research data. Specifically, students will expand on their understanding of basic unix command line programming and further develop fluency in programming languages, including Python and R, (specifically analytics, not visualization). This course will involve considerable practical application, and students will learn to analyze data critically, design experiments, collect and interpret data, create graphs and figures, and present their results in oral presentations and formal lab reports.

BINF 07399: Bioinformatics: Biochemical Applications 3 s.h.
Prerequisite(s): CHEM 07201 or (CHEM 07202 and BIOL 01106) or CHEM 07203
This introductory course in bioinformatics covers the application of modern computational methods to the fundamentals of molecular biology (protein and DNA structure, transcription and translation). The biochemical tools of molecular biology will be discussed. Methods of aligning DNA sequences will be studied in relation to mutations, phylogenetic tree analysis, forensic science, and genetic diseases. Algorithms for protein structure prediction, microarray technology and gene expression will be explored. Computer based lab exercises will support the topics presented.

BINF 07500: Bioinformatics Seminar 3 s.h.
Prerequisites: CHEM 07595 and BIOL 05555 and CS 07595
This advanced literature survey course in bioinformatics covers current and emerging topics in the field of Bioinformatics through the analysis of current primary literature. The multidisciplinary nature of bioinformatics will be highlighted through examples of computational approaches to solving biological, biochemical, and applied biomedical research problems. Emphasis is placed on the interplay between computational methods and how they are applied to solve real problems in biology and biochemistry. Students will engage in semester-long research projects culminating in a presentation of a topic from the primary literature.

BINF 07595: Bioinformatics: Advanced Biochemical Applications 3 s.h.
Prerequisite: CHEM 07548
This introductory course in bioinformatics covers the application of modern computational methods to the fundamentals of molecular biology (protein and DNA structure, transcription and translation). The biochemical tools of molecular biology will be discussed. Methods of aligning DNA sequences will be studied in relation to mutations, phylogenic tree analysis, forensic science, and genetic diseases. Algorithms for protein structure prediction, microarray technology and gene expression will be explored. Computer based lab exercises will support the topics presented. Students will be required to do a literature based research project.

INTR 01340: Undergraduate Research Thesis 1 s.h.
Prerequisite(s): Instructor Permission
This course teaches undergraduate students how to enhance undergraduate research experiences through the preparation of an undergraduate research thesis. Topics covered include exploration of the academic literature in each student's research field, proper citation of the literature, data analysis and visual representation techniques, paraphrasing while avoiding plagiarism, and effective scientific writing. Students are expected to have foundational understanding of the academic literature and an ongoing research experience. This course may be taken more than once in the process of building toward a comprehensive Undergraduate Research Thesis.

MCB 01101: Foundations in Biology for Biomedical Sciences I 4 s.h.
This laboratory course is the first of the two semester sequence designed for students not majoring in Biology but interested in pursuing studies in biomedical areas through advanced Biology courses. This sequence serves as an introductions to fundamental biological concepts and the foundation for upper-level biology courses for such students. Both courses of the sequence focus on genetics, cell biology, and evolution and theory relation to human health. This course focuses more specifically on the molecular basis of variation and heredity and its evolutionary context.

MCB 01102: Foundations in Biology for Biomedical Sciences II 4 s.h.
Prerequisite(s): BIOL 01205 or MCB 01101
This laboratory course is the second of the two semester sequence designed for students not majoring in Biology but interested in pursuing studies in biomedical areas through advanced Biology courses. This sequence serves as an introduction to fundamental biological concepts and the foundation for upper-level biology courses for such students. Both courses of the sequence focus on genetics, cell biology, and evolution and their relation to human health. This course focuses on molecular and cellular mechanisms of life and their evolutionary context.

MCB 01201: Molecular Biology Methods 4 s.h.
Prerequisite(s): MCB 01102 or BIOL 01203; or permission of instructor
This laboratory course is designed for second year students in the Molecular and Cellular Biology major. Students will learn the current theory and methods of Molecular Biology, including cloning, restriction digestion, DNA and RNA analysis, PCR, qPCR, protein analysis, Western blots, and genetic manipulation of cells. This course will involve considerable labwork, and students will learn to analyze data critically, design experiments, collect and interpret data, create graphs and figures, and present their results in oral presentations and formal lab reports.

MCB 01306: Translational Cell Biology 3 s.h.
Prerequisite(s): BIOL 01206 or BIOL 01203 or MCB 01102
This course focuses on translational approaches of cellular processes towards analysis, diagnostics, and treatment of human diseases. Topics including biological causes of cellular and metabolic diseases, molecular diagnostics, gene therapy, and stem cell therapy will be addressed.

MCB 01307: Translational Cell Biology Lab 2 s.h.
Prerequisite(s): MCB 01102 or BIOL 01203 grade of C- or better; Corequisite: MCB 01306
This laboratory course is designed to complement the undergraduate-level Translational Cell Biology course (MCB 01306). It explores a range of fundamental cellular biology questions that have a direct impact in treating human diseases and the experimental approaches needed to answer them. Students will use genetically tractable disease models to learn how cell biology methods can be applied to disease. This course will combine laboratories and project-based learning experiences, in which students will further develop skills in experimental design, performing experiments, data processing and analysis, as well as oral and written communication.

MCB 01308: Special Topics in Molecular & Cellular Biosciences 2 to 3 s.h.
Prerequisite(s): MCB 01102 and BIOL 01203 grade C- or better
This course is designed for 3rd and 4th year students and will explore a specialized topic in the area of Molecular and Cellular Biosciences. Topics discussed will investigate areas (e.g. Epigenetics, Cancer Biology, Systems Biology) and/or innovative approaches to treating disease (e.g. Gene editing, Immunotherapy, Precision Medicine). Students will be expected to perform literature reviews to determine the current status in the particular area of study. This course will involve review of current literature, critical reasoning and group discussion,as well as written and/or oral reports.

MCB 01320: Introduction to Virology 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 01211 or BIOL 01202 with C- or better and at least Junior status
This laboratory course explores topics such as virus origin and evolution, their physical structure and chemical composition, taxonomy, and modes of transmission. The mechanisms involved in their control of the machinery of their host cells will be studied in detail. Particular focus will be placed on important virus-associated human and animal diseases, AIDS, and the role of viruses in cancer.

MCB 01333: Cellular Biochemistry 4 s.h.
Prerequisite: CHEM 07203; Restricted to TBS majors
This course is intended to introduce students majoring in Translational Biomedical Science to fundamental biochemical principles. This will include structure and function of biomolecules, biochemical pathways in cells, cellular processes, and examples that are relevant to disease states. The laboratory component will focus on the basic biochemical techniques required for purification and analysis of biomolecules.

MCB 01334: Medical Biochemistry 3 s.h.
Prerequisite(s): BMS 01333 or MCB 01333 or CHEM 07348 or BIOL 14440
This course is intended to introduce students majoring to fundamental biochemical principles relating to disease states. This will include structure and function of biomolecules, biochemical pathways in cells, and cellular processes relevant to diseases and medical disorders. Special emphasis will be placed on reviewing and evaluating peer-reviewed medical literature.

MCB 01360: Biophysics I 4 s.h.
Prerequisite(s): PHYS 00300 OR MCB 01102
This course is aimed at understanding the physics of biological systems. The goal of the course is to quantitatively define biological systems and their functions. Key emphasis will be placed on (1) understanding theories, laws, and axioms that govern systems and their behavior and (2) the use of physics to determine quantitative information about systems and their behaviors. For each topic, the basic laws of physics will be reviewed followed by their application to specific biomolecular or biological system examples. The laboratory component is aimed at giving students hands-on experience in measurement and observation for biological systems.

MCB 01407: Molecular Microbiology 4 s.h.
Prerequisites: MCB 01102 with minimum grade of C- OR BIOL 01203 with minimum grade of C-
The Molecular Microbiology course will address concepts that are essential for understanding of the molecular biology of microorganisms: environmental sensing and signal transduction pathways: regulation of gene expression: transcription, bacterial operons, and post-transcriptional regulatory mechanisms; bacterial cell division and its regulation, bacterial cell wall biosynthesis, mechanisms of adherence and invasion, molecular mechanisms of bacterial persistence and antibiotic resistance. This course provides students with opportunities to study advanced methods of genetic engineering: DNA cloning, the nature, selection and design of DNA cloning vectors, restriction enzymes, modifying enzymes, polymerases, bacterial transformation, Western blot, and other tools and techniques used in molecular biology. Some aspects of bioinformatics and genomics, as well as other advanced molecular technologies will be discussed.

MCB 01414: General Aspects of Infectious Agents 3 s.h.
Prerequisite(s): BMS 01333 or MCB 01333 or CHEM 07348 or BIOL 14440
This course aims at preparing students for health professions and biomedical research by exploring the biology of infectious agents and host-pathogens interactions. Infectious agents among viruses, bacteria, parasites and/or fungi will be selected to examine life cycles, pathogenicity and therapy. Translational use of pathogens in disease prevention and therapeutics will also be explored.

MCB 01421: Fundamentals in Cell Culture Techniques 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 01211 or BIOL 01202 with C- or better and at least Junior status
This course features hands-on instruction to introduce students to techniques, methodologies, principles, and applications of cell culture. The students will learn principles of cell culture in monolayers and suspension as well as concepts of cell differentiation and tissue histology.

MCB 01435: Cell Culture Technology 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 01211 or BIOL 01202 with C- or better and at least Junior status
This laboratory course introduces advanced biology students to the history, theory, and techniques of maintaining live cells in long-term culture. The combination of lectures and laboratory experiences have been designed to demonstrate cell biology in both theory and practice. The course is very much geared to a "hands-on" approach in the context of real laboratory operations in neighboring work areas.

MCB 01481: Cellular and Molecular Neuroscience 3 s.h.
Prerequsites: At least Junior Status and B+ or higher in PSY 10315 or BIOL 01203 or MCB 01102 or Permission of Instructor
This lecture course will cover the major issues of cellular neurosciences, including molecular and cellular events underlying neutral signaling, synaptic transmission, neuronal development and migration, and neuronal plasticity will be discussed. Topics include the cellular structure of neurons and glia, neurogenesis, synaptogenesis, molecular bases of neuronal transmission and memory, and the genetics of behavior. Special attention will be paid to current issues such as stem cell transplantation, neuronal regeneration of the central nervous system, neurological disorders, and animal models being used in these areas.

MCB 01506: Graduate Translational Cell Biology 3 s.h.
This graduate course focuses on advanced translational approaches of cellular processes towards analysis, diagnostics, and treatment of human diseases. Topics including biological causes of cellular and metabolic diseases, molecular diagnostics, gene therapy, and stem cell therapy will be addressed.

MCB 01521: Graduate Cell Culture Techniques 4 s.h.
This graduate course features hands-on instruction in the techniques, methodologies, principles, and applications of mammalian cell culture. The students will learn principles of cell culture in monolayers and suspension as well as concepts of cell proliferation, viability, differentiation and tissue histology. Stem cell phenotypes and differentiation genetic marker profiles will be compared for adipogenesis, chondrogenesis, and osteogenesis.

MCB 01538: Graduate Immunology 4 s.h.
This graduate course studies infection and resistance and the principles and types of immunity and hypersensitivity. Laboratory applications include: antigen-antibody formation, structure and reactivities.

MCB 01550: Graduate Molecular Genetics 4 s.h.
This graduate course considers the principal concepts in biochemical genetics including gene function and regulation, DNA replication, and mutation. Laboratories focus on fundamental biotechnology concepts and techniques.

MCB 10345: Human Physiology 4 s.h.
Prerequisite(s): (BIOL 01203 or MCB 01102 or BIOL 01211 or BIOL 01202 withC- or better) and CHEM 07200 with D- or better and at least Junior status
This course surveys the basic physiology of the human organism, emphasizing the nervous and circulatory systems.

MCB 10346: Human Physiology Lecture 3 s.h.
Prerequisite(s): MCB 01102 or BIOL 01203 with grade C- or better and CHEM 07201; Junior Status
Human Physiology is a lecture course aimed at preparing students for health professions or a career in biomedical sciences by supplementing their knowledge with the understanding of whole human systems. A strong foundation in the interactions between whole systems is important for students planning a career in biomedical sciences and health professions. This human physiology course will provide students with an understanding of biological systems from cells to organ systems.

MCB 10481: Cellular and Molecular Neuroscience 3 s.h.
Prerequisite: BIOL 01203 or MCB 01102 with a B+ or higher
This lecture course will cover the major issues of cellular neurosciences, including molecular and cellular events underlying neutral signaling, synaptic transmission, neuronal development and migration, and neuronal plasticity will be discussed. Topics include the cellular structure of neurons and glia, neurogenesis, synaptogenesis, molecular bases of neuronal transmission and memory, and the genetics of behavior. Special attention will be paid to current issues such as stem cell transplantation, neuronal regeneration of the central nervous system, neurological disorders, and animal models being used in these areas.

MCB 11338: Immunology 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 orBIOL 01211 or BIOL 01202 with C- or better and at least Junior status
This course studies infection and resistance and the principles and types of immunity and hypersensitivity. Laboratory applications include: antigen-antibody formation, structure and reactivities.

MCB 22410: Concepts in Human Genetics 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 01211 or BIOL 01202 with C- or better and at least Junior status
The course will discuss the application of genetics principles to the human species. All major areas of genetics such as transmission genetics, cytogenetics, biochemical genetics, molecular genetics and population genetics will be covered. The emphasis will be placed on fundamental concepts and technological advances in the study of human genetics as they pertain to medical practice. The principles of human genetics applied to counseling, screening, ethics, law, and the evaluation of their social implications will also be addressed. The laboratory sessions will focus on the practical analysis of various case studies related to different human genetic disorders. Oral presentation of primary literature articles by the students is expected.

MCB 22450: Molecular Genetics 4 s.h.
Prerequisite(s): BIOL 01203 or MCB 01102 or BIOL 0211 or BIOL 01202 with C- or better and at least least Junior status
This course considers the principal concepts in biochemical genetics including gene function and regulation, DNA replication, and mutation. Laboratories focus on fundamental biotechnology concepts and techniques.

MCB 22598: Human Genetics 4 s.h.
Patterns of transmission of single gene traits, human biochemical genetics, autosomal and sex-linked chromosomal anomalies, immunogenetics and blood groups, screening for genetic diseases and prenatal diagnosis. Lecture, laboratory sessions or the equivalent. This course may not be offered annually.

TBS 01105: Scientific Communication in Biomedical Sciences I 2 s.h.
This is the first course in a sequence of two courses that introduces and provides an overview of scientific communication within the field of translational biomedical sciences. Students will learn how to perform literature searches for both primary and secondary biomedical research papers, critically read journal articles and understand the basic structure of research manuscripts. This class focuses on the essential skills of scientific writing including abstracts, laboratory reports as well as grant proposals.

TBS 01110: Scientific Communication in Biomedical Sciences II 2 s.h.
Prerequisite(s): BMS 01105 or TBS 01105 (may be taken concurrently)
This is the second course in a sequence of two courses that introduces and provides an overview of scientific communication within the field of translational biomedical sciences. Students will learn how to perform literature searches for both primary and secondary biomedical research papers, critically read journal articles and understand the basic structure of research manuscripts. This class will introduce students to the essential skills needed to enter the biomedical work force by learning how to prepare curriculum vitae.

TBS 01220: Translational Biomedical Research I 3 s.h.
Prerequisite: MCB 01102
This is the first course in a sequence of six courses providing meaningful research training for students majoring in Translational Biomedical Science. Student research teams will work on current research problems in the biomedical field. The specific research problem will be developed and assigned by a research advisor. Student participants will develop a detailed knowledge of measurements techniques and limitations while also gaining an in-depth understanding of a current research area in the biomedical field. Students will be required to complete a literature search and review. Communication skills, both oral and written, will be emphasized.

TBS 01230: Translational Biomedical Research II 3 s.h.
Prerequisite: BMS 01220 or TBS 01220
This is the second course in a sequence of six courses providing meaningful research training for students majoring in Translational Biomedical Science. Student research teams will work on current research problems in the biomedical advisor. Student participants will develop a detailed knowledge of measurement techniques and limitations while also gaining an in-depth understanding of a current research area in the biomedical field. Students will be required to complete a literature search and review. Communications skills, both oral and written, will be emphasized.

TBS 01315: Biomedical Technologies I 3 s.h.
Prerequisite(s): MCB 01102 OR BIOL 01203
This course introduces and provides an overview of the instruments that are commonly found in the biomedical, life science, and biophysical research fields. Students will learn about (1) which types of instruments exist, (2) the science behind the measurements, (3) the nuts & bolts configuration of the instruments, and (4) the types of biomedical systems they can best interrogate. The course utilizes primary scientific literature sources and includes observation and inspection of select instruments. The goal of the course is to familiarize students with the interdisciplinary tools that they will need to be successful in a career in biomedical research.

TBS 01320: Translational Biomedical Research III 3 s.h.
Prerequisite(s): BMS 01230 or TBS 01230
This is the third course in a sequence of six courses providing meaningful research training for students majoring in Translational Biomedical Science. Student research teams will work on current research problems in the biomedical field. The specific research problems will be determined in collaboration with a research advisor. Student participants will develop a detailed knowledge of measurement techniques and limitations while also gaining a in-depth understanding of a current research area in the biomedical field. Students will be required to compete a literature search and review and make significant creative contributions influencing the direction of the research. Communication skills, both oral and written, will be emphasized.

TBS 01330: Translational Biomedical Research IV 3 s.h.
Prerequisite(s): BMS 01320 or TBS 01320
This is the fourth course in a sequence of six courses providing meaningful research training for students majoring in Translational Biomedical Science. Students research teams will work on current research problems in the biomedical field. The specific research problem will be determined in collaboration with research advisor. Student participants will develop a detailed knowledge of measurement techniques and limitations while also gaining an in-depth understanding of a current research area in the biomedical field. Students will be required to complete a literature search and review and make significant creative contributions influencing the direction of the research. Communication skills, both oral and written, will be emphasized.

TBS 01370: Biomedical Technologies II 4 s.h.
Prerequisite(s): BMS 01315 or TBS 01315 or PHYS 00315
This course provides an overview of the types of instruments that students may encounter when conducting research in a pre-clinical or hospital setting. The class primarily focuses on instruments that are used in diagnostic and therapeutic applications of biomedical research ranging from small animals (e.g., mice) to humans. Students will learn about the theory behind the instruments, their principle components, and how they are used to positively affect human lives. The course utilizes primary scientific literature and addresses the material in an approachable and relatable manner. The goal of the course is to familiarize students with the types of instruments that they will likely utilize in a career in translational and/or clinical biomedical research.

TBS 01420: Translational Biomedical Research V 3 s.h.
Prerequisite(s): BMS 01330 or TBS 01330
This is the fifth course in a sequence of six courses providing meaningful research training for students majoring in Translational Biomedical Science. Student research teams will work on current research problems in the biomedical field. The specific research problem will be determined in collaboration with a research advisor. Student participants will develop a detailed knowledge of measurement techniques and limitations while also gaining an in-depth understanding of a current research area in the biomedical field. Students will be required to complete a literature search and review and perform independent research with faculty mentors providing feedback and redirection. Communications skills, both oral and written, will be emphasized.

TBS 01430: Translational Biomedical Research VI 3 s.h.
Prerequisite(s): BMS 01420 or TBS 01420

TBS 01450: Biomedical Frontiers Seminar I 1 s.h.
Prerequisite(s): Senior Standing
This is a Fall semester capstone course that integrates current scientific research in the field of biomedical sciences performed by faculty members of the Biomedical & Translational Science department. This course is designed to promote the students' understanding of the role of different disciplines of science in the study of biomedical paradigms and models. Students will obtain insight of how fundamental science contributes to emerging research and discoveries in the field of biomedical sciences.

TBS 01451: Biomedical Frontiers Seminar II 1 s.h.
Prerequisite(s): Senior Standing
This is a Spring semester capstone course that integrates current scientific research in the field of biomedical sciences performed by faculty members of the Biomedical & Translational Science department. This course is designed to promote the students' understanding of the role of different disciplines of science in the study of biomedical paradigms and models. Students will obtain insight of how fundamental science contributes to emerging research and discoveries in the field of biomedical sciences.

MUS 01029: Major Applied Voice 3 2 s.h.
The student must pass a departmental audition before being accepted into this course. Performance in student recitals and ensembles is required each semester. See Department Curriculum Guides for specific requirements for vocal majors.

MUS 01050: Student Recitals 0 s.h.
Students perform for both faculty and students. Seven or eight semesters are required, depending on the chosen curriculum.

MUS 01051: Student Recitals 0 s.h.
Students perform for both faculty and students. Seven or eight semesters are required, depending on the chosen curriculum.

MUS 01053: Student Recitals 0 s.h.
Students perform for both faculty and students. Seven or eight semesters are required, depending on the chosen curriculum.

MUS 01054: Student Recitals 0 s.h.
Students perform for both faculty and students. Seven or eight semesters are required, depending on the chosen curriculum.

MUS 01055: Student Recitals 0 s.h.
Students perform for both faculty and students. Seven or eight semesters are required, depending on the chosen curriculum.

MUS 01056: Student Recitals 0 s.h.
Students perform for both faculty and students. Seven or eight semesters are required, depending on the chosen curriculum.

MUS 01057: Student Recitals 0 s.h.
Students perform for both faculty and students. Seven or eight semesters are required, depending on the chosen curriculum.

MUS 01101: Professional Applied Instrument 1 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01102: Professional Applied Instrument 2 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01103: Major Applied Instrument 1 2 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01104: Major Applied Instrument 2 2 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01105: Secondary Applied Instrument 1 1 s.h.
An intensive study of the major instrument (for music minors) or additional instrument (for music majors) in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01106: Secondary Applied Instrument 2 1 s.h.
An intensive study of the major instrument (for music minors) or additional instrument (for music majors) in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01107: Professional Applied Voice 1 3 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Vocal Performance majors only.

MUS 01108: Professional Applied Voice 2 3 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Vocal Performance majors only.

MUS 01109: Major Applied Voice 1 2 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Music Education and Bachelor of Arts in Music students only.

MUS 01110: Major Applied Voice 2 2 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Music Education and Bachelor of Arts in Music students only.

MUS 01111: Secondary Applied Voice 1 1 s.h.
Weekly half hour instruction designed to develop the student's vocal instrument. Acceptance is by audition only.

MUS 01112: Secondary Applied Voice 2 1 s.h.
Weekly half hour instruction designed to develop the student's vocal instrument. Acceptance is by audition only.

MUS 01113: Jazz Improvisation 1 2 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01114: Jazz Improvisation 2 2 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01115: Secondary Jazz Improvisation 1 1 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01116: Secondary Jazz Improvisation 2 1 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01117: Instrumental Techniques Lab A 1 s.h.
Prerequisite: Admittance into the Bachelor of Music in Jazz Studies
Instrumental Techniques Labs are designed for Jazz Music studies students to hone their fundamental instrument performance skills and to prepare them for successful performance careers.

MUS 01118: Instrumental Techniques Lab B 1 s.h.
Prerequisite: Admittance into the Bachelor of Music in Jazz Studies
Instrumental Techniques Labs are designed for Jazz Music studies students to hone their fundamental instrument performance skills and to prepare them for successful performance careers.

MUS 01119: Instrumental Techniques Lab C 1 s.h.
Prerequisite: Admittance into the Bachelor of Music in JazzStudies
Instrumental Techniques Labs are designed for Jazz Music studies students to hone their fundamental instrument performance skills and to prepare them for successful performance careers.

MUS 01120: Instrumental Techniques Lab D 1 s.h.
Prerequisite: Admittance into the Bachelor of Music in Jazz Studies
Instrumental Techniques Labs are designed for Jazz Music studies students to hone their fundamental instrument performance skills and to prepare them for successful performance careers.

MUS 01121: Instrumental Techniques Lab E 1 s.h.
Prerequisite: Admittance into the Bachelor of Music in Jazz Studies
Instrumental Techniques Labs are designed for Jazz Music studies students to hone their fundamental instrument performance skills and to prepare them for successful performance careers.

MUS 01122: Performance Applied Instrument 1 3 s.h.
An intensive study of the major instrument in preparation for college teaching and/or professional performance. The student must pass a departmental audition before being accepted into this course. Performance in student recitals and ensembles is required each semester.

MUS 01123: Performance Applied Instrument 2 3 s.h.
Prerequisite: MUS 01122
An intensive study of the major instrument in preparation for college teaching and/or professional performance. The student must pass a departmental audition before being accepted into this course. Performance in student recitals and ensembles is required each semester.

MUS 01129: Chamber Music I 1 s.h.
Small groups in which the individual performer has the opportunity to develop skills under the guidance of a professional musician. These small groups will explore literature unique to their composite formation.

MUS 01130: Chamber Music II 1 s.h.
Small groups in which the individual performer has the opportunity to develop skills under the guidance of a professional musician. These small groups will explore literature unique to their composite formation.

MUS 01131: Chamber Music III 1 s.h.
Small groups in which the individual performer has the opportunity to develop skills under the guidance of a professional musician. These small groups will explore literature unique to their composite formation.

MUS 01132: Chamber Music IV 1 s.h.
Small groups in which the individual performer has the opportunity to develop skills under the guidance of a professional musician. These small groups will explore literature unique to their composite formation.

MUS 01150: Jazz Education Seminar 1 s.h.
A Seminar which is repeated over four semesters. The Seminar is designed to address topics in jazz education in a group performance setting.

MUS 01201: Professional Applied Instrument 3 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01202: Professional Applied Instrument 4 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01203: Major Applied Instrument 3 2 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01204: Major Applied Instrument 4 2 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01205: Secondary Applied Instrument 3 1 s.h.
An intensive study of the major instrument (for music minors) or additional instrument (for music majors) in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01206: Secondary Applied Instrument 4 1 s.h.
An intensive study of the major instrument (for music minors) or additional instrument (for music majors) in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01207: Professional Applied Voice 3 3 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Vocal Performance majors only.

MUS 01208: Professional Applied Voice 4 3 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Vocal Performance majors only.

MUS 01209: Major Applied Voice 3 2 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Music Education and Bachelor of Arts in Music students only.

MUS 01210: Major Applied Voice 4 2 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Music Education and Bachelor of Arts in Music students only.

MUS 01211: Secondary Applied Voice 3 1 s.h.
Weekly half hour instruction designed to develop the student's vocal instrument. Acceptance is by audition only.

MUS 01212: Secondary Applied Voice 4 1 s.h.
Weekly half hour instruction designed to develop the student's vocal instrument. Acceptance is by audition only.

MUS 01213: Jazz Improvisation 3 2 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01214: Jazz Improvisation 4 2 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01215: Secondary Jazz Improvisation 3 1 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01216: Secondary Jazz Improvisation 4 1 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01217: Improvisation in Music 2 s.h.
Improvisation in Music is designed to round out the music composer's skillset and prepare them for a successful career in composition and performance.

MUS 01222: Performance Applied Instrument 3 3 s.h.
Prerequisite: MUS 01123
An intensive study of the major instrument in preparation for college teaching and/or professional performance. The student must pass a departmental audition before being accepted into this course. Performance in student recitals and ensembles is required each semester.

MUS 01301: Professional Applied Instrument 5 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01302: Professional Applied Instrument 6 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01303: Major Applied Instrument 5 2 s.h.
An intensive study of major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01304: Major Applied Instrument 6 2 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01305: Secondary Applied Instrument 5 1 s.h.
An intensive study of the major instrument (for music minors) or additional instrument (for music majors) in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01306: Secondary Applied Instrument 6 1 s.h.
An intensive study of the major instrument (for music minors) or additional instrument (for music majors) in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01307: Professional Applied Voice 5 3 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Vocal Performance majors only.

MUS 01308: Professional Applied Voice 6 3 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Vocal Performance majors only.

MUS 01309: Major Applied Voice 5 2 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Music Education and Bachelor of Arts in Music students only.

MUS 01310: Major Applied Voice 6 2 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Music Education and Bachelor of Arts in Music students only.

MUS 01311: Secondary Applied Voice 5 1 s.h.
Weekly half hour instruction designed to develop the student's vocal instrument. Acceptance is by audition only.

MUS 01312: Secondary Applied Voice 6 1 s.h.
Weekly half hour instruction designed to develop the student's vocal instrument. Acceptance is by audition only.

MUS 01313: Jazz Improvisation 5 2 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01314: Jazz Improvisation 6 2 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01315: Secondary Jazz Improvisation 5 1 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01316: Secondary Jazz Improvisation 6 1 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01322: Performance Applied Instrument 5 3 s.h.
Prerequisite: MUS 01223
An intensive study of the major instrument in preparation for college teaching and/or professional performance. The student must pass a departmental audition before being accepted into this course. Performance in student recitals and ensembles is required each semester.

MUS 01323: Performance Applied Instrument 6 3 s.h.
Prerequisite: MUS 01322
An intensive study of the major instrument in preparation for college teaching and/or professional performance. The student must pass a departmental audition before being accepted into this course. Performance in student recitals and ensembles is required each semester.

MUS 01401: Professional Applied Instrument 7 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01402: Professional Applied Instrument 8 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01403: Major Applied Instrument 7 2 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01404: Major Applied Instrument 8 2 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01405: Secondary Applied Instrument 7 1 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01406: Secondary Applied Instrument 8 1 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 01407: Professional Applied Voice 7 3 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Vocal Performance majors only.

MUS 01408: Professional Applied Voice 8 3 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Vocal Performance majors only.

MUS 01409: Major Applied Voice 7 2 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Music Education and Bachelor of Arts in Music students only.

MUS 01410: Major Applied Voice 8 2 s.h.
A weekly hour private lesson designed to develop the vocal technique by learning the curricular vocal literature assigned for each level. Emphasis on the aspects of performance: musicality, tone quality, projection, diction, interpretation and style. For Music Education and Bachelor of Arts in Music students only.

MUS 01411: Secondary Applied Voice 7 1 s.h.
Weekly half hour instruction designed to develop the student's vocal instrument. Acceptance is by audition only.

MUS 01412: Secondary Applied Voice 8 1 s.h.
Weekly half hour instruction designed to develop the student's vocal instrument. Acceptance is by audition only.

MUS 01413: Jazz Improvisation 7 2 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01414: Jazz Improvisation 8 2 s.h.
This course presents the blues scale, major, and minor scales/chords for a thorough understanding of the blues form. Students learn the fundamentals of improvisation through performance and written composition.

MUS 01415: Secondary Jazz Improvisation 7 1 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01416: Secondary Jazz Improvisation 8 1 s.h.
This graduated course presents improvisational devices, major and minor scales, chord scales, patterns, jazz harmony, solo structure and a thorough understanding of song forms. Students learn the fundamentals of improvisation through performance and written composition. Transcribing solos and learning of the jazz repertoire are mastered.

MUS 01422: Performance Applied Instrument 7 3 s.h.
Prerequisite: MUS 01323
An intensive study of the major instrument in preparation for college teaching and/or professional performance. The student must pass a departmental audition before being accepted into this course. Performance in student recitals and ensembles is required each semester.

MUS 01423: Performance Applied Instrument 8 3 s.h.
Prerequisite: MUS 01422
An intensive study of the major instrument in preparation for college teaching and/or professional performance. The student must pass a departmental audition before being accepted into this course. Performance in student recitals and ensembles is required each semester.

MUS 04050: Student Recitals 0 s.h.
Students perform for both faculty and students. Seven or eight semesters are required, depending on the chosen curriculum.

MUS 04103: MUSIC THEORY I 4 s.h.
Prerequisite(s): MUS 04110 and MUS 04118
A detailed and integrated study of written music theory and aural skills. After a review of the fundamentals, Music Theory I begins the study of diatonic harmony, tonal sight singing, and melodic dictation. Admission by departmental examination or successful completion of MUS 04118 Music Fundamentals and MUS 04110 Sight Singing and Ear Training.

MUS 04104: MUSIC THEORY II 4 s.h.
Prerequisites: MUS 04103 with minimum grade C- OR (MUS 04130 AND MUS 04132) with minimum grade C-
A detailed and integrated study of written music theory and aural skills. Music Theory II covers diatonic harmony, tonal sight singing, and melodic and harmonic dictation.

MUS 04110: Sight Singing And Ear Training 2 s.h.
The techniques of singing at sight, solfeggio, and taking dictation are reviewed and applied.

MUS 04118: Music Fundamentals 3 s.h.
This course leads to a broader understanding of music through study of its basic elements: melody, rhythm, harmony and form.

MUS 04121: Professional Applied Instrument 1 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04122: Professional Applied Instrument 2 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04125: Music Composition I 2 s.h.
A detailed study of compositional devices emphasizing the twentieth century is made. Compositions are written for available media and performed in class.

MUS 04126: Music Composition II 2 s.h.
This is a continuation of Music Composition I. A detailed study of compositional devices emphasizing the twentieth century. Compositions are written for available media and performed in class.

MUS 04129: Jazz Improvisation 1 to 2 s.h.
This course presents the blues scale, major, and minor scales/chords for a thorough understanding of the blues form. Students learn the fundamentals of improvisation through performance and written composition.

MUS 04130: Music Theory I - Written 2 s.h.
A detailed study of the visual aspects of writing and performing music. The corresponding aural theory section must be taken concurrently. The departmental entrance exams for written and aural theory must be passed before admission to these courses. These courses must be taken in sequence.

MUS 04131: Music Theory II - Written 2 s.h.
Corequisites: MUS 04133Prerequisites: MUS 04130 and MUS 04132 minimum Grade of C-
A detailed study of the visual aspects of writing and performing music. The corresponding aural theory section must be taken concurrently. The departmental entrance exams for written and aural theory must be passed before admission to these courses. These courses must be taken in sequence.

MUS 04132: Music Theory I - Aural 2 s.h.
A detailed study of the aural aspects of writing and performing music. The corresponding written theory section must be taken concurrently. The departmental entrance exams for written and aural theory must be passed before admission to these courses. These courses must be taken in sequence.

MUS 04133: Music Theory II - Aural 2 s.h.
Corequisites: MUS 04131Prerequisites: MUS 04130 and MUS 04132 minimum Grade C-
A detailed study of the aural aspects of writing and performing music. The corresponding written theory section must be taken concurrently. The departmental entrance exams for written and aural theory must be passed before admission to these courses. These courses must be taken in sequence.

MUS 04140: Wind Ensemble 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04141: String Ensemble 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04142: College Band 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04143: Jazz Band 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04144: Orchestra 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04145: Lab Band 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04146: Concert Choir 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04147: Contemp Music Ensemble 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04148: Percussion Ensemble 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04149: Guitar Ensemble 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04150: Flute Ensemble 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04151: Opera Company 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04152: Saxophone Ensemble 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04153: Clarinet Ensemble 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04154: Women's Chorus 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04155: Men's Chorus 0 to 1 s.h.
Variable credit is given to those students who participate.

MUS 04160: Professional Applied Instrumental: Bassoon 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04161: Professional Applied Instrumental: Bass 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04162: Professional Applied Instrumental: Cello 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04163: Professional Applied Instrumental: Clarinet 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04164: Professional Applied Instrumental: Euphonium 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04165: Professional Applied Instrumental: Flute 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04166: Professional Applied Instrumental: French Horn 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04167: Professional Applied Instrumental: Guitar 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04168: Professional Applied Instrumental: Harp 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04169: Professional Applied Instrumental: Oboe 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04170: Professional Applied Instrumental: Organ 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04171: Professional Applied Instrumental: Percussion 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04172: Professional Applied Instrumental: Piano 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04173: Professional Applied Instrumental: Saxophone 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04174: Professional Applied Trombone 1 to 4 s.h.

MUS 04175: Professional Applied Instrumental: Trumpet 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04176: Professional Applied Instrumental: Tuba 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04177: Professional Applied Instrumental: Viola 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04178: Professional Applied Instrumental: Violin 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04179: Professional Applied Instrumental: Jazz Piano 1 to 4 s.h.
An intensive study of one's major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04180: Applied Voice 1 to 4 s.h.
The student must pass a departmental audition before being accepted into this course. Performance in student recitals and ensembles is required each semester. See Department Curriculum Guides for specific requirements for vocal majors.

MUS 04201: Intro to Diction and I.P.A.: English and Latin 1 s.h.
"Intro to Diction and IPA: English and Latin" is a fundamental course designed to acquaint the student with the International Phonetic Alphabet (IPA) and its symbols used in classical repertoire. Students will immerse themselves in understanding, reading, writing and using IPA. The class will also cover the correct pronunciation of Latin and English consonants and vowels and the lyric diction rules of these languages.

MUS 04202: Language Through Vocal Repertoire (Italian) 1 s.h.
Study of the phonetic rules and sounds of the classical pronunciations of Italian as found in Art Song and Opera. The International Phonetic Alphabet is utilized. Singing and class performance is required.

MUS 04203: Language Through Vocal Repertoire (French) 1 s.h.
Study of the phonetic rules and sounds of the classical pronunciations of French as found in Art Song and Opera. The International Phonetic Alphabet is utilized. Singing and class performance is required.

MUS 04204: Language Through Vocal Repertoire (German) 1 s.h.
Study of the phonetic rules and sounds of the classical pronunciations of German as found in Art Song and Opera. The International Phonetic Alphabet is utilized. Singing and class performance is required.

MUS 04216: MUSIC THEORY III 4 s.h.
Prerequisites: MUS 04104 with minimum grade C- OR (MUS 04131 AND MUS 04133) with minimum grade C-
A detailed and integrated study of written music theory and aural skills. Music Theory III covers chromatic harmony and continues the study of tonal sight singing and melodic and harmonic dictation.

MUS 04217: MUSIC THEORY IV 4 s.h.
Prerequisites: MUS 04216 with minimum grade C- OR (MUS 04240 AND MUS 04242) with minimum grade C-
A detailed and integrated study of written music theory and aural skills. Music Theory IV covers musical form, 20th century techniques, tonal and atonal sight singing, and melodic and harmonic dictation.

MUS 04221: Professional Applied Instrument 3 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04222: Professional Applied Instrument 4 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04225: Music Composition III 2 s.h.
This is a continuation of Music Composition II. A detailed study of compositional devices emphasizing the twentieth century is made. Compositions are written for available media and performed in class.

MUS 04226: Music Composition IV 2 s.h.
This is a continuation of Music Composition III. A detailed study of compositional devices emphasizing the twentieth century is made. Compositions are written for available media and performed in class.

MUS 04229: Secondary Applied Piano (Jazz) 1 s.h.
This course includes a basic approach to playing and using the piano in jazz music through an introduction to chords, chord symbols, voicings, root movement, scales (and their relation to chords) and song melodies as played and realized by the jazz pianist.

MUS 04230: Secondary Applied Piano II (Jazz) 1 s.h.
Emphasis is placed on learning how to "comp" and solo on the piano. A comprehensive array of advanced chords and scales is studied, with an introduction to more complicated songs than Secondary Applied Piano I.

MUS 04240: Music Theory III - Written 2 to 4 s.h.
Corequisites: MUS 04242Prerequisites: MUS 04131 and MUS 04133 minimum Grade C-
A detailed study of the visual aspects of writing and performing music. The corresponding aural theory section must be taken concurrently. The departmental entrance exams for written and aural theory must be passed before admission to these courses. These courses must be taken in sequence.

MUS 04241: Music Theory IV - Written 2 to 4 s.h.
Corequisites: MUS 04243Prerequisites: MUS 04240 and MUS 04242 minimum Grade C-
A detailed study of the visual aspects of writing and performing music. The corresponding aural theory section must be taken concurrently. The departmental entrance exams for written and aural theory must be passed before admission to these courses. These courses must be taken in sequence.

MUS 04242: Music Theory III - Aural 2 s.h.
Corequisites: MUS 04240Prerequisites: MUS 04131 and MUS 04133 minimum Grade C-
A detailed study of the aural aspects of writing and performing music. The corresponding written theory section must be taken concurrently. The departmental entrance exams for written and aural theory must be passed before admission to these courses. These courses must be taken in sequence.

MUS 04243: Music Theory IV - Aural 2 s.h.
Corequisites: MUS 04241Prerequisites: MUS 04240 and MUS 04242 minimum Grade C-
A detailed study of the aural aspects of writing and performing music. The corresponding written theory section must be taken concurrently. The departmental entrance exams for written and aural theory must be passed before admission to these courses. These courses must be taken in sequence.

MUS 04309: Chamber Music I 1 s.h.
Small groups in which the individual performer has the opportunity to develop skills under the guidance of a more skilled musician. These small groups can explore literature unique to their composite formation. Courses must be taken in sequence: MUS04.309, MUS04.310, MUS04.409, and MUS04.410.

MUS 04310: Chamber Music II 1 s.h.
Small groups in which the individual performer has the opportunity to develop skills under the guidance of a more skilled musician. These small groups can explore literature unique to their composite formation. Courses must be taken in sequence: MUS04.309, MUS04.310, MUS04.409, and MUS04.410.

MUS 04321: Professional Applied Instrument 5 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04322: Professional Applied Instrument 6 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04325: Music Composition V 2 s.h.
This is a continuation of Music Composition IV. A detailed study of compositional devices emphasizing the twentieth century is made. Compositions are written for available media and performed in class.

MUS 04326: Music Composition VI 2 s.h.
This is a continuation of Music Composition V. A detailed study of compositional devices emphasizing the twentieth century is made. Compositions are written for available media and performed in class.

MUS 04329: Junior Recital 0 s.h.
Pre-requisites: MUS 01301 or MUS 01307 or MUS 01322 or MUS 01313 or MUS 04325
The Junior Recital is the recital performance culminating six semesters of applied lessons for performance majors.

MUS 04332: Acoustics of Music 3 s.h.

MUS 04333: Stage Band Rehearsal Techniques 3 s.h.
For music majors only, required in the Jazz Studies and Jazz Education Program and may be elected by others. The course examines the history of big bands, interpretation and conducting for different styles and eras. Score reading, score preparations and high school level rehearsal techniques are examined.

MUS 04361: Arranging For Large/Small Jazz Ensembles 3 s.h.
Prerequisites: MUS 04241 and MUS 04243
This course provides the experience of writing for the traditional big band and jazz studio orchestra, as well as a small number of instruments. Students explore the possibilities with voicings, chord selection and compositional structures used in the aforementioned ensembles. In addition, contemporary compositional techniques are introduced to encourage the continuation of the ensembles in jazz music of the 21st century.

MUS 04363: Writing In Contemporary/Traditional Jazz Styles 3 s.h.
Prerequisites: MUS 04217 and MUS 04305
Students explore contemporary and traditional jazz styles by listening to and analyzing the music of masters such as Chick Corea, Miles Davis, Duke Ellington, Sammy Nestico along with songs from the be-bop, hard-bop and cool eras. Students compose scores in this style for performance in class and on Department of Music jazz concerts.

MUS 04403: Choral Arranging 2 s.h.
Students explore the art of arranging songs for choral groups with or without accompaniment. Music for different choral ensembles is written, rehearsed and sung by the class.

MUS 04404: Orchestration 2 s.h.
Prerequisites: MUS 04130, MUS 04131, MUS 04240 and MUS 04241
Characteristics of string, wind and percussion instruments (including harp) are examined through lectures and demonstrations. Transcriptions for ensembles and orchestra are made from piano music and performed in class.

MUS 04409: Chamber Music III 1 s.h.
Small groups in which the individual performer has the opportunity to develop skills under the guidance of a more skilled musician. These small groups can explore literature unique to their composite formation. Courses must be taken in sequence: MUS04.309, MUS04.310, MUS04.409, and MUS04.410.

MUS 04410: Chamber Music IV 1 s.h.
Small groups in which the individual performer has the opportunity to develop skills under the guidance of a more skilled musician. These small groups can explore literature unique to their composite formation. Courses must be taken in sequence: MUS04.309, MUS04.310, MUS04.409, and MUS04.410.

MUS 04421: Professional Applied Instrument 7 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04422: Professional Applied Instrument 8 4 s.h.
An intensive study of the major instrument in preparation for college teaching and/or concertizing professionally. The student must pass a departmental audition before being accepted into these courses. Performance in student recitals and ensembles is required each semester. See Department Music Curriculum Guides for specific requirements for instrument majors.

MUS 04425: Music Composition VII 2 s.h.
This is a continuation of Music Composition VI. A detailed study of compositional devices emphasizing the twentieth century is made. Compositions are written for available media and performed in class.

MUS 04426: Music Composition VIII 2 s.h.
This is a continuation of Music Composition VII. A detailed study of compositional devices emphasizing the twentieth century is made. Compositions are written for available media and performed in class.

MUS 04430: Senior Recital 0 s.h.
Prerequisites: MUS 01304 or MUS 01310 or MUS 01401 or MUS 04107 or MUS 01413 or MUS 01422 or MUS 04425
The Senior Recital is the recital performance culminating eight semesters of applied lessons for majors in the Bachelor of Music programs.

MUS 04450: Form And Analysis 3 s.h.
An in-depth study and examination of musical scores from various style periods with an emphasis on large-scale forms and structures.

MUS 04455: Counterpoint 3 s.h.
This course is a study of the principles of constructing a multilinear musical texture and the application of those principles analytically to music literature.

MUS 06356: Selected Topics In Music 3 to 9 s.h.
This is an advanced musicology course that will focus on a detailed study of a single composer, style period, or specific topic from music history. Specialized topics will vary each semester. Course activities include in-depth study of selected topics, analysis, and research.

MUS 06449: European Music in America, 1825-1950-WI 3 s.h.
Prerequisites: MUSG 06.215 and MUSG 06.335 or bypermissions of the instructor.
The aim of this course is to provide a deeper understanding of the musical interactions between Europe and the United States from the first performance of an Italian opera sung in its original language in America (Gioachino Rossini's II barbiere di Siviglia, 1825) until Arnold Schoenberg's death in Los Angeles in 1951. The course will address issues such as identity and cultural pride through music, the concept of a musical canon in American, and reception of European culture in the United States.

MUS 08100: Wind Ensemble 1 s.h.
The Wind Ensemble is the university's premier wind band, performing difficult and challenging repertoire. Membership is by audition only.

MUS 08101: Wind Ensemble 1 s.h.
The Wind Ensemble is the university's premier wind band, performing difficult and challenging repertoire. Membership is by audition only.

MUS 08102: Wind Ensemble 1 s.h.
The Wind Ensemble is the university's premier wind band, performing difficult and challenging repertoire. Membership is by audition only.

MUS 08103: Wind Ensemble 1 s.h.
The Wind Ensemble is the university's premier wind band, performing difficult and challenging repertoire. Membership is by audition only.

MUS 08104: Wind Ensemble 1 s.h.
The Wind Ensemble is the university's premier wind band, performing difficult and challenging repertoire. Membership is by audition only.

MUS 08105: Wind Ensemble 1 s.h.
The Wind Ensemble is the university's premier wind band, performing difficult and challenging repertoire. Membership is by audition only.

MUS 08106: Wind Ensemble 1 s.h.
The Wind Ensemble is the university's premier wind band, performing difficult and challenging repertoire. Membership is by audition only.

MUS 08107: Wind Ensemble 1 s.h.
The Wind Ensemble is the university's premier wind band, performing difficult and challenging repertoire. Membership is by audition only.

MUS 08108: String Ensemble 1 s.h.
The String Ensemble performs a variety of chamber music repertoire.

MUS 08109: String Ensemble 1 s.h.
The String Ensemble performs a variety of chamber music repertoire.

MUS 08110: String Ensemble 1 s.h.
The String Ensemble performs a variety of chamber music repertoire.

MUS 08111: String Ensemble 1 s.h.
The String Ensemble performs a variety of chamber music repertoire.

MUS 08112: String Ensemble 1 s.h.
The String Ensemble performs a variety of chamber music repertoire.

MUS 08113: String Ensemble 1 s.h.
The String Ensemble performs a variety of chamber music repertoire.

MUS 08114: String Ensemble 1 s.h.
The String Ensemble performs a variety of chamber music repertoire.

MUS 08115: STRING ENSEMBLE 1 s.h.
The String Ensemble performs a variety of chamber music repertoire.

MUS 08116: College Band 1 s.h.
The College Band is open to all Rowan students and performs a wide variety of wind band repertoire.

MUS 08117: College Band 1 s.h.
The College Band is open to all Rowan students and performs a wide variety of wind band repertoire.

MUS 08118: College Band 1 s.h.
The College Band is open to all Rowan students and performs a wide variety of wind band repertoire.

MUS 08119: College Band 1 s.h.
The College Band is open to all Rowan students and performs a wide variety of wind band repertoire.

MUS 08120: College Band 1 s.h.
The College Band is open to all Rowan students and performs a wide variety of wind band repertoire.

MUS 08121: College Band 1 s.h.
The College Band is open to all Rowan students and performs a wide variety of wind band repertoire.

MUS 08122: College Band 1 s.h.
The College Band is open to all Rowan students and performs a wide variety of wind band repertoire.

MUS 08123: College Band 1 s.h.
The College Band is open to all Rowan students and performs a wide variety of wind band repertoire.

MUS 08124: Jazz Band 1 s.h.
The Jazz Band performs and explores the history of the traditional and contemporary Big Band repertoire such as Duke Ellington, Count Basie, Woody Herman, Stan Kenton, Maynard Ferguson, Buddy Rich, Bob Mintzer and more.

MUS 08125: Jazz Band 1 s.h.
The Jazz Band performs and explores the history of the traditional and contemporary Big Band repertoire such as Duke Ellington, Count Basie, Woody Herman, Stan Kenton, Maynard Ferguson, Buddy Rich, Bob Mintzer and more.

MUS 08126: JAZZ BAND 1 s.h.
The Jazz Band performs and explores the history of the traditional and contemporary Big Band repertoire such as Duke Ellington, Count Basie, Woody Herman, Stan Kenton, Maynard Ferguson, Buddy Rich, Bob Mintzer and more.

MUS 08127: Jazz Band 1 s.h.
The Jazz Band performs and explores the history of the traditional and contemporary Big Band repertoire such as Duke Ellington, Count Basie, Woody Herman, Stan Kenton, Maynard Ferguson, Buddy Rich, Bob Mintzer and more.

MUS 08128: Jazz Band 1 s.h.
The Jazz Band performs and explores the history of the traditional and contemporary Big Band repertoire such as Duke Ellington, Count Basie, Woody Herman, Stan Kenton, Maynard Ferguson, Buddy Rich, Bob Mintzer and more.

MUS 08129: Jazz Band 1 s.h.
The Jazz Band performs and explores the history of the traditional and contemporary Big Band repertoire such as Duke Ellington, Count Basie, Woody Herman, Stan Kenton, Maynard Ferguson, Buddy Rich, Bob Mintzer and more.

MUS 08130: Jazz Band 1 s.h.
The Jazz Band performs and explores the history of the traditional and contemporary Big Band repertoire such as Duke Ellington, Count Basie, Woody Herman, Stan Kenton, Maynard Ferguson, Buddy Rich, Bob Mintzer and more.

MUS 08131: Jazz Band 1 s.h.
The Jazz Band performs and explores the history of the traditional and contemporary Big Band repertoire such as Duke Ellington, Count Basie, Woody Herman, Stan Kenton, Maynard Ferguson, Buddy Rich, Bob Mintzer and more.

MUS 08132: Orchestra 1 s.h.
The Orchestra performs a wide range of symphonic orchestral repertoire and is open by audition only.

MUS 08133: Orchestra 1 s.h.
The Orchestra performs a wide range of symphonic orchestral repertoire and is open by audition only.

MUS 08134: Orchestra 1 s.h.
The Orchestra performs a wide range of symphonic orchestral repertoire and is open by audition only.

MUS 08135: Orchestra 1 s.h.
The Orchestra performs a wide range of symphonic orchestral repertoire and is open by audition only.

MUS 08136: Orchestra 1 s.h.
The Orchestra performs a wide range of symphonic orchestral repertoire and is open by audition only.

MUS 08137: Orchestra 1 s.h.
The Orchestra performs a wide range of symphonic orchestral repertoire and is open by audition only.

MUS 08138: Orchestra 1 s.h.
The Orchestra performs a wide range of symphonic orchestral repertoire and is open by audition only.

MUS 08139: Orchestra 1 s.h.
The Orchestra performs a wide range of symphonic orchestral repertoire and is open by audition only.

MUS 08140: Lab Band 1 s.h.
The Lab Band stresses improvisation, arranging, solo construction, rehearsal techniques and performance. The group stresses orchestrational versatility. Students are taught how to create a simple arrangement for the band.

MUS 08141: Lab Band 1 s.h.
The Lab Band stresses improvisation, arranging, solo construction, rehearsal techniques and performance. The group stresses orchestrational versatility. Students are taught how to create a simple arrangement for the band.

MUS 08142: Lab Band 1 s.h.
The Lab Band stresses improvisation, arranging, solo construction, rehearsal techniques and performance. The group stresses orchestrational versatility. Students are taught how to create a simple arrangement for the band.

MUS 08143: Lab Band 1 s.h.
The Lab Band stresses improvisation, arranging, solo construction, rehearsal techniques and performance. The group stresses orchestrational versatility. Students are taught how to create a simple arrangement for the band.

MUS 08144: Lab Band 1 s.h.
The Lab Band stresses improvisation, arranging, solo construction, rehearsal techniques and performance. The group stresses orchestrational versatility. Students are taught how to create a simple arrangement for the band.

MUS 08145: Lab Band 1 s.h.
The Lab Band stresses improvisation, arranging, solo construction, rehearsal techniques and performance. The group stresses orchestrational versatility. Students are taught how to create a simple arrangement for the band.

MUS 08146: Lab Band 1 s.h.
The Lab Band stresses improvisation, arranging, solo construction, rehearsal techniques and performance. The group stresses orchestrational versatility. Students are taught how to create a simple arrangement for the band.

MUS 08148: Concert Choir 1 s.h.
The Concert Choir is the university's premiere vocal ensemble. It is open by audition only and performs a wide range of historical and contemporary choral repertoire.

MUS 08149: Concert Choir 1 s.h.
The Concert Choir is the university's premiere vocal ensemble. It is open by audition only and performs a wide range of historical and contemporary choral repertoire.

MUS 08150: Concert Choir 1 s.h.
The Concert Choir is the university's premiere vocal ensemble. It is open by audition only and performs a wide range of historical and contemporary choral repertoire.

MUS 08151: Concert Choir 1 s.h.
The Concert Choir is the university's premiere vocal ensemble. It is open by audition only and performs a wide range of historical and contemporary choral repertoire.

MUS 08152: Concert Choir 1 s.h.
The Concert Choir is the university's premiere vocal ensemble. It is open by audition only and performs a wide range of historical and contemporary choral repertoire.

MUS 08153: Concert Choir 1 s.h.
The Concert Choir is the university's premiere vocal ensemble. It is open by audition only and performs a wide range of historical and contemporary choral repertoire.

MUS 08154: Concert Choir 1 s.h.
The Concert Choir is the university's premiere vocal ensemble. It is open by audition only and performs a wide range of historical and contemporary choral repertoire.

MUS 08155: Concert Choir 1 s.h.
The Concert Choir is the university's premiere vocal ensemble. It is open by audition only and performs a wide range of historical and contemporary choral repertoire.

MUS 08156: Contemporary Music Ensemble 1 s.h.
Dedicated to the performance of new music, this ensemble performs the works of Rowan composition students and other contemporary composers.

MUS 08157: Contemporary Music Ensemble 1 s.h.
Dedicated to the performance of new music, this ensemble performs the works of Rowan composition students and other contemporary composers.

MUS 08158: Contemporary Music Ensemble 1 s.h.
Dedicated to the performance of new music, this ensemble performs the works of Rowan composition students and other contemporary composers.

MUS 08159: Contemporary Music Ensemble 1 s.h.
Dedicated to the performance of new music, this ensemble performs the works of Rowan composition students and other contemporary composers.

MUS 08160: Contemporary Music Ensembles 1 s.h.
Dedicated to the performance of new music, this ensemble performs the works of Rowan composition students and other contemporary composers.

MUS 08161: Contemporary Music Ensemble 1 s.h.
Dedicated to the performance of new music, this ensemble performs the works of Rowan composition students and other contemporary composers.

MUS 08162: Contemporary Music Ensemble 1 s.h.
Dedicated to the performance of new music, this ensemble performs the works of Rowan composition students and other contemporary composers.

MUS 08163: Contemporary Music Ensemble 1 s.h.
Dedicated to the performance of new music, this ensemble performs the works of Rowan composition students and other contemporary composers.

MUS 08164: Percussion Ensemble 1 s.h.
The Percussion Ensemble performs challenging repertoire for many configurations of percussion instruments.

MUS 08165: Percussion Ensemble 1 s.h.
The Percussion Ensemble performs challenging repertoire for many configurations of percussion instruments.

MUS 08166: Percussion Ensemble 1 s.h.
The Percussion Ensemble performs challenging repertoire for many configurations of percussion instruments.

MUS 08167: Percussion Ensemble 1 s.h.
The Percussion Ensemble performs challenging repertoire for many configurations of percussion instruments.

MUS 08168: Percussion Ensemble 1 s.h.
The Percussion Ensemble performs challenging repertoire for many configurations of percussion instruments.

MUS 08169: Percussion Ensemble 1 s.h.
The Percussion Ensemble performs challenging repertoire for many configurations of percussion instruments.

MUS 08170: Percussion Ensemble 1 s.h.
The Percussion Ensemble performs challenging repertoire for many configurations of percussion instruments.

MUS 08171: Percussion Ensemble 1 s.h.
The Percussion Ensemble performs challenging repertoire for many configurations of percussion instruments.

MUS 08172: Guitar Ensemble 1 s.h.
The Guitar Ensemble performs a range of repertoire for classical guitar.

MUS 08173: Guitar Ensemble 1 s.h.
The Guitar Ensemble performs a range of repertoire for classical guitar.

MUS 08174: Guitar Ensemble 1 s.h.
The Guitar Ensemble performs a range of repertoire for classical guitar.

MUS 08175: Guitar Ensemble 1 s.h.
The Guitar Ensemble performs a range of repertoire for classical guitar.

MUS 08176: Guitar Ensemble 1 s.h.
The Guitar Ensemble performs a range of repertoire for classical guitar.

MUS 08177: Guitar Ensemble 1 s.h.
The Guitar Ensemble performs a range of repertoire for classical guitar.

MUS 08178: Guitar Ensemble 1 s.h.
The Guitar Ensemble performs a range of repertoire for classical guitar.

MUS 08179: Guitar Ensemble 1 s.h.
The Guitar Ensemble performs a range of repertoire for classical guitar.

MUS 08180: Flute Ensemble 1 s.h.
The Flute Ensemble explores repertoire composed for flute choir.

MUS 08181: Flute Ensemble 1 s.h.
The Flute Ensemble explores repertoire composed for flute choir.

MUS 08182: Flute Ensemble 1 s.h.
The Flute Ensemble explores repertoire composed for flute choir.

MUS 08183: Flute Ensemble 1 s.h.
The Flute Ensemble explores repertoire composed for flute choir.

MUS 08184: Flute Ensemble 1 s.h.
The Flute Ensemble explores repertoire composed for flute choir.

MUS 08185: Flute Ensemble 1 s.h.
The Flute Ensemble explores repertoire composed for flute choir.

MUS 08186: Flute Ensemble 1 s.h.
The Flute Ensemble explores repertoire composed for flute choir.

MUS 08187: Flute Ensemble 1 s.h.
The Flute Ensemble explores repertoire composed for flute choir.

MUS 08188: Opera Company 1 s.h.
The Opera Company is designed to give singers the opportunity to develop and refine singing/acting skills through the study of operatic literature. Students will present the assigned literature in a staged performance at the end of the semester. Solo roles by audition. The opera chorus is open to all without audition. Previous choral experience is suggested.

MUS 08189: Opera Company 1 s.h.
The Opera Company is designed to give singers the opportunity to develop and refine singing/acting skills through the study of operatic literature. Students will present the assigned literature in a staged performance at the end of the semester. Solo roles by audition. The opera chorus is open to all without audition. Previous choral experience is suggested.

MUS 08190: Opera Company 1 s.h.
The Opera Company is designed to give singers the opportunity to develop and refine singing/acting skills through the study of operatic literature. Students will present the assigned literature in a staged performance at the end of the semester. Solo roles by audition. The opera chorus is open to all without audition. Previous choral experience is suggested.

MUS 08191: Opera Company 1 s.h.
The Opera Company is designed to give singers the opportunity to develop and refine singing/acting skills through the study of operatic literature. Students will present the assigned literature in a staged performance at the end of the semester. Solo roles by audition. The opera chorus is open to all without audition. Previous choral experience is suggested.

MUS 08192: Opera Company 1 s.h.
The Opera Company is designed to give singers the opportunity to develop and refine singing/acting skills through the study of operatic literature. Students will present the assigned literature in a staged performance at the end of the semester. Solo roles by audition. The opera chorus is open to all without audition. Previous choral experience is suggested.

MUS 08193: Opera Company 1 s.h.
The Opera Company is designed to give singers the opportunity to develop and refine singing/acting skills through the study of operatic literature. Students will present the assigned literature in a staged performance at the end of the semester. Solo roles by audition. The opera chorus is open to all without audition. Previous choral experience is suggested.

MUS 08194: Opera Company 1 s.h.
The Opera Company is designed to give singers the opportunity to develop and refine singing/acting skills through the study of operatic literature. Students will present the assigned literature in a staged performance at the end of the semester. Solo roles by audition. The opera chorus is open to all without audition. Previous choral experience is suggested.

MUS 08195: Opera Company 1 s.h.
The Opera Company is designed to give singers the opportunity to develop and refine singing/acting skills through the study of operatic literature. Students will present the assigned literature in a staged performance at the end of the semester. Solo roles by audition. The opera chorus is open to all without audition. Previous choral experience is suggested.

MUS 08196: Saxophone Ensemble 1 s.h.
The Saxophone Ensemble performs classical and jazz repertoire written for saxophone quartet, quintet and choir.

MUS 08197: Saxophone Ensemble 1 s.h.
The Saxophone Ensemble performs classical and jazz repertoire written for saxophone quartet, quintet and choir.

MUS 08198: Saxophone Ensemble 1 s.h.
The Saxophone Ensemble performs classical and jazz repertoire written for saxophone quartet, quintet and choir.

MUS 08199: Saxophone Ensemble 1 s.h.
The Saxophone Ensemble performs classical and jazz repertoire written for saxophone quartet, quintet and choir.

MUS 08200: Saxophone Ensemble 1 s.h.
The Saxophone Ensemble performs classical and jazz repertoire written for saxophone quartet, quintet and choir.

MUS 08201: Saxophone Ensemble 1 s.h.
The Saxophone Ensemble performs classical and jazz repertoire written for saxophone quartet, quintet and choir.

MUS 08202: Saxophone Ensemble 1 s.h.
The Saxophone Ensemble performs classical and jazz repertoire written for saxophone quartet, quintet and choir.

MUS 08203: Saxophone Ensemble 1 s.h.
The Saxophone Ensemble performs classical and jazz repertoire written for saxophone quartet, quintet and choir.

MUS 08211: Soprano-Alto Chorus 1 s.h.
The Women's Choir is open to all who wish to participate and performs high quality music written for women's voices.

MUS 08212: Soprano-Alto Chorus 1 s.h.
The Women's Choir is open to all who wish to participate and performs high quality music written for women's voices.

MUS 08213: Soprano-Alto Chorus 1 s.h.
The Women's Choir is open to all who wish to participate and performs high quality music written for women's voices.

MUS 08214: Soprano-Alto Chorus 1 s.h.
The Women's Choir is open to all who wish to participate and performs high quality music written for women's voices.

MUS 08215: Soprano-Alto Chorus 1 s.h.
The Women's Choir is open to all who wish to participate and performs high quality music written for women's voices.

MUS 08216: Soprano-Alto Chorus 1 s.h.
The Women's Choir is open to all who wish to participate and performs high quality music written for women's voices.

MUS 08217: Soprano-Alto Chorus 1 s.h.
The Women's Choir is open to all who wish to participate and performs high quality music written for women's voices.

MUS 08218: Soprano-Alto Chorus 1 s.h.
The Women's Choir is open to all who wish to participate and performs high quality music written for women's voices.

MUS 08219: Tenor-Bass Chorus 1 s.h.
The Men's Choir is open to all who wish to participate and performs high quality music written for men's voices.

MUS 08220: Tenor-Bass Chorus 1 s.h.
The Men's Choir is open to all who wish to participate and performs high quality music written for men's voices.

MUS 08221: Tenor-Bass Chorus 1 s.h.
The Men's Choir is open to all who wish to participate and performs high quality music written for men's voices.

MUS 08222: Tenor-Bass Chorus 1 s.h.
The Men's Choir is open to all who wish to participate and performs high quality music written for men's voices.

MUS 08223: Tenor-Bass Chorus 1 s.h.
The Men's Choir is open to all who wish to participate and performs high quality music written for men's voices.

MUS 08224: Tenor-Bass Chorus 1 s.h.
The Men's Choir is open to all who wish to participate and performs high quality music written for men's voices.

MUS 08225: Tenor-Bass Chorus 1 s.h.
The Men's Choir is open to all who wish to participate and performs high quality music written for men's voices.

MUS 08226: Tenor-Bass Chorus 1 s.h.
The Men's Choir is open to all who wish to participate and performs high quality music written for men's voices.

MUS 08227: Jazz Guitar Ensemble 1 s.h.
The majority of performance and educational experiences for a jazz guitarist will be in the form of a small ensemble. Issues such as accompanying melody, accompanying soloists and vocalists, setting up introductions, chord melody presentation, voicing with other chord instruments, leading endings, starting songs, reading chord symbols and single lines are extensively analyzed and mastered.

MUS 08228: Jazz Guitar Ensemble 1 s.h.
The majority of performance and educational experiences for a jazz guitarist will be in the form of a small ensemble. Issues such as accompanying melody, accompanying soloists and vocalists, setting up introductions, chord melody presentation, voicing with other chord instruments, leading endings, starting songs, reading chord symbols and single lines are extensively analyzed and mastered.

MUS 08229: Jazz Guitar Ensemble 1 s.h.
The majority of performance and educational experiences for a jazz guitarist will be in the form of a small ensemble. Issues such as accompanying melody, accompanying soloists and vocalists, setting up introductions, chord melody presentation, voicing with other chord instruments, leading endings, starting songs, reading chord symbols and single lines are extensively analyzed and mastered.

MUS 08230: Jazz Guitar Ensemble 1 s.h.
The majority of performance and educational experiences for a jazz guitarist will be in the form of a small ensemble. Issues such as accompanying melody, accompanying soloists and vocalists, setting up introductions, chord melody presentation, voicing with other chord instruments, leading endings, starting songs, reading chord symbols and single lines are extensively analyzed and mastered.

MUS 08231: Jazz Guitar Ensemble 1 s.h.
The majority of performance and educational experiences for a jazz guitarist will be in the form of a small ensemble. Issues such as accompanying melody, accompanying soloists and vocalists, setting up introductions, chord melody presentation, voicing with other chord instruments, leading endings, starting songs, reading chord symbols and single lines are extensively analyzed and mastered.

MUS 08232: Jazz Guitar Ensemble 1 s.h.
The majority of performance and educational experiences for a jazz guitarist will be in the form of a small ensemble. Issues such as accompanying melody, accompanying soloists and vocalists, setting up introductions, chord melody presentation, voicing with other chord instruments, leading endings, starting songs, reading chord symbols and single lines are extensively analyzed and mastered.

MUS 08233: Jazz Guitar Ensemble 1 s.h.
The majority of performance and educational experiences for a jazz guitarist will be in the form of a small ensemble. Issues such as accompanying melody, accompanying soloists and vocalists, setting up introductions, chord melody presentation, voicing with other chord instruments, leading endings, starting songs, reading chord symbols and single lines are extensively analyzed and mastered.

MUS 08234: Jazz Guitar Ensemble 1 s.h.

MUS 08235: Composition Workshop 1 s.h.
Composition Workshop is a composition community that provides forum for feedback and performance of original works within a community of music composers.

MUS 08236: Composition Workshop 1 s.h.
Composition Workshop is a composition community that provides forum for feedback and performance of original works within a community of music composers.

MUS 08237: Composition Workshop 1 s.h.
Composition Workshop is a composition community that provides forum for feedback and performance of original works within a community of music composers.

MUS 08238: Composition Workshop 1 s.h.
Composition Workshop is a composition community that provides forum for feedback and performance of original works within a community of music composers.

MUS 08239: Composition Workshop 1 s.h.
Composition Workshop is a composition community that provides forum for feedback and performance of original works within a community of music composers.

MUS 08240: Composition Workshop 1 s.h.
Composition Workshop is a composition community that provides forum for feedback and performance of original works within a community of music composers.

MUS 08241: Composition Workshop 1 s.h.
Composition Workshop is a composition community that provides forum for feedback and performance of original works within a community of music composers.

MUS 08242: Composition Workshop 1 s.h.
Composition Workshop is a composition community that provides forum for feedback and performance of original works within a community of music composers.

MUS 08243: Clarinet Ensemble 1 s.h.
The Clarinet Choir explores and performs clarinet choir repertoire.

MUS 08244: Clarinet Ensemble 1 s.h.
The Clarinet Choir explores and performs clarinet choir repertoire.

MUS 08245: Clarinet Ensemble 1 s.h.
The Clarinet Choir explores and performs clarinet choir repertoire.

MUS 08246: Clarinet Ensemble 1 s.h.
The Clarinet Choir explores and performs clarinet choir repertoire.

MUS 08248: Clarinet Ensemble 1 s.h.
The Clarinet Choir explores and performs clarinet choir repertoire.

MUS 08249: Clarinet Ensemble 1 s.h.
The Clarinet Choir explores and performs clarinet choir repertoire.

MUS 08250: Clarinet Ensemble 1 s.h.
The Clarinet Choir explores and performs clarinet choir repertoire.

MUS 08252: University Chorus 1 to 99 s.h.
University Chorus is a mixed-voice ensemble that is open - by audition - to all majors from the entire campus community. Literature is varied and representative of all periods of Western music including contemporary compositions and non-Western genres. Performances are scheduled throughout each semester and may include collaborations with other ensembles. In addition to performance, there is an emphasis on improving sight-singing, diction, and ensemble skills.

MUS 08260: Chamber Choir 1 to 99 s.h.
Chamber Choir, commonly referred to as Cantati Tutti, is a mixed-voice ensemble that is open to every musician from the entire campus community without audition. The aim of the choir is to facilitate access to music making at a high level of artistry through singing together as a community, utilizing non-traditional repertoire and performance practices. This course is open to music majors, non-majors, all members of the university community including faculty and staff, and includes alumni and community members and welcomes singers at all musical skill levels.

MUS 09106: Symphonic Band 1 s.h.
Prerequisite: Audition Required. Please contact the Conductor to schedule audition.
The Rowan University Symphonic Band is an ensemble for woodwind, brass and percussion players. Repertoire performed is representative of the finest in wind literature, including musical styles from the Renaissance through today. Innovative programming allows student-musicians to perform and interact with Rowan's outstanding faculty, visiting guest artists, and composers from around the world.

MUS 09107: Symphonic Band 1 s.h.
Prerequisite: Audition Required. Please contact the Conductor to schedule audition.
The Rowan University Symphonic Band is an ensemble for woodwind, brass and percussion players. Repertoire performed is representative of the finest in wind literature, including musical styles from the Renaissance through today. Innovative programming allows student-musicians to perform and interact with Rowan's outstanding faculty, visiting guest artists, and composers from around the world. Prerequisite: Audition Required. Please contact the conductor to schedule audition.

MUS 09108: Symphonic Band 1 s.h.
Prerequisite: Audition Required. Please contact the Conductor to schedule audition.
The Rowan University Symphonic Band is an ensemble for woodwind, brass and percussion players. Repertoire performed is representative of the finest in wind literature, including musical styles from the Renaissance through today. Innovative programming allows student-musicians to perform and interact with Rowan's outstanding faculty, visiting guest artists, and composers from around the world.

MUS 09109: Symphonic Band 1 s.h.
Prerequisite: Audition Required. Please contact the Conductor to schedule audition.
The Rowan University Symphonic Band is an ensemble for woodwind, brass and percussion players. Repertoire performed is representative of the finest in wind literature, including musical styles from the Renaissance through today. Innovative programming allows student-musicians to perform and interact with Rowan's outstanding faculty, visiting guest artists, and composers from around the world.

MUS 09110: Symphonic Band 1 s.h.
Prerequisite: Audition Required. Please contact the Conductor to schedule audition.
The Rowan University Symphonic Band is an ensemble for woodwind, brass and percussion players. Repertoire performed is representative of the finest in wind literature, including musical styles from the Renaissance through today. Innovative programming allows student-musicians to perform and interact with Rowan's outstanding faculty, visiting guest artists, and composers from around the world.

MUS 09111: Symphonic Band 1 s.h.
Prerequisite: Audition Required. Please contact the Conductor to schedule audition.
The Rowan University Symphonic Band is an ensemble for woodwind, brass and percussion players. Repertoire performed is representative of the finest in wind literature, including musical styles from the Renaissance through today. Innovative programming allows student-musicians to perform and interact with Rowan's outstanding faculty, visiting guest artists, and composers from around the world.

MUS 09112: Symphonic Band 1 s.h.
Prerequisite: Audition Required. Please contact the Conductor to schedule audition.
The Rowan University Symphonic Band is an ensemble for woodwind, brass and percussion players. Repertoire performed is representative of the finest in wind literature, including musical styles from the Renaissance through today. Innovative programming allows student-musicians to perform and interact with Rowan's outstanding faculty, visiting guest artists, and composers from around the world.

MUS 09113: Symphonic Band 1 s.h.
Prerequisite: Audition Required. Please contact theConductor to schedule audition.
The Rowan University Symphonic Band is an ensemble for woodwind, brass and percussion players. Repertoire performed is representative of the finest in wind literature, including musical styles from the Renaissance through today. Innovative programming allows student-musicians to perform and interact with Rowan's outstanding faculty, visiting guest artists, and composers from around the world.

MUS 09114: String Orchestra 1 s.h.
Prerequisite: No audition is required. Students are expected to have some background in playing a string instrument.
String Orchestra is for students who have some experience with the violin, viola, cello or double bass, but who are not music majors. The orchestra will rehearse twice a week and give one public concert each semester. No audition is necessary. This course may be repeated.

MUS 09115: String Orchestra 1 s.h.
Prerequisite: No audition is required. Students are expected to have some background in playing a string instrument.
String Orchestra is for students who have some experience with the violin, viola, cello or double bass, but who are not music majors. The orchestra will rehearse twice a week and give one public concert each semester. No audition is necessary. This course may be repeated.

MUS 09116: String Orchestra 1 s.h.
Prerequisite: No audition is required. Students are expected to have some background in playing a string instrument.
String Orchestra is for students who have some experience with the violin, viola, cello or double bass, but who are not music majors. The orchestra will rehearse twice a week and give one public concert each semester. No audition is necessary. This course may be repeated.

MUS 09117: String Orchestra 1 s.h.
Prerequisite: No audition is required. Students are expected to have some background in playing a string instrument.
String Orchestra is for students who have some experience with the violin, viola, cello or double bass, but who are not music majors. The orchestra will rehearse twice a week and give one public concert each semester. No audition is necessary. This course may be repeated.

MUS 09118: String Orchestra 1 s.h.
Prerequisite: No audition is required. Students are expected to have some background in playing a string instrument.
String Orchestra is for students who have some experience with the violin, viola, cello or double bass, but who are not music majors. The orchestra will rehearse twice a week and give one public concert each semester. No audition is necessary. This course may be repeated.

MUS 09119: String Orchestra 1 s.h.
Prerequisite: No audition is required. Students are expected to have some background in playing a string instrument.
String Orchestra is for students who have some experience with the violin, viola, cello or double bass, but who are not music majors. The orchestra will rehearse twice a week and give one public concert each semester. No audition is necessary. This course may be repeated.

MUS 09120: String Orchestra 1 s.h.
Prerequisite: No audition is required. Students are expected to have some background in playing a string instrument.
String Orchestra is for students who have some experience with the violin, viola, cello or double bass, but who are not music majors. The orchestra will rehearse twice a week and give one public concert each semester. No audition is necessary. This course may be repeated.

MUS 09121: String Orchestra 1 s.h.
Prerequisite: No audition is required. Students are expected to have some background in playing a string instrument.
String Orchestra is for students who have some experience with the violin, viola, cello or double bass, but who are not music majors. The orchestra will rehearse twice a week and give one public concert each semester. No audition is necessary. This course may be repeated.

MUS 32218: Vocal Pedagogy 3 s.h.
Prerequisites: MUS 04130 and MUS 04131
Basic principles and techniques of training the solo voice are addressed in this course. A survey of the history of vocal pedagogy, the anatomy of the voice and resource materials for teaching voices of all ages included. Students will experience practical training in teaching voice through class demonstration. Recommended for vocal majors at junior level and above.

MUS 32219: Piano Pedagogy 1 s.h.
Method books for beginners and elementary students are examined and compared. The pedagogy of piano technique and interpretation is emphasized. Must be preceded by freshman and sophomore piano class or waiver of these requirements. This course may not be offered annually.

MUS 40111: Business of Music I 3 s.h.
The student will be able to learn about the commercial aspects of the music business; introduces music students to music publishing, music copyright laws, music licensing, artist management, recording industry, music in advertising, etc. Field trips play a very important role in the development of this course. Finally, the students will be made aware of careers in music other than music education and performance.

MUS 40113: Business of Music II 3 s.h.
Prerequisite: MUS 40111
This course is a continuation of Business of Music I. Record deals, touring, promotion, publishing, and copyright are studied in more detail. Research and analysis of music-industry business models are introduced.

MUS 40121: Audio Recording I 3 s.h.
This course explores the techniques of audio recording. A study of equipment, microphones and microphone placement, sequencing programs and acoustics is integrated with hands-on training. Students actually record and produce finished products of recorded music or speech.

MUS 40122: Computer Technology & Music I 3 s.h.
This course focuses on the development of the student's skills in using digital audio software to create and edit audio files, repair field recordings, mix multi-track arrangements, synchronize audio and video, and perform other creative sound design techniques. Projects in these software environments are designed to develop fundamental musicianship, creativity, and a refined aesthetic sensibility.

MUS 40201: History of Popular Music 3 s.h.
A survey of the history and influence of popular music on modern culture, particularly in the United States and United Kingdom. Students will learn about how music has evolved, influenced, and been influenced by popular culture in the 20th and 21st centuries.

MUS 40202: Introduction to Music Performance 3 s.h.
Prerequisite: Music Industry majors only or permission of Instructor.
This course will provide a basic introduction of the typical performance skills utilized by performance ensembles. Students will participate in a variety of workshops and performances and learn how each popular instrument is played (including guitar, bass, piano, drums, stings, and wind instruments as well as percussion workshops). In-class performances will teach performance skills such as how to develop a stage presence, using body language, handling a microphone, and dealing with unexpected situations during a live performance. This course culminates in a final concert.

MUS 40211: Music Industry Internship I 3 s.h.
Prerequisite: MUS 40111 and MUS 40113
This internship course provides students with field experience in the music industry. Under professional supervision, students practice theories and skills learned in the classroom and learn professionalism that will prepare them for productive employment upon graduation. Students keep a detailed log of working hours, write an analytical critique of the practicum, begin building a professional network, and are evaluated by their faculty supervisor and employer exit survey. The learning process is monitored by Music Industry program faculty members.

MUS 40212: Music Publishing 3 s.h.
Prerequisite: MUS 40111 and MUS 40113
The course provides an in-depth view of the music publishing industry. Topics covered include copyrights, publishing contracts, songwriter deals, how to register musical work, collection royalties, and revenue streams. This business aspects of music writing and composition are covered, as is a brief history of music publishing industry.

MUS 40213: Touring and Concert Promotion 3 s.h.
Prerequisite: MUS 40111 and MUS 40113
This course provides an in-depth view of the touring and concert promotion industry. Topics covered include bookings, ticketing, planning a tour, promotion, working with key players in the industry, logistics, contracts, and more. Students will participate in the production of a live concert.

MUS 40221: Audio Recording II 3 s.h.
Prerequisite: MUS 40121
In this course, students make a recorded project using advanced recording techniques. Topics include advanced microphone techniques, compressor types, classic EQ models, effects and professional standards for digital audio recording, mixing and delivery formats.

MUS 40222: Computer Technology & Music II 3 s.h.
Prerequisite: MUS 40122
In this course, students make a recordes project using advanced recording techniques. Topics include advanced microphone techniques, compressor types, classic EQ models, effects and professional standards for digital audio recording, mixing and delivery formats.

MUS 40223: Survey of Record Production 1 s.h.
Prerequisites: Music Industry majors only or permission of Instructor.
This course provides an overview of how records have been produced in the United States and United Kingdom from the 1950s to today. Topics include technological advances in the audio recording field, key record producers and their 'sounds," the role of the producer, and record production techniques.

MUS 40311: Music Industry Internship II 3 s.h.
Prerequisite: MUS 40111 and MUS 40113 and MUS 40211
This internship course provides students with a second field experience in the music industry. Under professional supervision, students practice theories and skills learned in a classroom and learn professionalism that will prepare them for productive employment upon graduation. Students keep a detailed log of working hours, write analytical critique of the practicum, begin building a professional network, and are evaluated by their faculty ssupervisor and employer exit survey. The learning process is monitored by Music Industry program faculty members.

MUS 40314: Artist Services I 2 s.h.
Prerequisite: Junior standing, MUS 40111 and MUS 40113
This course is the first section of a three-term course sequence that also includes Artist Services II and Artist Services III. It provides the hands-on experience of working at a record company. Learning activities include choosing a band for a record release, developing an image for the project and managing the recording production. Students take on the roles and responsibilities of the real record-label positions, and these roles are emphasized at all stages of the record-production process.

MUS 40315: Entrepreneurship in the Music Industry 3 s.h.
Prerequisites: MUS 40111 and MUS 40113 and MUS 40212
This course provides an in-depth view of the major technological disruptions and the ensuring business opportunities that have shaped the music industry, from wax cylinder to vinyl record, cassette, CD, MP3, and Internet streaming services, with a particular focus on how the digital age has utterly transformed the music industry. Comprehensive research and analysis of current and cutting-edge music business models and marketing strategies complete this course curriculum.

MUS 40321: Producing the Record 3 s.h.
Prerequisite: MUS 40121 and MUS 40221
This course is the continuation of Audio Recording I and Audio Recording II. Students apply record production techniques learned in previous terms in a hands-on settings by producing an album in partnership with a band. Learning activities include choosing a band to record, pre-production tasks, managing a recording studio schedule and budget, recording a band, managing musicians during recording sessions, overdubbing, and analog mixing a mastering.

MUS 40322: Audio for Video 3 s.h.
Prerequisite: MUS 40122 and MUS 40222
Students will develop and understanding of the technology, business, and function of music as it pertains to various types of linear, non-linear and interactive visual media through studying the technical, creative, and post-production processes of real-world projects and through hand-on projects of their own.

MUS 40323: Sound Reinforcement I 3 s.h.
Prerequisites: MUS 40121 and MUS 40221
This course gives students the skill sets to understand and operate professional sound-reinforcement systems for live music and theatre performances. Topics covered include live audio mixing, sound systems, venues, audio equipment, microphone techniques for live situations, and how to work with artists, management, and venue personnel.

MUS 40331: Game Audio 3 s.h.
Prerequisite: MUS 40122 and MUS 40222
Students will develop an understanding of technology, composition techniques, and sound design concepts that are unique to the video game industry through real-world projects and analyses of popular game titles. Classroom learninbg will come to life as students compose music and create custom sound effects in an actual video-game engine.

MUS 40332: Recording Studio Design and Maintenance 3 s.h.
Prerequisites: MUS 40121 and MUS 40221
Students will learn to perform basic recording studio repairs and will develop and understanding of acoustics and studio design. The topics covered in this course include cables, connectors, transformers, power supplies, sound absorption, diffusion, and room acoustics. By the end of the course, students will be able to identify the sources of common signal path disruptions, read electronics schematics, and perform basic repairs as well as choose and install sound treatment in a recording-studio setting.

MUS 40333: Sound Synthesis and Remixing 3 s.h.
Prerequisite: MUS 40122 and MUS 40222
The main objective of this course is to develop an understanding of sound synthesis, sampling, and remixing through in-class demonstrations, lectures, and hands-on projects. This course gives students in-depth instruction and experience in the various advanced techniques of MIDI sequencing, digital audio recording, editing, and mixing used in the making of modern pop, dance, and hip-hop recordings. Students will deliver custom-made synthesizer sounds, a sampling kit, and a remix integrating all aspects of the course.

MUS 40335: Sound Reinforcement II 3 s.h.
Prerequisites: MUS 40121 AND MUS 40221 AND MUS 40323
Sound Reinforcement II is an advanced elective designed to enhance skills learned in Sound Reinforcement I and further explore the technical knowledge needed for a career in live sound. Learn the various types of sound systems used in venues today and what changes are being made in the near future. Understand the skills and tools needed for system design and optimization. Study the industry trends that are advancing in the field including networking audio and RF coordination. Research and design a sound system for a venue.

MUS 40341: Music Industry Contracts and Copyrights 3 s.h.
Prerequisites: MUS 40111 and MUS 40113 and MUS 40212
This course provides an in-depth view of music industry contracts and copyright issues. Topics covered include an advanced study of major record deals, independent record deals, touring contracts, music copyrights, publishing deals, and agreements between band members. Students will learn to protect their interests and avoid common problems.

MUS 40342: Public Relations in the Music Industry 3 s.h.
Prerequisites: MUS 40111 and MUS 40113
This course provides an in-depth view of the public relations of the music industry, covering the skills involved in creating and distributing effective press release, press kits, and artist kits, cultivating relationships for radio and tour promotion, and canny social media management and internet communications techniques. Public Relations in the Music Industry addressed these topics from various points of view. Whether you want to become a PR agent or a recording artist, tour promoter, or label owner, among other roles, this course offers valuable insights on this vital function of the music industry.

MUS 40343: Songwriting 3 s.h.
Prerequisite: MUS 40122, Music Industry majors only or permission of instructor
This course provides skills and knowledge related to writing a pop song. Students will analyze songs, hooks, rhythm, chord progressions, melodies, arrangements, and lyrics to understand what makes a hit. Students will be required to write and perform their own original songs and workshop the music and lyrics within the context of the class, working toward finished songs as class projects.

MUS 40344: Hip Hop Culture: Music, Lifestyle, Fashion and Politics 3 s.h.
The main objectives of this course are to discuss the origins of Hip Hop culture and study its influence around the world. Students will explore the key elements of Hip Hop, understand the importance and necessity of entrepreneurship and analyze how the Hip Hop Culture has evolved into a dominant force over the years. Students will examine the impact that Hip Hop has on fashion by helping to catapult the sales and positioning of major fashion and sneaker brands as well as creating independent clothing lines by way of entrepreneurship. The course will discuss and analyze the unprecedented effects and influence that Hip Hop has on global lifestyles, language, and politics.

MUS 40412: Capstone Project in Music Industry I 2 s.h.
Prerequisite: Senior standing and 56 credits required
This capstone course is required of all Music Industry majors in their senior years and leads into Capstone Project in Music Industry II (MUS 40413). This two-semester hands-on-project integrates the material covered in Music Industry courses with practical experience, so that students can integrate various elements of their learning into career-related experience. It also affords students an opportunity to complete a complex, realistic project where they must utilize and hone skills from their coursework and internships.

MUS 40413: Capstone Project in Music Industry II 2 s.h.
Prerequisite: MUS 40412
This capstone course is required of all Music Industry major in their senior years and is a continuation of Capstone Project in Music Industry I (MUS 40412). This two-semester hands-on project integrates the material covered in Music Industry courses with practical experience, so that students can integrate various elements of their learning into career-related experience. It also affords students an opportunity to complete a complex, realistic project where they must utilize and home skills from their coursework and internships.

MUS 40414: Artist Services II 2 s.h.
Prerequisite: MUS 40111 and MUS 40113 and MUS 40314
This course is the second section of a three-term course sequence that includes Artist Services I and Artist Services III. It provides the hands-on experience of working at a record company. Learning activities include managing the recording production, developing an album artwork and creating a marketing strategy, as well as analyzing industry trends. Students take on the roles and responsibilities of real record-label positions, and these roles are emphasized at all stages of the record-release process.

MUS 40415: Artist Services III 2 s.h.
Prerequisite: MUS 40111 and MUS 40113 and MUS 40314 and MUS 40414
This course is the final section of a three-term course sequence that also includes Artist Services I and Artist Services II. It provides the hands-on experience of working at a record company; at the end of the third term, students release and launch their record. Learning activities include managing the mix and mastering of an album, marketing activities, and record launch, as well as analyzing industry trends. Students take on the roles and responsibilities of real record-label positions, and these roles are emphasized at all stages of the record-release process.

MUS 40431: Mixing and Mastering 3 s.h.
Prerequisite: MUS 40122 and MUS 40222.
This course builds upon the skills acquired in Computer Technology and Music I (MUS 401220) and Computer Technology and Music II (MUS 40222). Topics includes an advanced look at mixing music for a wide range of music styles, sound trends, processing. EQing, setting up levels, panning, automation, and using effects such as reverb and delays in professional and creative ways. The mastering section of the course emphasizes understanding audio signal quality, loudness, processing. EQing and how to achieve a professional master for various formats such as CD, MP3, and vinyl record.

MUS 97100: Piano Class I 1 s.h.
Instruction is given in classes including sight reading, improvising, and playing by ear. These courses must be taken in sequence, simultaneously with or after the indicated theory courses: Piano Class I (MUS97.100) with or after Written Theory I (MUS04.130); Piano Class II (MUS97.101) with or after Written Theory II (MUS04.131); Piano Class III (MUS97.200) with or after Written Theory III (MUS04.240), and Piano Class IV (MUS97.241) with or after Written Theory IV (MUS04.217). Not open to non-music majors.

MUS 97101: Piano Class II 1 s.h.
Prerequisites: MUS 97100
Instruction is given in classes including sight reading, improvising, and playing by ear. These courses must be taken in sequence, simultaneously with or after the indicated theory courses: Piano Class I (MUS97.100) with or after Written Theory I (MUS04.130); Piano Class II (MUS97.101) with or after Written Theory II (MUS04.131); Piano Class III (MUS97.200) with or after Written Theory III (MUS04.240), and Piano Class IV (MUS97.241) with or after Written Theory IV (MUS04.217). Not open to non-music majors.

MUS 97102: Piano I For Non-Music Majors 3 s.h.
For Non-Music Majors
Beginning piano taught in a class. No previous experience in music is necessary. For Non-Music Majors.

MUS 97103: Piano II For Non-Music Majors 3 s.h.
A continuation of Piano I for Non-Music Majors. Not for music majors.

MUS 97111: String Class-Low 1 s.h.
The fundamentals of cello and bass are studied.

MUS 97112: String Class-High 1 s.h.
Fingering and bowing patterns, tone production, tuning, methods and materials are studied for the violin and viola.

MUS 97114: Secondary Applied Instrument 1 1 s.h.

MUS 97115: Secondary Applied Instrument 2 1 s.h.

MUS 97200: Piano Class III 1 s.h.
Prerequisites: MUS 97101
Instruction is given in classes including sight reading, improvising, and playing by ear. These courses must be taken in sequence, simultaneously with or after the indicated theory courses: Piano Class I (MUS97.100) with or after Written Theory I (MUS04.130); Piano Class II (MUS97.101) with or after Written Theory II (MUS04.131); Piano Class III (MUS97.200) with or after Written Theory III (MUS04.240), and Piano Class IV (MUS97.241) with or after Written Theory IV (MUS04.217). Not open to non-music majors.

MUS 97201: Piano Class IV 1 s.h.
Prerequisites: MUS 97200
Instruction is given in classes including sight reading, improvising, and playing by ear. These courses must be taken in sequence, simultaneously with or after the indicated theory courses: Piano Class I (MUS97.100) with or after Written Theory I (MUS04.130); Piano Class II (MUS97.101) with or after Written Theory II (MUS04.131); Piano Class III (MUS97.200) with or after Written Theory III (MUS04.240), and Piano Class IV (MUS97.241) with or after Written Theory IV (MUS04.217). Not open to non-music majors.

MUS 97212: Conducting-Instrumental I 2 s.h.
This course demonstrates and rehearses the skills of instrumental conducting through music for instrumental ensembles.

MUS 97213: Conducting-Choral I 2 s.h.
This course is an introduction to the art of choral conducting. Gestural techniques, (preparation, pattern, cues, releases, fermata, expression, and left-hand independence), are developed through class participation and other ensemble situations.

MUS 97228: Classroom Guitar 1 s.h.
This course is designed to enable classroom teachers to utilize and instruct basic guitar techniques with an emphasis on accompaniment skills.

MUS 97229: Guitar Class I 3 s.h.
A study of the guitar performance and a study of the materials available.

MUS 97230: Guitar Class II 3 s.h.
A continuation of the study of the guitar through performance and a study of the materials available.

MUS 97300: French Horn Class .5 s.h.
Designed for Music Education majors, this course addresses horn pedagogy and basic horn performance.

MUS 97301: Trombone Class .5 s.h.
Designed for Music Education majors, this course addresses trombone pedagogy and basic trombone performance.

MUS 97302: Percussion Class 1 s.h.
A study of rudimental and ensemble techniques of snare drum, timpani, bass drum, cymbals and accessory instruments.

MUS 97309: Trumpet Class .5 s.h.
Designed for Music Education majors, this course addresses trumpet pedagogy and basic trumpet performance.

MUS 97310: Tuba Class .5 s.h.
Designed for Music Education majors, this course addresses tuba pedagogy and basic tuba performance.

MUS 97312: Conducting-Instrumental II 2 s.h.
Prerequisites: MUS 97212
This course demonstrates and rehearses the skills of instrumental conducting through music for instrumental ensembles.

MUS 97313: Conducting-Choral II 2 s.h.
Prerequisites: MUS 97213
Students apply basic conducting techniques to repertoire spanning each of the major time periods. In addition to gesture, great emphasis is given to score reading and score analysis skills.

MUS 97400: Voice Class 1 s.h.
A study of the basic principles of singing taught in a group setting. Students will learn beginners breathing technique, tone placement and projection through the singing of goup and solo repertoire. Course is open to non-music majors.

MUS 97401: Bassoon Class .5 s.h.
This course teaches the fundamentals of the bassoon.

MUS 97402: Clarinet Class .5 s.h.
Designed for Music Education majors, this course addresses clarinet pedagogy and basic clarinet performance.

MUS 97403: Saxophone Class .5 s.h.
Designed for Music Education majors, this course addresses saxophone pedagogy and basic saxophone performance.

MUS 97404: Reedmaking And Instrument Repair .5 to 3 s.h.
The fundamentals of reedmaking and repair of instruments are studied.

MUS 97409: Flute Class .5 s.h.
Designed for Music Education majors, this course addresses flute pedagogy and basic flute performance.

MUS 97410: Oboe Class .5 s.h.
Designed for Music Education majors, this course addresses oboe pedagogy and basic oboe performance.

MUS 98101: Foundations of Music Therapy 3 s.h.
Prerequisite: Admissions to Music Therapy Program.
Develop an understanding of the methodological and theoretical foundations of this discipline. Learn how to use music as a therapeutic tool to treat a variety of clients, as well as the sociological, psychological, and philosophical theories of music.

MUS 98102: Principles of Music Therapy I 3 s.h.
Prerequisite(s): Admission to Music Therapy Program
In Principles of Music Theory I students will learn to interact with people who have learning, neurological, motor, and medical problems. Students will need to focus on music therapy literature specific for this group of people and be ready to apply their theoretical studies to clinical work.

MUS 98103: Music Therapy Practicum I 1 s.h.
Prerequisite: Admission to Music Therapy program
This course will provide an opportunity for students to acquire supervised experience using music therapy, including assessment, treatment planning, evaluation, and other aspects that support clinical practice. Students will complete a total of 60 supervised clinical hours as part of this course.

MUS 98104: Therapeutic Principles for Music Therapists 1 s.h.
Prerequisite: Admission to Music Therapy program
This course focuses on understanding of therapeutic principles and the therapeutic relationship that are at the basis of music therapy treatment. Topics covered are foundational to music therapy, focusing on therapeutic principles underlying music therapy. These include awareness of personal motivation and values in therapy, dynamics and process of the therapeutic relationship, awareness of ethical issues in therapy, group dynamics, multicultural awareness and applications to therapy, and theories underlying various approaches to therapy.

MUS 98105: Clinical Piano Skills I 2 s.h.
Prerequisite(s): Admission to Music Therapy program; functional piano competence; students must have passed the piano proficiency exam required of undergraduate music majors.
Students learn piano skills needed to implement music therapy in clinical settings. Includes harmonization, accompanying in various styles, and various styles of improvisation. Course includes application of musical concepts and terminologies, such as modes, idioms, styles, scales, and various musical forms into clinical scenarios.

MUS 98106: Clinical Guitar Skills 2 s.h.
Prerequisite: Admission to Music Therapy program
This course is designed to enable students to accompany themselves and to lead others in the singing of simple folk and popular songs, progressing from simple strumming and finger picking to more advanced accompaniment patterns, transposition and the use of the capo.

MUS 98107: Music Applications to Music Therapy I 1 s.h.
Prerequisite: Admission to Music Therapy program
This course will provide an opportunity for music therapy students to apply the music skills that they are learning in other courses (music and music therapy) to the type of musical situations that they will encounter as music therapists. Skills to be practiced include leading songs using simple accompaniment styles, playing and singing songs of basic music therapy repertoire using Q-chord, autoharp, and percussion instruments, and sight reading basic music therapy repertoire.

MUS 98108: Psychology of Music 3 s.h.
Prerequisite(s): Admission to Music Therapy program
This course will provide an opportunity for students to learn about psychological foundations of music, including neurology and the brain, music cognition and perception, emotional meaning of music, musical development and learning, and testing for musical ability. Students will be expected to apply the knowledge acquired in this course in music therapy, music education, and other musical interests.

MUS 98109: Principles of Music Therapy II 3 s.h.
Prerequisite: Admission to Music Therapy program
In Principles of Music Therapy II students will learn to interact with people who have learning, neurological, motor, and medical problems. Students will need to focus on music therapy literature specific for this group of people and be ready to apply their theoretical studies to clinical work.

MUS 98110: Music Therapy Research Methods 3 s.h.
Prerequisite: Admission to Music Therapy program
This course will focus on research methods in conducting, reading, and interpreting music in the context of music therapy; it will include quantitative, qualitative, and mixed methodologies.

MUS 98111: Music Therapy Practicum II 1 s.h.
Prerequisite(s): Admission to Music Therapy program; MUS 98103
This course will provide an opportunity for students to acquire supervised experience using music therapy, including assessment, treatment planning, evaluation, and other aspects that support clinical practice. Students will complete a total of 60 supervised clinical hours as part of this course.

MUS 98112: Clinical Piano Skills II 2 s.h.
Prerequisite(s): Admission to Music Therapy program; MUS 98105
Further development of piano skills needed to implement music therapy in clinical settings. Includes harmonization, accompanying in various styles, and various styles of improvisation. Course includes application of musical concepts and terminologies, such as modes, idioms, styles, scales, and various musical forms into clinical scenarios. Builds on material learned in Clinical Piano Skills I and includes additional applications to clinical settings.

MUS 98113: Music Applications to Music Therapy II 1 s.h.
Prerequisite(s): Admission to Music Therapy program; MUS 98107
This course will provide an opportunity for music therapy students to apply the music skills that they are learning in other courses (music and music therapy) to the type of musical situations that they will encounter as music therapists. Skills to be practiced include leading songs using simple accompaniment styles, playing and singing songs of basic music therapy repertoire using Q-chord, autoharp, percussion instruments, and guitar, and sight reading basic music therapy repertoire.

MUS 98115: Music Therapy Practicum III 1 s.h.
Prerequisite(s): Admission to Music Therapy program; MUS 98111
This course will provide an opportunity for students to acquire supervised experience using music therapy, including assessment, treatment planning, evaluation, and other aspects that support clinical practice. Students will complete a total of 60 supervised clinical hours as part of this course.

MUS 98116: Music Applications to Music Therapy III 1 s.h.
Prerequisite(s): Admission to Music Therapy program; MUS 98113
This course will provide an opportunity for music therapy students to apply the music skills that they are learning in other courses (music and music therapy) to the type of musical situations that they will encounter as music therapists, refining their skills in these areas. Skills to be practiced include leading songs using simple accompaniment styles, playing and singing songs of basic music therapy repertoire using Q-chord, autoharp, percussion instruments, guitar, and piano and keyboard, and sight reading basic music therapy repertoire.

MUS 98117: Residency in Music Therapy 2 s.h.
Prerequisite: Completion of all courses in Music Therapy program; residency is final requirement; MUS 98101, MUS 98108, MUS 98102, MUS 98109, MUS 98110, MUS 98103, MUS 98111, MUS 98115, MUS 98105, MUS 98112, MUS 98106, MUS 98107, MUS 98113, MUS 98116, MUS 98104, PSY 03200
Residency of 1040 hours at an AMTA-or Rowan-approved clinical training center. Application is made upon departmental approval. Development of music therapy clinical skills. Requires clinical work and ongoing supervision from the clinical site (residency supervisor) and/or music therapy faculty. Student will plan and lead individual and group music therapy sessions, write assessment and goal plans, participate in treatment teams, and take part in other activities of the clinical facility. The residency should be taken at a medical facility.

MUSG 06100: Signals, Systems And Music 3 s.h.
This course is an introduction to the analysis and creative production of electronic music. The student will experience music using the principles of music theory, electronic signal analysis and system development. Both lecture and laboratory sessions are presented culminating in the development and production of electronic music using recorded sound, software generated signals and electronically produced signals.

MUSG 06102: General Music History 3 s.h.
An introduction to styles and analysis of music through a historical overview. The techniques of listening and aural analysis of representative works serves as exercise material for the course.

MUSG 06109: Music Appreciation 3 s.h.
Music literature is approached through recordings, live performance and appropriate reading.

MUSG 06115: Growth And Development Of Jazz 3 s.h.
African and European influences, the evolution of jazz styles and the influence of jazz on the musical world are covered.

MUSG 06117: Expressing Music Through Technology 3 s.h.
The elements of music and the development of classical, jazz, and popular musics are studied through hands-on technology-based activities. No prior musical or technology experience is necessary.

MUSG 06120: Keyboard Literature 3 s.h.
The course is a survey of the important compositions written for keyboard instruments, primarily piano, from ca. 1600 to the present. This course may not be offered annually.

MUSG 06210: Vocal Literature 3 s.h.
A survey of solo vocal literature through these vocal periods: Renaissance, Baroque, Classical, Romantic, Late Romantic and Contemporary. Through lecture, demonstration and presentation, students will study the composers of each period, their body of work, style, interpretation and performance practice.

MUSG 06211: Brass And Woodwind Literature 3 s.h.
Brass and woodwind literature informs the music students of the availability of the following brass and woodwind materials: methods and studies, ensemble literature, solos, books, periodicals and recordings. This course may not be offered annually.

MUSG 06214: History and Literature of Western Music Repertories I 3 s.h.
A study of the history of Western music from the Ancient Greeks until the mid-Baroque period. (Students who are not music majors must have the instructor's permission to take this course.)

MUSG 06215: History and Literature of Western Music Repertories II 3 s.h.
A study of the history of Western music from the mid-Baroque period until the crisis of tonality. (Students who are not music majors must have the instructor's permission to take this course.)

MUSG 06218: Music and The Child 3 s.h.

MUSG 06220: The Singing Music Of African-Americans 3 s.h.
This course will be an investigation of the singing music tradition of the music of African-Americans, featuring music from the earliest field songs and spirituals, through the latest blues, gospel, jazz, pop, rap, and crossover genres. It will provide insight into the social, political, and religious institutions of African-Americans as these institutions influenced the development of music. The course builds on a basic critical music vocabulary.

MUSG 06303: Choral Literature 2 s.h.
A chronological study and analysis of small and large choral works from the early chant to the present is stressed through recordings, live performances and class participation. Conducting of choral work is a major activity of this course.

MUSG 06335: History and Literature of Western Music Repertories III 3 s.h.
.A study of the history of Western music from the crisis of tonality until the early 2000s. (Students who are not music majors must have the instructor's permission to take this course.)

MUSG 06337: Music And The Theater 3 s.h.
The variety of musical styles, the function of music in this environment and its psychological effect on audiences of the past and present are studied. This course may not be offered annually.

MUSG 06435: Collegium Musicum 1 s.h.
An investigation of little known musical works, utilizing instruments and techniques of style of the period in study. Performance of these works will constitute much of the study of them.

MUSG 06439: New Jazz Structures 3 s.h.
A comprehensive study of compositional and improvisational techniques employed by contemporary jazz writers and performers. Jazz application of classical twentieth century classical music techniques are analyzed.

MUSG 06447: Music In World Cultures: Asia & Oceania 3 s.h.
A survey is made of the musical cultures of the world (excluding western art music), the role of music in society, and its relationship to other arts. Consideration will also be given to scale structure, instruments, musical forms and performance standards. Cultural areas of particular concern are Asia and Oceania.

MUSG 06448: Music In World Cultures: Africa, India, Near & Middle East 3 s.h.
A survey is made of the musical cultures of the world (excluding western art music), the role of music in society and its relationship to other arts. Consideration will also be given to scale structure, instruments, musical forms and performance standards. Cultural areas of particular concern are Africa, India, and the Near and Middle East.

SMED 01120: Foundations Of Music Education 3 s.h.
Foundations of Music Education is an introductory course in the music education program. It provides a broad overview of the field of music education, addressing the historical development of music education in the United States as well as current approaches and issues in the field. The course is framed by three guiding questions: What is the purpose of music education?; How can students best explore music?; and How can teachers best create music learning experiences for their students? In addition, two projects that extend throughout the music education major are introduced: a personal philosophy of music education, and a digital portfolio.

SMED 01284: Introduction to Instruction & Assessment for the Music Educator 3 s.h.
Prerequisite(s): SMED 01120 and INCL 02210 and ELEM 02210
The course provides an introduction and practice of instructional planning and assessment in the music classroom K-12. Built on the content and philosophy developed in Principles of Pedagogies in the Inclusive Classroom, this course is a broad overview of the field of music education K-12. Standards, philosophies, theories, and teaching and learning principles in Music Education are foundational content in the course. This will enable Music Education students to continue developing a personal teaching philosophy which was begun in the prerequisite course, Foundations of Music Education. The candidates will develop knowledge and skills to plan instruction based on how children learn music and assess their learning by designing, reviewing, and reflecting on varied assessments of student learning typically used in the music classroom K-12. This course is offered both fall and spring semester. This course includes field visits to varying music classroom representative of the breadth of responsibilities a music teacher may have throughout a career in music education. (i.e., elementary general music classrooms, secondary instrumental and choral classrooms, secondary specialized and general music classes in the public schools in South Jersey)

SMED 32329: Teaching/Learning Music A: Elementary General Music 3 s.h.
Prerequisites: C- or better in MUS 04103, MUS 04104, MUS 04216, MUS 04217, EDUC 01284, READ 30319 and SMED 33420
The methods, materials and techniques of teaching music from K through 12 are surveyed. Attention is given to the developmental sequence in the building of musical concepts necessary for the organization of an effective general music program in the public schools.

SMED 32330: Teaching/Learning Music B: Vocal Methods And Techniques 3 s.h.
This course, along with other courses in a series, helps to prepare students to teach the choral arts in the public schools with particular attention to grades 7-12. Techniques of teaching, vocal training, choral organization and the philosophy of teaching choral music are the areas to be emphasized.

SMED 32331: Teaching/Learning Music B: Instrumental Methods And Techniques 3 s.h.
A survey is made of the necessary understanding, techniques, and materials to develop an effective instrumental music program. Consideration is given to the place of instrumental music and its relationship to the total school program.

SMED 32440: Marching Band Techniques 3 s.h.
This course applies the fundamentals of precision marching and marching maneuvers along with new materials and techniques for the half-time show.

NURS 03300: Pathophysiology for Nursing 3 s.h.
Prerequisite: Current license as a Registered Nurse (RN) or recent graduate of an accredited professional school of nursing
This is a required course for registered nurses that uses a system based life span approach to discriminate between normal physiologic function and pathophysiologic processes. The course relates manifestation of disease, risk factors for disease and the principles of illness and injury to therapeutic nursing interventions and outcomes.

NURS 03302: Foundations Of Nursing Practice 6 s.h.
This course enables students to explore the historical and theoretical foundations of the profession of nursing. Students will focus on Maslow's Hierarchy of Needs in providing nursing care. Classroom experience and seminars provide students with opportunities to utilize critical thinking skills to explore concepts basic to nursing. Faculty supervised learning laboratory practice and clinical experiences enable students to apply acquired knowledge in a variety of clinical settings. This course also explores issues that impact health promotion an dthe role of the nurse in promoting health and preventing disease. Such factors as population changes, health policy, ethics, and the therapeutic nurse-client relationship are discussed. Assessment of health in individuals, families, and communities is examined. Interventions for health promotion are discussed along with their application across the lifespan. Finally, future trends in health promotion are reviewed.

NURS 03303: Comprehensive Health Assessment 3 s.h.
This course builds upon the Registered Nurse's fundamental knowledge and skills of health assessment. In utilizing a systematic approach, the student will develop a holistic approach in assessing the patient throughout the lifespan. Upon completion, the student will show competency in obtaining a thorough health history and becoming efficient in the physical skills of inspection, palpation, percussion and auscultation. Differences between normal and abnormal findings will be explored and appropriate documentation of findings will be stressed. Students will also be exposed to the cultural differences in health and will incorporate evidence based approaches to assessment.

NURS 03304: Nursing Informatics 3 s.h.
This course reviews the information needs and information systems related to nursing practice. Students will experience the manner in which informatics supports all areas of practice, including education, clinical practice, administration and research.

NURS 03305: Pathophysiology 3 s.h.
Prerequisites: NURS 03303 and NURS 03307
Fundamental concepts of physiology, the changes that porduce signs, symptoms, and the body's remarkable ability to compensate for these changes are reviewed and extended in this course.

NURS 03306: Pharmacology 3 s.h.
This course reviews and extends the students' previous knowledge of pharmacological science. It explores mechanisms of action of drugs used to treat various health conditions at the cellular level. 3 credits Elective.

NURS 03307: Epidemiology In Nursing Practice 3 s.h.
In this course, the professional nursing student is introduced to a population-based approach to health care. Students will incorporate information on the etiology and predictors of events in order to design health promotion and desease prevention strategies.

NURS 03308: Pharmacology of Nursing 3 s.h.
Prerequisite: A current license as a Registered Nurse (RN) or recent graduate of an accredited professional school of nursing.
This is a required course for registered nurses that will enhance current knowledge of a broad spectrum of pharmacologic agents. Emphasis is on the administration of drugs using QSEN competencies for safe, effective and therapeutic drug therapy. Drug classifications studied are about safe drug administration, nursing implications and effects and precautions, drug interactions, and the potential for toxicity. Pharmacologic considerations that involve, but are not limited to, the legal, ethical, age, cultural, and risk for dependence are discussed in the current context of our time.

NURS 03309: Topics In Health Care Ethics 3 s.h.
Students in this nursing course will examine moral dilemmas created or intensified by recent advances in medical technology and study ways of analyzing those dilemmas. Discussion topics include: euthanasia and the right to die, abortion, behavior modification, allocation of scarce medical resources, in vitro fertilization, genetic screening and engineering and human experimentation. These moral dilemmas will be related to nursing.

NURS 03330: Gerontological Nursing 2 s.h.
Prerequisites: NURS 03302 and NURS 03303 andNURS 03305 and NURS 03306 and NURS 03350and NURS 03360 and NURS 03370
This course reviews and analyzes issues of aging from a physiological, psychosocial and cognitive perspective. Emphasis is placed on health maintenance, ethical considerations and legal issues as they relate to the care of the aging population.

NURS 03340: Adult Health Nursing 8 s.h.
Prerequisites: NURS 03302 and NURS 03303 andNURS 03305 and NURS 03306 and NURS 03350and NURS 03360 and NURS 03370
This course enables students to identify multi-cultural interactions as they relate to nursing practice. Classroom experience and seminars provide students with opportunities to utilize critical thinking skills to explore concepts basic to nursing care of adult humans (18 years to senescence). Faculty supervised learning laboratory practice and clinical experiences enable students to apply acquired knowledge in a variety of settings.

NURS 03350: Childrearing Family 4 s.h.
Prerequisites: NURS 03302 and NURS 03303and NURS 03305
This course enables students to identify their understanding of the human-environmental interactions and evolving family patterns within diverse cultures to promote optimal health. The student is provided with an opportunity to understand the patterns and organization of families, growth and development perspectives, and the nursing implications of common and complex health patterns from infancy through adolescence. Faculty supervised learning laboratory practice and clinical experiences enable students to apply acquired knowledge in a variety of settings.

NURS 03360: Childbearing Family 4 s.h.
Prerequisites: NURS 03302 and NURS 03303and NURS 03305
This course enables students to expand their understanding of human-environmental interactions and evolving family patterns within diverse cultures to promote optimal health. The student is provided with an opportunity to understand the family as a unified whole, its patterns and organization and the implications of common and complex health patterns from conception through birth.

NURS 03370: Mental Health Nursing 4 s.h.
Prerequisites: NURS 03302 and NURS 03303and NURS 03305
This course enables students to expand their understanding of human-environmental interactions and evolving mental health patterns within diverse cultures to promote optimal health. The student is provided with an opportunity to understand the organization of mental health patterns as they appear in normative growth and develpment, as well as the alterations in patterns with resulting nursing implications. The progression will be from common to more complex mental health patterns as they relate to nursing practice.

NURS 03400: Holistic Nursing Philosophy, Theories, and Ethics 3 s.h.
This course examines the factors that affected the evolution of holistic nursing in the United States, describes the scope of holistic nursing, discusses the five core values and philosophy of holistic nursing, explores the concepts of holistic nursing ethics, and applies nursing theory to practice.

NURS 03401: Community Health Nursing 6 s.h.
Prerequisite: NURS 03303
This course will explore how community health nurses use concepts from nursing and public health to provide comprehensive, continuous, preventative healthcare thereby promoting health for communities, populations at risk, aggregates, families, and individuals. This course prepares the RN to BSN student to develop competencies in managing health status in the context of multicultural communities. Students will be able to expand current knowledge and skills, develop enhanced research and critically thinking skills with the application of these skills to the multicultural community and the global society considering the biopsychosocial, cultural, ethical, legal, and economic issues that impact the community as a client. The clinical practicum focuses on clients with diverse needs in a variety of settings.

NURS 03402: Environmental And Occupational Health 4 s.h.
Prerequisites: NURS 03301, NURS 03303, NURS 03305, NURS 03306 and NURS 03304
The relationships that exist between the environment, the workplace, and health are the focus of this course. Key concepts, principles, and strategies related to environmental and occupational health nursing are explored. Teaching-learning strategies focus on critical thinking skills related to these areas of health care. Knowledge obtained from this course will prepare students to assess changes in helath status that may be related to the environment or the workplace. Students are provided with skills needed to recognize, evaluate, and to recommend control strategies for thses phenomena.

NURS 03403: Nursing Care Delivery Systems 3 s.h.
Prerequisite: NURS 03303
The focus of this course is the professional nurse's leadership and management role within health care delivery systems. The multi-faceted aspects of the role of the nurse as leader and manager are explored in depth, with emphasis on the role of the nurse as change agent. Organizational behavior, decision-making, the change process and the management of health care organizations are components of this course. The concepts of professionalism, leadership-management, research and teaching-learning are integrated with the professional nurse's role. This course prepares students to function as change agents in the health care delivery system. The clinical component focuses on the application of relevant theory and research as a basis for decision-making. Students are mentored by faculty, and interact with members of the nursing leadership team to explore Nursing leadership.

NURS 03404: Research Applications In Nursing Practice - WI 3 s.h.
Prerequisites: STAT 02100 and COMP 01112
This course introduces students to the concepts and process of research in nursing. Emphasis is placed on writing and critiquing published studies and developing plans for using research findings in practice.

NURS 03405: Health Care Policy And Finance 3 s.h.
The focus of this course is the professional nurse's role in health care policy and finances within health care systems. The multi-faceted aspects of health care policy making and financing within today's ever-changing health care environment are explored. Risk management and quality care are integrated into the course. This course gives the student a financial understanding of the health care delivery system. Students are exposed to the political and legislative process within health care agencies and health care policy development at the state and federal levels. Ethical and legal issues in nursing and health care are explored.

NURS 03409: Holistic Therapeutic Healing and Cultural Diversity 3 s.h.
Prerequisite: NURS 03400
This course identifies foundational theories and concepts in the development of healing relationships through identification of nursing competencies in the nurse-patient relationship. The components and principles of cultural competence are detailed and supported by current literature in the course content in addition to the exploration of interventions that reflect that competence.

NURS 03416: Transition To Professional Nursing Practice 4 s.h.
Prerequisites: NURS 03302 and NURS 03303 andNURS 03305 and NURS 03306 and NURS 03330and NURS 03340 and NURS 03350 and NURS03360 and NURS 03370 and NURS 03403 andNURS 03404
This course examines issues that must be addressed for the nursing student to successfully transition to the role of the professional nurse. The emphasis is on the application of the professional role in the clinical setting. Faculty supervised learning laboratory practice and clinical experiences enable students to apply acquired knowledge in a variety of settings.

NURS 05504: Advanced Pathophysiology 3 s.h.
Prerequisite: Licensure as a registered nurse and NURS 03303
This course describes the disordered physiology and clinical consequences resulting from common disease processes. Seminar discussions focus on alterations in normal functions of major organ systems. Through problem-solving exercises and case studies, students are encouraged to recognize the pathophysiologic basis of clinical findings associated with disease processes. This course serves as an essential link between the basic sciences and clinical management.

NURS 05505: Advanced Pharmacology 3 s.h.
Prerequisite: Licensure as a registered nurse and NURS 03303 and NURS 05504
This course expands students' knowledge of clinical pharmacology to provide a sound basis from which to engage in prescriptive drug management. Pharmacodynamics, pharmacokinetics and pharmacotherapeutics of drug classes are explored through a variety of teaching-learning methodologies, including seminar discussion, problem-based case study presentations, focused readings, and web-based exercises.

PHIL 09110: The Logic Of Everyday Reasoning 3 s.h.
This course in informal logic aims at improving the student's reasoning through a thorough exposure to common logical fallacies as these appear in ordinary language, and through a study of rational procedures for problem-solving. Students have opportunities for extensive practice at discovering and overcoming their own logical faults in writing and speech as well as practice at rational problem-solving.

PHIL 09120: Introduction To Philosophy 3 s.h.
This basic course in the methods of philosophical inquiry investigates how these methods have been applied to selected philosophical issues by classical and contemporary philosophers.

PHIL 09121: Introduction To Philosophy - WI 3 s.h.
Prerequisites: COMP 01112
Same as PHIL09.120, but meets general education writing intensive guidelines with a variety of graded and ungraded writing assignments.

PHIL 09130: Introduction to Symbolic Logic 3 s.h.
This course provides students with a working familiarity with the principles and procedures involved in deductive logic.

PHIL 09150: Introduction to Ethics 3 s.h.
This historically structured course emphasizes both the natural of moral problems and the variety and adequacy of selected moral theories. The course involves reflection and analysis of classic and contemporary theories and thinkers. This course carries a mutual exclusion with the following courses; you may not enroll in it if you have completed any of the following with a passing grade: PHIL 09151

PHIL 09151: Introduction to Ethics - WI 3 s.h.
Prerequisite: COMP 01112
This historically structured course emphasizes both the natural of moral problems and the variety and adequacy of selected moral theories. The course involves reflection and analysis of classic and contemporary theories and thinkers. This course meets general education writing intensive guidelines with a variety of graded and ungraded writing assignments.This course carries a mutual exclusion with the following courses; you may not enroll in it if you have completed any of the following with a passing grade: PHIL 09150

PHIL 09200: Philosophy of Religion 3 s.h.
This course addresses philosophical questions concerning a traditional conception of God. These questions include: What is the nature of God? What is the relationship between God and morality? Is there any reason to believe in the existence of God? Is there any reason to deny the existence of God? What is faith? Should belief in the existence of God be a matter of faith?

PHIL 09211: Ancient Philosophy - WI 3 s.h.
Prerequisites: COMP 01112
This course addresses questions about the nature of reality, and the nature and possibility of knowledge, through examination of selected texts by western and non-western philosophers from the ancient, medieval and renaissance periods.

PHIL 09213: Modern Philosophy - WI 3 s.h.
Prerequisite: COMP 01112
This course addresses questions about the nature of reality, and the nature and possibility of knowledge, through the examination of selected texts by western and non-western philosophers from the modern and contemporary period.

PHIL 09218: Environmental Ethics 3 s.h.
This is a multidisciplinary course that addresses ethical issues and concerns regarding the environment; the relationships between the individual, society and the natural environment; the importance of common attitudes and prevailing world-views for understanding and responding to environmental challenges; and the need for changes in those attitudes and world-views. Students will be encouraged to think about the profound ethical, political, economic, religious, scientific, and technological implications of these environmental challenges.

PHIL 09219: Existentialism 3 s.h.
This course offers an introduction to Existentialism, a global philosophical movement with roots in the 19th Century. Some existentialist themes include: freedom, authenticity, responsibility, death, choice, truth, and the nature of morality and values. We will also explore philosophical and literary existential writings in the context of social and political issues such as race, feminism, and postcoloniality.

PHIL 09222: Business Ethics 3 s.h.
This course considers issues of human values in management, the relevance of ethical norms for management decisions and the relationship between business and society. Case studies of corporations are utilized to illustrate and clarify these issues.

PHIL 09228: American Philosophy 3 s.h.
This course examines the thought of selected American philosophers from the colonial period to the present. It stresses the distinctive American philosophical movement, Pragmatism, and some of its representative figures such as Charles Sanders Peirce, William James and John Dewey.

PHIL 09231: Asian Thought 3 s.h.
This course introduces the key philosophical concepts in the traditions of Hinduism, Buddhism, Confucianism and Daoism. The course studies important thinkers and their concepts in these traditions to discover how they used these concepts in their own systems of thought and what they contributed to later developments of the concepts. The philosophical perspectives the course surveys involve metaphysics, ethics, epistemology, aesthetics, philosophy of mind, philosophy of language, philosophy of religion, and social-political philosophy, characterizing some different ways of thinking from, and supplementing, Western philosophy.

PHIL 09240: Social and Political Philosophy 3 s.h.
This is an introduction to the broad themes of political philosophy and social theory; How human life is and should be organized into societies; the nature of political systems and different forms of government; the relationship between the individual and the state; the nature of justice; the influence of economy on society; how human nature influences social nature; and the meanings of freedom, equality, and democracy.

PHIL 09241: Social and Political Philosophy - WI 3 s.h.
Prerequisite: COMP 01112
This is an introduction to the broad themes of political philosophy and social theory; How human life is and should be organized into societies; the nature of political systems and different forms of government; the relationship between the individual and the state; the nature of justice; the influence of economy on society; how human nature influences social nature; and the meanings of freedom, equality, and democracy. Meets Rowan Core writing intensive guidelines with a variety of graded and ungraded writing assignments and papers.

PHIL 09261: Philosophical Perspectives on Science-WI 3 s.h.
Prerequisites: COMP 01112 or ENGR 01102
This course offers the student a basic understanding of some of the philosophical issues involved in modern science. The nature of scientific explanation and prediction, the character of scientific change, the structure and function of scientific theories, and the confirmation of scientific hypothesis are among the issues treated. Furthermore, attention is given to epistemological issues arising from the social structure of science, such as whether science is neutral or biased with respect to questions about gender, race, and religion. This course meets general education writing intensive guidelines with a variety of graded and ungraded writing assignments.

PHIL 09310: Aesthetics 3 s.h.
Prerequisite: At least one PHIL course, or more than one Arts course (ART, ARHS, MUS, MUSG, THD, RTF).
This course offers students an approach to such philosophical issues as the nature; the role of the arts in human culture; and the articulation of criteria for interpretation and criticism. Students will refine their own approach to these issues by attending to specific works of poetry, fiction, drama, music, painting, sculpture, and other arts, including student works.

PHIL 09311: Aesthetics - WI 3 s.h.
Prerequisite(s): COMP 01112 AND at least on PHIL course, or more than one Arts course, (ART, MUS, MUSG, THD, RTF) and COMP 01112
Same as PHIL09.310, but meets general education writing intensive guidelines with a variety of graded and ungraded writing assignments.

PHIL 09324: Philosophy of Law 3 s.h.
Prerequisite: At least one PHIL course
This course will explore the philosophical foundations of law and its practice. Topics may include the nature of law and its relation to morality, rights, responsibility, and privacy; the nature of legal interpretation; theories of punishment; civil disobedience; the ethics of lawyers.

PHIL 09326: Philosophy of Mind 3 s.h.
Pre-requisites: Any PHIL course
This course addresses philosophical questions about the nature of the mind. Some of these questions include: What is the relationship between the mind and the body? Can science fully understand the mind? Are minds like computers? What type of minds do non-human animals have? Students will learn the responses of classical and contemporary philosophers to these questions. Students will also develop and refine their own views in response to these questions.

PHIL 09327: Philosophy and Race - WI 3 s.h.
Prerequisite: At least one PHIL course
This course will explore philosophical issues related to "race," including the role of modern European philosophers in the development of the concept of 'race' and historical and contemporary critical examinations of 'race' and racism.

PHIL 09328: Philosophy And Gender 3 s.h.
Prerequisite: At least one PHIL course or PHRE course or INTR 01130
This course will explore philosophical issues relating to gender as considered by classical, modern and contemporary philosophers. Recent work by feminist philosophers will be emphasized.

PHIL 09329: Philosophy And Gender - WI 3 s.h.
Pre-requisite: At least one PHIL course or PHRE course or INTR 01130 and COMP 01112
This course will explore philosophical issues relating to gender as considered by classical, modern and contemporary philosophers. Recent work by feminist philosophers will be emphasized. Meets general education writing intensive guidelines with a variety of graded and ungraded writing assignments.

PHIL 09341: Biomedical Ethics-WI 3 s.h.
Prerequisites: At least one PHIL course and COMP 01112 or Permission from Instructor
Ethical issues in health care, medicine and bio-technology; for example, abortion, termination of treatment, euthanasia, truth-telling and confidentiality, medical experimentation and informed consent, genetics, transplant surgery, artificial reproductive techniques, the allocation of medical resources and the impact of race, class and gender as they relate to biomedical issues.

PHIL 09346: Feminist Ethics - WI 3 s.h.
Pre-requisite: At least one PHIL course and COMP 01112
Examines the central currents of feminist ethics, such as ethics of care and justice, abortion, parenting, social ethics, violence, eating disorders and embodiment, prostitution, medical and reproductive ethics, aging, disability, theological ethics.

PHIL 09368: Philosophy Of Science 3 s.h.
Prerequisite(s): 1 PHIL or PHRE course
This course offers the student a basic understanding of some of the philosophical issues involved in modern science. The nature of scientific explanation and prediction, the character of scientific change, the structure and function of scientific theories, and the confirmation of scientific hypothesis are among the issues treated. Furthermore, attention is given to epistemological issues arising from the social structure of science, such as whether science is neutral or biased with respect to questions about gender, race, and religion.

PHIL 09369: Philosophy Of Science - WI 3 s.h.
Prerequisites: 1 PHIL or PHRE course and COMP 01112 or ENGR 01102
This course offers the student a basic understanding of some of the philosophical issues involved in modern science. The nature of scientific explanation and prediction, the character of scientific change, the structure and function of scientific theories, and the confirmation of scientific hypothesis are among the issues treated. Furthermore, attention is given to epistemological issues arising from the social structure of science, such as whether science is neutral or biased with respect to questions about gender, race, and religion. This course meets general education writing intensive guidelines with a variety of graded and ungraded writing assignments.

PHIL 09370: Epistemology 3 s.h.
Prerequisite: At least one course in PHIL
This course addresses philosophical questions concerning the nature of knowledge. Some of these questions include: How can we be sure that our knowledge of the world is accurate? What is the relation of evidence to our understanding of the world? What distinguishes mathematical knowledge from scientific and ethical knowledge? Students will study and criticize both traditional and contemporary approaches to the understanding of knowledge. Students will also develop and refine their own views in response to these issues.

PHIL 09371: Epistemology- WI 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201 and at least one course in PHIL
This course addresses philosophical questions concerning the nature of knowledge. Some of these questions include: How can we be sure that our knowledge of the world is accurate? What is the relation of evidence to our understanding of the world? What distinguishes mathematical knowledge from scientific and ethical knowledge? Students will study and criticize both traditional and contemporary approaches to the understanding of knowledge. Students will also develop and refine their own views in response to these issues. Meets general education writing intensive guidelines with a variety of graded and ungraded writing assignments.

PHIL 09376: Philosophy Of Medicine-WI 3 s.h.
Prerequisite: COMP 01112
This course addresses philosophical and methodological questions about medicine. Through a study of historical and contemporary medical practice and theory, this course examines the epistemological and institutional commitments of medicine. Some of the topics covered in the course are the nature of illness and health, epidemiology, drug testing, physician error, the relation of western and non-western approaches to healing, and the role of gender and race in medicine. The goal of the course is to develop a critically informed approach to the research and practical problems of medicine. This course meets general education writing intensive guidelines with a variety of graded and ungraded writing assignments.

PHIL 09380: Intermediate Symbolic Logic 3 s.h.
Prerequisite: PHIL 09130
This intermediate course in symbolic logic studies both sentential and quantificational techniques as well as the completeness and consistency of formal systems. The following topics are covered: formal proof methods for quanitifiers, first order set theory, mathematical induction. numerical quantification, proofs in transfinite mathematics. proofs of completeness and incompleteness.

PHIL 09392: Contemporary Moral Problems 3 s.h.
Pre-requisite: At least one PHIL Course or PHRE course
This course covers recent work in applying moral theories to such issues as the environment, free speech, terrorism and war, animal ethics, technology, and human rights and to such professions as healthcare, business, law, and government.

PHIL 09393: Contemporary Moral Problems- WI 3 s.h.
Prerequisites: At least one PHIL course or PHRE course and COMP 01112 or HONR 01112 or ENGR 01201
This course covers recent work in applying moral theories to such issues as the environment, free speech, terrorism and war, animal ethics, technology, and human rights and to such professions as healthcare, business, law, and governments. Meets Rowan University writing intensive guidelines with a variety of graded and ungraded writing assignments

PHIL 09440: Topics In Philosophy 3 s.h.
At least one Philosophy (PHIL) or Philosophy and World Religions (PHRE) course.
This course offers advanced study in a particular topical area of philosophy. Topic varies. May not be offered every semester. May be taken more than once.

PHIL 09472: Topics in the History of Philosophy 3 s.h.
Prerequisite: 1 PHIL or PHRE course
This course offers in-depth study of an important philosopher, movement or school in the history of philosophy. Topics will vary, and students may take the course more than once if the topic is different.

PHIL 09490: Independent Study 3 to 6 s.h.

PHIL 09495: Senior Seminar in Philosophy 3 s.h.
Prerequisite: 4 PHIL courses and COMP 01112
This capstone course engages students in advanced level work in philosophy, by focusing on a particular topic of the instructor's choice. Students must complete individual research projects.

PHRE 11310: Buddhism 3 s.h.
Prerequisite: Any one PHIL or REL or PHRE course
This course examines the central teachings and practices of Buddhism, from its Indian origins and East Asian development to its interactions with the modern West. Instructional methods include observation of Buddhist practice as well as study of Buddhist scriptures.

PHRE 11330: Daoism 3 s.h.
Prerequisite: Any one PHIL or REL or PHRE course
This course examines the central teachings and practices of Daoism, from its early founders Laozi and Zhuangzi to its interactions with the modern West. Instructional methods include observations of Daoist practice as well as study of Daoist scriptures.

PHRE 11350: Spirituality And Healing 3 s.h.
This course examines the health and healing issues from a cross-cultural perspective. It investigates how different religious traditions interpret and assign meanings to sickness and disease, how they address matters of suffering and affliction, and how they practice healing and therapy. It explores the role and place of spiritual healing in the modern scientific age, and its implications for contemporary health care system and policies.

PHRE 11361: Ethics in and out of Religions 3 s.h.
Prerequisite(s): One PHIL course OR One REL course OR One PHRE course
This course examines ethical issues and perspectives raised by particular religions, and how religious moral perspectives influence our understanding of moral theories and dilemmas both within religious traditions and outside them including secular moral philosophers. The course analyzes questions raised by the intersection of ethics and religion with some attention to practical issues and different approaches to ethics. This course may not be offered annually.

PHRE 11440: Topics in Philosophy and World Religions 3 s.h.
Prerequisite: Prior completion of 1 PHIL, PHRE, OR REL course
This course offers in-depth study of a topic at the intersection between Philosophy and World Religions. Topics will vary, and students may take the course more than once if the topic is different.

REL 10100: World Religions 3 s.h.
This course surveys the major world religions in both the Eastern and Western traditions. The course replaces REL 10200 RELIGIONS OF THE WORLD. It is not permitted to earn credit in both.

REL 10150: Religion on Film 3 s.h.
This course will explore several world religions, and religious studies as a field, through watching movies that deal with religion or that may be interpreted in light of religion. Through the lens of these films, students will question how and why moviemakers choose to address religious themes: What is religion? What makes a film "religious"? How do films "mark" religious content? How do films that deal with religion shape our ideas about religion in general and about specific religions? How do our own faith traditions shape what messages we take away from movies?

REL 10210: Religion In America 3 s.h.
This course explores the wide variety of religious movements that have existed and continue to exist in America. Both traditional religions and cults are considered within the context of American culture.

REL 10214: Religions Of The Western World 3 s.h.
This course will offer you the opportunity to explore the beliefs, literature, ethics and social implications of Judaism, Roman Catholicism, Orthodoxy, Protestantism, Islam and other religions as time permits.

REL 10219: Approaches to Religion 3 s.h.
This course explores phenomena of religions in terms of broad perspectives such as historical, sociological, ethnographical, cultural, and psychological ones, with an emphasis on learning various approaches and methodologies in religion studies.

REL 10230: Religions Of Asia 3 s.h.
This course introduces students to major religions in Asia: Hinduism, Buddhism, Confucianism, Taoism and Shinto. It focuses on the historical contexts, central teachings and traditional practices of these religions and their dynamic relations with societies and cultures. Instructional methods include observation of religious practice as well as study of religious scriptures.

REL 10240: Introduction To The Bible 3 s.h.
This course acquaints students with the Bible by a study of its books with the aid of the findings of archeology, literary criticism and other related fields.

REL 10301: Judaism 3 s.h.
Prerequisites: COMP 01111, COMP 01112 or their equivalents
This course examines the primary beliefs, texts, and spiritual approaches of the Jewish religious tradition. Covering approximately 3,000 years, this tradition has undergone many changes as the conditions of Jewish life changed. Students will study primary texts such as biblical accounts and commentaries along with contemporary personal reflections.

REL 10320: Christianity 3 s.h.
Prerequisites: COMP 01112 and one HHL Course
This course will examine the history, texts, worldview, and contemporary issues of the Christian religious tradition. Spanning two thousand years, the Christian tradition has undergone many changes as it had evolved in the world. Students will study basic texts and historical events while also reflecting on contemporary issues.

REL 10328: Development Of Western Religious Thought 3 s.h.
This course emphasizes the contributions to the Western, and more specifically the Christian, tradition of such figures as Augustine, Aquinas, Luther, Kierkegaard, Tillich and Barth.

REL 10331: Spirituality and Nature 3 s.h.
This course will challenge students to understand the different attitudes toward the natural world taken by many different religious traditions as well the ways spiritual approaches to nature are sometimes constructed by American culture.

REL 10335: Sex and the Bible 3 s.h.
In this course, students will gain an increased familiarity with the Bible, both as a historical document and a source of influence on the past several millennia of Western culture. We will apply conceptual textual-critical frameworks for material presented in class in order to determine how these biblical texts have been and continue to be deployed in culture, explore the process of translation by examining and creating interpretations, considering carefully the elements involved, and evaluate the diversity of biblical perspectives on various topics relating to sex, sexuality, gender, bodies, family, crime, and society.

REL 10340: Topics in World Religions 3 s.h.
Prerequisite: COMP 01112 OR Equivalents.
This course examines one topic in religion in depth. Its topic may vary. This course may not be offered annually.

REL 10350: Spirituality And Healing 3 s.h.
This course examines the health and healing issues from a cross-cultural perspective. It investigates how different religious traditions interpret and assign meanings to sickness and disease, how they address matters of suffering and affliction, and how they practice healing and therapy. It explores the role and place of spiritual healing in the modern scientific age, and its implications for contemporary health care system and policies.

REL 10450: Senior Seminar in World Religions 3 s.h.
Prerequisite(s): 4 REL or PHRE (12 s.h) courses
This capstone course engages students in advanced level work in different disciplinary approaches to the studies of world religions, by focusing on a particular topic of the instructor's choice. Students must complete individual research projects.

ASTR 11100: Introductory Astronomy: Stars & Galaxies 3 s.h.
This course focuses on the large-scale structures of the universe including stars, star clusters, nebulas, galaxies, and cosmology. To provide a well-rounded introduction to astronomy, additional topics include the nature of light, telescopes, and historical and modern observational perspectives. This course requires night viewing outside of class time.

ASTR 11120: Introduction To Astronomy (Lecture And Lab) 4 s.h.
This course is a descriptive study of the universe that emphasizes the physical concepts that explain astronomical phenomena. The evolutionary, structural, and dynamical aspects of the solar system, stars, nebulae, galaxies, and the entire universe are discussed. The laboratory experience has both quantitative and qualitative components that include outdoor observations of night sky objects, daytime solar observations, and computer simulations. There is occasional evening viewing outside of class.

ASTR 11200: Introductory Astronomy: Solar System & Exoplanets 3 s.h.
Prerequisite: Score of at least 60 on CLM or MATH 01122 Minimum Grade of D- or MATH 01122 Minimum Grade of D- (may be Taken Concurrently) or MATH 01140 Minimum Grade of D- (may be taken concurrently)
In the study of planetary science, the students will explore geology, chemistry, physics and astronomy in their applications to the composition, dynamics, atmospheres, surfaces, and magnetospheres of objects within the solar system. The search for life or conditions suitable for life in other parts of the solar system is a driving force of solar system exploration., thus biology is incorporated as well. This course will help the student develop skills necessary to discuss and write about science.

ASTR 11230: Introductory Astrophysics 4 s.h.
Prerequisite: MATH 01130 OR MATH 01140
This course is an overview of astrophysics, the application of the laws of physics to interpret astronomical phenomena. Topics include the Sun, star formation, properties of stars, stellar structure and evolution, supernovae, white dwarfs, neutron stars, black holes, the Milky Way galaxy, the interstellar medium, normal galaxies, active galaxies and quasars, and cosmology.

ASTR 11240: Observational Astronomy 4 s.h.
Prerequisites: ASTR 11230 AND MATH 01130
This course is a survey of current methods in observational astronomy. Topics include, but are not limited to, celestial coordinates, celestial navigation, the magnitude system, modern telescopes, CCD cameras, astronomical data, imaging software, solar observing, and planetarium operation. This course will familiarize students with the operation of a 0.4-meter telescope. Nighttime observational projects and oral presentations are part of the course.

ASTR 11250: Astronomy Research I 1 to 3 s.h.
Prerequisite: minimum 3.0 GPA within major/minor AND permission of instructor
This course introduces and/or develops modern research techniques used in astronomy. Research is performed in collaboration with one or more faculty in an area of specialization of the faculty. Emphasis will be placed on developing research skills, developing technical writing skills, and the development of skills needed for scientific presentations.

ASTR 11251: Astronomy Research II 1 to 3 s.h.
Prerequisite: minimum 3.0 GPA within major/minor AND permission of instructor
This course introduces and/or develops modern research techniques used in astronomy. Research is performed in collaboration with one or more faculty in an area of specialization of the faculty. Emphasis will be placed on developing research skills, developing technical writing skills, and the development of skills needed for scientific presentations.

ASTR 11301: Planetary Astronomy 3 s.h.
Prerequisite(s): ASTR 11230 and PHYS 00222
The science of planetary systems, both solar and extra-solar, is examined. Topics include planet formation, radioactive dating, small-body dynamics, interactions of radiation with matter, tides, planetary interiors, atmospheres, and magnetospheres.

ASTR 11302: Stellar Astrophysics 3 s.h.
Prerequisite(s): ASTR 11230 and PHYS 00222
This course presents the properties, structure, formation, evolution, and deaths of stars. The physics of stellar atmospheres and stellar spectroscopy is presented, and the development of the Hertzsprung-Russell diagram is examined. The theory of stellar structure is detailed including the process of stellar nucleosynthesis. Degenerate matter and the structure of collapsed stars are described. Other topics include: stellar pulsation, close binary systems, accretion, novae, supernovae, pulsars, black holes, and star clusters.

ASTR 11303: Galactic Astronomy And Cosmology 3 s.h.
Prerequisites(s): ASTR 11230 and PHYS 00222
The structure, kinematics, formation, and evolution of the Milky Way Galaxy and other galaxies are studied. Elements of general relativity are introduced as the physics of supermassive black holes and active galaxies are examined. This course covers relativistic (Big Bang) cosmology, the large-scale structure of the Universe, the expansion history and fate of the Universe, and current estimates of the age of the Universe. Observations that measure the matter and energy content of the Universe are presented. Cosmic inflation, primordial nucleosynthesis, the Cosmic Microwave Background, and the Hubble flow are covered in depth.

ASTR 11350: Astronomy Research III 1 to 3 s.h.
Prerequisite: PHYS 00300 AND minimum 3.0 GPA within major/minor AND permission of instructor
This course introduces and/or develops modern research techniques used in astronomy. Research is performed in collaboration with one or more faculty in an area of specialization of the faculty. Emphasis will be placed on developing research skills, developing technical writing skills, and the development of skills needed for scientific presentations.

ASTR 11450: Astronomy Research IV 1 to 3 s.h.
Prerequisite: PHYS 00300 AND minimum 3.0 GPA within major/minor AND permission of instructor
This course introduces and/or develops modern research techniques used in astronomy. Research is performed in collaboration with one or more faculty in an area of specialization of the faculty. Emphasis will be placed on developing research skills, developing technical writing skills, and the development of skills needed for scientific presentations.

PHSC 01110: Principles Of Physical Science 3 s.h.
This course provides experiences and information that will develop a better understanding of the function and significance of science in today's world. It emphasizes the general principles of physics and stresses their influences in the development of all the physical sciences.

PHSC 01310: Independent Study (Physical Sciences) 1 to 6 s.h.
Prerequisites: permission of instructor.
Students who enter the independent study program working under the supervision of a faculty member are required to identify and select an appropriate project area, develop an achievable plan, execute the project and prepare a presentation of the completed study.

PHYS 00120: Selected Topics In Physics 3 s.h.
The content of this course varies to reflect the role of physics in society. A limited number of topics are selected from among the following: mechanics, thermodynamics, sound, light and optics, electricity and magnetism, electric circuits, modern physics or the investigation of the physics of applied technologies. It studies the fundamental principles underlying the topics and considers connections to the physical and social environment.

PHYS 00130: Building Momentum as a Physics Student at Rowan and Beyond-RS 1 s.h.
Prerequisite: Major restriction: BA in Physics, BS in Physics, BS in Biophysics
This course will familiarize students with foundational topics in physics and biophysics, basic resources available, and skills needed for success as a student at Rowan University. Introductory topics in scientific study will be addressed including the scientific method, navigation of the scientific literature, and tips for scientific writing and presentation. The curriculum for each program and guidance on planning an appropriate academic path will be provided and discussed. Information on career postgraduate education paths available to graduates will be given to inform this planning, including specifics on Certificates of Undergraduate Studies, minors, concentrations, and dual-degree programs that may facilitate success for students in their future beyond Rowan. The course will also involve workshops and professional development exercises to help students build their critical professional skills (i.e. personal presentation, networking, self-assessment of skills, etc.).

PHYS 00140: Physics Of Current Technologies (Lecture and Lab) 4 s.h.
This course introduces contemporary concepts of physics through their application in commercially available technologies. The course mostly focuses on information storage technologies but actual course content evolves to reflect the specialties of the instructor. Concepts such as electrical resistance, magnetic fields, magnetic domains, electron tunneling, and assorted microscopic techniques will be introduced. Laboratories consist of hands-on activities including the imaging of magnetic information (magnetic domains), optical information (CD dyes) and individual atoms.

PHYS 00150: Physics Of Everyday Life (Lecture and Lab) 4 s.h.
The goal of this course is to expose students with a non-science background to physics. The students will experience the excitement of physics by examining phenomena of our everyday environment. The historical development of such ideas will be studied as well. Topics selected for study include mechanics, matter, heat, sound, light, electricity, magnetism, atomic and nuclear physics. Physics will be communicated in a conceptual framework along with straightforward algebraic and trigonometric formulations.

PHYS 00175: Physics Of Sound And Music (Lecture And Lab) 4 s.h.
The goal of this course is to expose students to physics through its application to sound and music. The students will study these applications by examining the phenomena of voice, sound, hearing, musical instruments, acoustics, electronic technology and reproduction of sound and music. The historical development of such topics will be studied as well.

PHYS 00210: Physics I Without Calculus (Lecture and Lab) 4 s.h.
Prerequisites: Score of at least 60 on CLM OR MATH 01122 OR MATH 01130 with concurrent registration allowed OR MATH 01140 with concurrent registration allowed
This course studies the principles of mechanics, heat, and fluids. Calculus is not used. The course emphasizes problem work involving the use of Algebra, Trigonometry, and Geometry.

PHYS 00211: Physics II Without Calculus (Lecture and Lab) 4 s.h.
Prerequisite: PHYS 00210 or PHYS 00220
This course studies the basic principles of electricity, magnetism, and light. Calculus is not used. The course emphasizes problem work involving the use of Algebra, Trigonometry, and Geometry.

PHYS 00220: Introductory Mechanics (Lecture and Lab) 4 s.h.
Co/Prerequisite: MATH 01130 or Math 01140
This course studies the basic principles or mechanics and is equivalent to most calculus based introductory mechanics courses often entitled Physics I. The course is designed to cover introductory mechanics (Newton's laws, energy and momentum conservation, rotating systems, statics, gravity and simple harmonic motion) at a level appropriate for future scientists and engineers. The course includes a laboratory component and it emphasizes problem-solving techniques.

PHYS 00221: Introductory Thermodynamics, Fluids, Waves, & Optics (Lecture and Lab) 4 s.h.
Prerequisite: PHYS 00220Corequisite: MATH 01131 or MATH 01141
This introductory course studies the basic principles of thermodynamics, fluids, waves, and optics and their application. The concepts will be applied through problem solving and laboratory experiences. A large portion of the content of this course builds from the concept of conservation of energy covered in the introductory mechanics course. The course is required for any physical science and physics majors and recommended for those majoring in biochemistry, chemistry, biology, engineering, or mathematics. The specific topics covered include elastic properties of materials, fluid mechanics, mechanical waves, sound, conduction of heat, kinetic theory of gasses, the laws of thermodynamics, light, geometric optics, interference and diffraction.

PHYS 00222: Introductory Electricity & Magnetism (Lecture and Lab) 4 s.h.
Prerequisite: PHYS 00220Corequisite: MATH 01131 or MATH 01141
This course studies the basic principles of electricity and magnetism and is equivalent to most calculus based introductory electricity and magnetism courses often entitled Physics II. The course is designed to cover introductory electricity and magnetism (charge, current, potential, fields, AC and DC circuits, Maxwell's Equations, and electromagnetic waves) at a level appropriate for future scientists and engineers. The course includes a laboratory component and it emphasizes problem-solving techniques.

PHYS 00250: Physics Research I 1 to 3 s.h.
Prerequisite: Minimum 3.0 GPA within major/minor AND permission of instructor.
This course introduces and/or develops modern research techniques used in physics. Research is performed in collaboration with one or more faculty in an area of specialization of the faculty. Emphasis will be placed on developing research skills, developing technical writing skills, and the development of skills needed for scientific presentations.

PHYS 00251: Physics Research II 1 to 3 s.h.
Prerequisite: Minimum 3.0 GPA within major/minor AND permission of instructor.
This course introduces and/or develops modern research techniques used in physics. Research is performed in collaboration with one or more faculty in an area of specialization of the faculty. Emphasis will be placed on developing research skills, developing technical writing skills, and the development of skills needed for scientific presentations.

PHYS 00300: Modern Physics (Lecture and Lab) 4 s.h.
Prerequisites: (MATH 01131 or MATH 01141) AND(PHYS 00211 or PHYS 00222)
This course covers modern physics developed since the turn of the 20th century. After a review of some classical physics, course topics include special relativity, wave and particle aspects of radiation, matter waves, models of the atom, ionization, spectra, x-rays, and introductory quantum theory. It also covers theories developed by Planck, Einstein, Rutherford, Bragg, Bohr, Compton, de Broglie, Pauli, Schrodinger and Heisenberg.

PHYS 00310: Analytical Mechanics 4 s.h.
Prerequisites: PHYS 00300 AND MATH 01230
This course teaches students Newtonian, Lagrangian, and Hamiltonian formulations of mechanics, and their applications to such problems as Central Force Motion, Linear and Nonlinear Oscillations, Collisions between particles, Noninertial Systems, Coupled Oscillations and Normal Coordinates, and Rigid Bodies.

PHYS 00315: Instrumentation for Biomedical Sciences 3 s.h.
Prerequisite: PHYS 00300 or BMS 02230
The design and use of advanced instrumentation are critical in all areas of the biomedical sciences for analysis of biomedical systems and for synthesis of new biomedical technologies. This course will familiarize students with a wide range of the instrumentation they are likely to encounter in a biomedical career. Various instruments will be examined with respect to: (1) Theoretical basis of the measurement or synthesis and relation to instrumentational architecture, (2) Implementation of the method and experimental design, and (3) Data interpretation and analysis. The course will integrate primary scientific literature and discuss the evolution of instrumentation with new technologies and/or applications. The course will include inspection of instruments and observation of experimental execution, providing students with experience over a broad range of modern biomedical instrumentation.

PHYS 00320: Electricity & Magnetism I 4 s.h.
Prerequisites: PHYS 00300 AND MATH 01230
This course studies classical electromagnetism. Its topics include: the laws of electromagnetic force, Maxwell's equations, electromagnetic induction, interaction of currents, and electromagnetic energy and waves.

PHYS 00321: Electricity & Magnetism II 3 s.h.
Prerequisite: PHYS 00320
This course studies advanced applications of Maxwell's equations. For example, the generation of electromagnetic radiation and its propagation through matter will be discussed. The connection between Maxwell's equations and the special theory of relativity will be emphasized.

PHYS 00325: Electric Circuits (Lecture and Lab) 4 s.h.
Prerequisite: PHYS 00222 and MATH 01230
This course provides a lab-intensive introduction to electronic circuit design, construction, and troubleshooting, developing many of the analytical and laboratory skills needed to work with circuits commonly encountered in experimental physics research. Although the emphasis is on analog circuits, elementary digital circuits will be studied as time permits. A required final project integrates elements learned throughout the term.

PHYS 00330: Mathematical Methods for Physics 3 s.h.
Prerequisite: MATH 01230 Corequisite: PHYS 00300 (Concurrent enrollment allowed)
This course studies mathematical topics as they apply to physics: complex numbers, determinants and matrices, Fourier series, ordinary and partial differentiation. Certain more advanced topics may be treated: calculus of variations, gamma and beta functions, coordinate transformations, tensor analysis, functions of complex variable, Legendre polynomials and Bessel functions. The course will include computational as well as analytical methods.

PHYS 00340: Optics & Light (Lecture and Lab) 4 s.h.
Prerequisite: PHYS 00211 and PHYS 00300 orpermission from the instructor to by pass PHYS 00300
This course studies the nature and propagation of light, dispersion, reflection and refraction at plane and spherical surfaces, lenses (thin and thick), aberrations of lenses and mirrors, optical instruments, polarization, diffraction and photometry. It also discusses modern developments and techniques (such as fiber optics, lasers, holography).

PHYS 00345: Introduction to Optical Design 4 s.h.
Prerequisite: PHYS 00222 and MATH 01230
This course is intended to give an introduction to the fundamentals of optical design, including geometric optics, matrix theory, and aberration theory. Students will become proficient at utilizing merit functions and solve within an industry-standard optical design software, in order to conceptualize, design, optimize, analyze optical systems. This course will also cover an overview of traditional lens designs such as landscape lenses, periscopic lenses, and ocular lenses (eyepieces). It will also include selected advanced designs such as telescopes and spectrographs. Due to the lab nature of this course and the subject material, students will need to have access to a laptop on which they can install the design software and bring with them to class to complete course lab work.

PHYS 00347: Laser Physics 3 s.h.
Pre-requisite: PHYS 00340
This course is intended to give an introduction to the fundamentals of laser physics as well as a practical understanding of common laser designs and applications. Students will develop an understanding of the quantum nature of light and its interaction with matter and how these interactions can be manipulated to produce both pulsed and continuous-wave lasers, as well as their unique characteristics such as coherence, monochromaticity, and Gaussian beams. Students will get an overview of the pros and cons of various gas, solid-state, and diode lasers.

PHYS 00350: Physics Research III 1 to 3 s.h.
Prerequisite: PHYS 00300 AND minimum 3.0 GPAwithin major/minor AND permission of instructor
This course introduces and/or develops modern research techniques used in physics. Research is performed in collaboration with one or more faculty in an area of specialization of the faculty. Emphasis will be placed on developing research skills, developing technical writing skills, and the development of skills needed for scientific presentations.

PHYS 00351: Physics Research Methods I 2 s.h.
Co/Prerequisite(s): PHYS 00300 and BS Physics Major with at least 60 s.h. completed and 2.5 GPA in PHYS 00220, PHYS 00221 and PHYS 00222
This course introduces students to contemporary research problems in Physics or Astronomy. Students will participate and learn the skills associated with experimental, theoretical, and computational problems in Physics and Astronomy. Development of technical writing skills and scientific presentation skills will be emphasized.

PHYS 00352: Physics Research Methods II 2 s.h.
Co/Prerequisite: PHYS 00351
This course is a continuation of PHYS 00351 Physics Research I and introduces students to contemporary research problems in Physics or Astronomy. Research creativity and skills are expected to be significantly more refined in this course in comparison to the first course in the sequence.

PHYS 00360: Molecular Biophysics 4 s.h.
Prerequisites: PHYS 00300 OR MCB 01102
This course is aimed at understanding the physics of biological systems. The goal of the course is to quantitatively define biological systems and their functions. Key emphasis will be placed on (1) understanding theories, laws, and axioms that govern systems and their behavior and (2) the use of physics to determine quantitative information about systems and their behaviors. For each topic, the basic laws of physics will be reviewed followed by their application to specific biomolecular and biological system examples. the laboratory component is aimed at giving students hands-on experience in measurement and observation for biological systems.

PHYS 00361: Physics Learning Assistant For Introductory Mechanics 2 s.h.
Prerequisites: PHYS 00220 or PHYS 00210; and3.0 minimum GPA in introductory physics coursesand permission of instructor
This upper-level Physics course is designed to provide students with experience in solving laboratory problems and broaden their knowledge of basic physics. Students will gain this experience by 1) providing assistance to student groups during the laboratory activity, 2) preparing materials for laboratory activities, and 3) developing new laboratory activities. This course is recommended for all Physics and Physical Science students since it improves their depth of knowledge of physics while enhancing their communication skills. This specific course is geared toward the area of mechanics.

PHYS 00362: Physics Learning Assistant For Introductory Thermodynamics, Fluids, Waves, And Optics 2 s.h.
Prerequisites: PHYS 00221 Modern Physics; 3.0 minimum GPA in introductory physics courses and permission of instructor.
This upper-level Physics course is designed to provide students with experience in solving laboratory problems and broaden their knowledge of basic physics. Students will gain this experience by 1) providing assistance to student groups during the laboratory activity, 2) preparing materials for laboratory activities, and 3) developing new laboratory activities. This course is recommended for all Physics and Physical Science students since it improves their depth of knowledge of physics while enhancing their communication skills. This specific course is geared toward the areas of thermodynamics, fluids, waves, and optics.

PHYS 00363: Physics Learning Assistant For Introductory Electricity And Magnetism 2 s.h.
Prerequisites: PHYS 00222 or PHYS 00211; 3.0 minimum GPA in introductory physics courses and permission of instructor
This upper-level Physics course is designed to provide students with experience in solving laboratory problems and broaden their knowledge of basic physics. Students will gain this experience by 1) providing assistance to student groups during the laboratory activity, 2) preparing materials for laboratory activities, and 3) developing new laboratory activities. This course is recommended for all Physics and Physical Science students since it improves their depth of knowledge of physics while enhancing their communication skills. This specific course is geared toward the areas of electricity and magnetism.

PHYS 00371: Biophysics: Fundamentals of Biomaterials 3 s.h.
Prerequisite: PHYS 00300 OR MATH 01235 OR MCB 01102
This course is aimed at applying material physics and technology to regulate and support biological systems and functions A goal of the course is to fundamentally understand variable biomaterials and their interactions with biological systems (cells, tissues, organs). A second goal is to use material physics and technology as a tool to understand biomaterials for artificial tissues and organs, or biophysical devices and sensors. Finally, students will learn and understand public healthcare policies, needs, and resources.

PHYS 00375: Introduction to Radiation Physics 4 s.h.
Prerequisite: PHYS 00360
This course is aimed at the understanding of radiation, more specifically, ionizing radiation. The goal of this course is to understand the mechanisms, kinetics, behaviors of radiation and radioactive materials, and the fundamental properties of particulate and electromagnetic radiations and their interactions with matter. The course will include demonstrations and activities to show these interactions.

PHYS 00410: Quantum Mechanics I 4 s.h.
Prerequisites: PHYS 00300 AND MATH 01230
This course will serve as an introduction to quantum mechanics. Students will learn the basic concepts of quantum mechanics and how to solve simple problems using quantum mechanics. Topics selected for study include the origins of quantum mechanics, the free particle in wave mechanics, particles in one-dimensional potentials, the axiomatic formulation of quantum physics, particles in three-dimensions, spin and the Pauli exclusion principle.

PHYS 00411: Quantum Mechanics II 3 s.h.
Prerequisite: PHYS 00410
This course is a continuation of Quantum Mechanics I. Students will learn more advanced concepts and problems in quantum mechanics. Topics selected for study include the formalism of quantum mechanics, particles in three-dimensions, spin and angular momentum, quantum statistical mechanics, time-independent perturbation theory, time-dependent perturbation theory, and scattering. Some topics may overlap with the ones in Quantum Mechanics I, but are taught on a higher level.

PHYS 00430: Statistical Physics 3 s.h.
Prerequisite: PHYS 00310 or PHYS 00320
The student will study in detail the laws of thermodynamics. The statistical derivation of these laws will be presented. Topics include: ideal gases, classical and quantum distribution functions, phase transitions, and other special topics.

PHYS 00440: Advanced Laboratory (Lecture and Lab) 4 s.h.
Prerequisite: PHYS 00300
This course introduces modern experimental techniques commonly used in physics. Experimental results will be correlated with existing theories. Technical writing skills will be developed and evaluated.

PHYS 00450: Physics Research IV 1 to 3 s.h.
Prerequisite(s): PHYS 00300 and minimum 3.0 GPA within major/minor and permission of instructor
This course introduces and/or develops modern research techniques used in physics. Research is performed in collaboration with one or more faculty in an area of specialization of the faculty. Emphasis will be placed on developing research skills, developing technical writing skills, and the development of skills needed for scientific presentations.

PHYS 00451: Biophysics Research I 2 s.h.
Prerequisite: PHYS 00360 or PHYS 00371
This is the first course in a sequence of two courses providing meaningful research training for students majoring in Biophysics. Student research teams will work on current research problems in the biophysics field. The specific research problem will be developed and assigned by a research advisor. Student participants will develop a detailed knowledge of measurement techniques and limitations while also gaining an in-depth understanding of a current research area in the biophysics field. Students will be required to complete a literature search and review. Communication skills, both oral and written, will be emphasized.

PHYS 00452: Biophysics Research II 2 s.h.
Prerequisite: PHYS 00451
This is the first course in a sequence of two courses providing meaningful research training for students majoring in Biophysics. Student research teams will work on current research problems in the biophysics field. The specific research problem will be developed and assigned by a research advisor. Student participants will develop a detailed knowledge of measurement techniques and limitations while also gaining an in-depth understanding of a current research area in the biophysics field. Students will be required to complete a literature search and review. Communication skills, both oral and written, will be emphasized.

PHYS 00470: Selected Topics In Advanced Physics 3 to 4 s.h.
Prerequisite: PHYS 00300 and MATH 01230 or permission of instructor
This course is aimed to expose students to advanced physics topics that are important for their career development and their involvement with faculty research. The topics include, but are not limited to, Solid State Physics, Atomic and Molecular Physics, Occupational Physics, Special Relativity, and Elementary Particles. One topic from the above list will be chosen each time the course is offered.

PHYS 00475: Radiation Physics 3 s.h.
Prerequisite(s): PHYS 00300 or ((BIOL 01201 or BIOL 01203) and PHYS 00211))
This course is a lecture course aimed at training students at understanding radiation and its role in measurement sciences, imaging, spectroscopy, diffraction, and ionization of biomaterials. This course is useful for students planning a career in biophysical sciences, health physics, or radiation physics. Radiation Physics will introduce students to x-ray, gamma, and neutron instrumentation and techniques. Students will gain an understanding of the interaction of radiation with matter and how radiation is used in imaging, measurement and for ionizing matter.

PHYS 00477: Radiation: Effects and Applications 3 s.h.
Prerequisite: PHYS 00375
This course is aimed at the understanding of radiation and its effects on various materials and the mechanics and kinetics that can cause damage. The goal of this course is to investigate the stress that ionizing radiation applies to materials and the subsequent applications which include medical use, radio-chemistry of water, energy transfer and dose, radio-pharmacy, environmental radiation, and material characterization. The course will also investigate the regulations that govern the beneficial use of radiation and radioactive materials.

PHYS 00479: Radiation Instrumentation 2 s.h.
Prerequisite: PHYS 00375
This course is aimed at training students at understanding radiation detection. This course is useful for students planning a career in health physics or medical physics. Radiation Instrumentation will introduce students to: methods to detect ionizing radiation using its effects, design and operation of various detectors, -, -, -particle monitoring, particle detection efficiency, personal dosimetry, and radiation shielding.

PHYS 00499: Independent Study - Physics 1 to 4 s.h.

ECON 04100: American Economic Systems 3 s.h.
Focuses on the fundamental ideology, mechanics, development, and contemporary state of American economic system with reference to the global economy. Course is recommended for all students who want only a one semester course in economics.

ECON 04101: An Introduction To Economics-A Macroeconomic Perspective 3 s.h.
This course analyzes the overall level of economic activity in the United States and examines its major determinants, public stabilization policies, economic growth and international trade.

ECON 04102: An Introduction To Economics-A Microeconomic Perspective 3 s.h.
This course analyzes resource allocation among alternative uses. It studies consumer demand, product and factor price determination, general equilibrium and optimal income distribution.

ECON 04200: History Of Economic Ideas 3 s.h.
This course investigates the development of economic thought. It analyzes the significant contribution of philosophers and economists from the works of Plato to those of Keynes.

ECON 04205: American Economic History 3 s.h.
This course surveys the process of U.S. economic development to the present day. It analyzes the factors behind the growth of the U.S. economy and the prospects for the future. This course may not be offered annually.

ECON 04210: Environmental Economics 3 s.h.
Prerequisites: ECON 04102
This course analyzes the economic causes and consequences of environmental deterioration and examines the relevant public policies. This course may not be offered annually.

ECON 04215: Current Economic Problems And Policies 3 s.h.
Prerequisites: ECON 04101 and ECON 04102
This course explores current significant problems confronting the United States' economy. This course may not be offered annually.

ECON 04225: Women In The Economy 3 s.h.
This course analyzes the economic roles of women in society and studies recent movements, policies and their implementation.This course may not be offered annually.

ECON 04269: Selected Topics In Economics 3 to 6 s.h.
Prerequisites: ECON 04101 or ECON 04102
This course focuses on a detailed study of a selected topic in economics. Students should consult the instructor regarding the course topic, methodology, and objectives. Any particular selected topic(s) may be offered once within a period of three years.

ECON 04282: Economic Statistics 3 s.h.
Prerequisites: ECON 04101, ECON 04102 and STAT 02100 or STAT 02260
This course studies statistical decision-making, linear regression, correlation and the construction and use of index numbers and time series through the explicit use of economic examples, illustrations and applications.

ECON 04292: Statistics For Economists 3 s.h.
Prerequisites: ECON 04101 and ECON 04102
This course is an introduction to the use of statistical concepts and their applications in economics. The course covers areas such as probability, hypothesis testing, regression analysis, correlation, and time series. Students cannot receive credit for both this class and Economic Statistics (ECON 04.282).

ECON 04301: Intermediate Macroeconomics 3 s.h.
Prerequisites: ECON 04101
This course analyzes in depth the factors determining the level of national income, employment, price levels and interest rates.

ECON 04302: Intermediate Microeconomics 3 s.h.
Prerequisites: ECON 04102 AND (MATH 01130 OR MATH 01140 OR MATH 03125)
This course analyzes factor price determination, general equilibrium, capital theory and optimal income distribution.

ECON 04303: Principles Of Economics: A Survey 3 s.h.
This course analyzes the market system and alternative mechanisms for determining prices and allocating resources. Pure competition, monopolistic competition, oligopoly and monopoly are examined. Additionally, the determinants of aggregate employment and national income, money, banking, monetary policy, international trade and finance are analyzed. This course is not available to economics majors.

ECON 04305: Money And Banking 3 s.h.
Prerequisites: ECON 04101
This course studies the operation of the money and banking system in the U.S. It stresses Federal Reserve control of money supply and credit conditions to combat inflation and unemployment. It considers monetary arrangements and problems among nations. This course may not be offered annually.

ECON 04307: Economic Development M/G 3 s.h.
Prerequisites: ECON 04101 and ECON 04102
This course studies the process of economic growth, the sources of increasing economic productivity, the resources for investment and the proper allocation of resources. This course may not be offered annually.

ECON 04310: Global Economics - M/G 3 s.h.
Prerequisites: ECON 04101 and ECON 04102
This course studies the economic aspects of globalization taking place amongst countries through linkages of international trade and commerce, foreign direct investment, short term capital flows, institutional lending, immigration, emigration, knowledge, and technology. Emphasis will be placed on the economic processes and ramifications of globalization. This course may not be offered annually.

ECON 04315: Public Finance 3 s.h.
Prerequisites: ECON 04101 and ECON 04102
This course investigates taxes and debts of government, its budgets and intergovernmental fiscal relationships and public expenditure theory (cost-benefit analysis). This course may not be offered annually.

ECON 04320: Contemporary Economic Systems M/G 3 s.h.
Prerequisites: ECON 04101 and ECON 04102
This course analyzes theories, policies and practices of selected countries and methods of solving macroeconomic and microeconomic problems. This course may not be offered annually.

ECON 04325: International Trade 3 s.h.
Prerequisite(s): ECON 04101 AND ECON 04102
This course will explore the economic causes and consequences of international trade. It will focus on models of international trade; trade pattern determinants; gains from trade; trade's impact on labor, poverty and environment; immigration; foreign direct investment; trade policy formulation; tariffs, quotas, and other controls on trade; trade agreements; technologies (such as blockchain); as well as the international institutions that guide our system of global trade.

ECON 04345: Labor Economics 3 s.h.
Prerequisites: ECON 04102
This course studies the development of the American trade union movement and its impact on wage levels and income distribution. It examines the impact of trade unions on individual employers in the private and public sectors with the help of simulation of contract negotiation. This course may not be offered annually.

ECON 04351: Health Economics 3 s.h.
Prerequisites: ECON 04101 and ECON 04102
An economic analysis of the health care industry and the roles of markets and government are examined. Topics to include access to care, cost containment, the role of insurance, and the impact of information and technology.

ECON 04352: Industrial Organization 3 s.h.
Pre-requisite: ECON 04102
Industrial organization is the study of industry and firm behavior. Using the basic tools of microeconomic theory this course explores the relationships among firms in an industry or across industries by examining strategic interaction among firms. In addition, the student will analyze the acquisition and use of market power by firms and examine the role of government in setting industrial policy.

ECON 04353: Law and Economics 3 s.h.
Pre-requisite: ECON 04102
The course applies microeconomic theory to issues in both civil and criminal law. The course studies the effect of legal rules on the allocation of resources including property rights, liability and negligence, and the use of common law to correct for market failure. Topics include introduction to legal institutions and an economic approach to legal analysis, contracts, criminal and constitutional law and the economic efficiency of common law.

ECON 04360: Urban Economics 3 s.h.
Prerequisites: ECON 04102
This course analyzes the economic problems that are related to the urban crisis in America and examines the implications of existing public policies for the resolution of the problems. Urban poverty and discrimination, housing and transportation receive comprehensive treatment. This course may not be offered annually.

ECON 04363: Sports Economics 3 s.h.
Pre-requisites: ECON 04102
This course utilizes microeconomic tools to analyze topics in professional and amateur sports. Topics include the industrial organization of teams and leagues, the public finance of sports, sports labor markets, and amateur sports. Students will be exposed to peer reviewed articles in order to develop a deeper understanding of microeconomics and statistical analysis.

ECON 04392: ECONOMETRICS 3 s.h.
Prerequisites: ECON 04292 and MATH 03125 or MATH 01130; Minimum Grade of C- in All
Econometrics is the set of statistical techniques used to measure and analyze economic relationships, and to test these predictions. This course will focus on statistical analysis and the interpretation of economic data. In addition, the course will utilize data analysis and statistical modeling and apply economic methods to problems in economics.

ECON 04395: The Economics Of Personal Financial Planning 3 s.h.
Prerequisites: ECON 04101 and ECON 04102
This course examines the process of developing and implementing long-range plans to achieve financial objectives. Studies personal and family resources, how people spend, save, protect and invest their money, concepts of budgeting, cash management, borrowing, tax management, risk management, investments, retirement planning, and estate planning receive particular attention.

ECON 04410: Internship In Economics 3 s.h.
This course provides practical experience for the economics major. The student is placed in supervised settings in business, government or other organizations. Interns will develop their skills in applying various economic theories, principles and/or concepts to assigned real world problems. The faculty in the Economics Department will closely supervise, monitor, and evaluate the learning experience.

ECON 04492: Seminar In Economics Wi 3 s.h.
Corequisite: ECON 04301. Prerequisites: COMP 01112 and (ECON 04302 or ECON 04301) and ECON 04392 or (STAT 02260 and ECON 04392)
This course develops the interrelationships of various theoretical and applied areas within the study of economics through the techniques of research design.

ECON 04495: Independent Study-Economics 1 to 3 s.h.

EDPA 02320: Public Administration 3 s.h.
Students consider public administration principles and organizations, internal governmental administrative structures, the interactions between organizations and their environments, personnel and policy procedures, administrative communication methods, and other management techniques. This course may not be offered annually.

EDPA 02410: Public Policy 3 s.h.
Students analyze U.S. public policy using a variety of conceptual models including cost-benefit analysis. Case studies are emphasized. This course may not be offered annually.

EDPA 02412: Administrative Law And The Regulatory Process 3 s.h.
A study of the federal regulatory process and the politics of regulatory agencies in the U.S. Emphasis is upon the political economy of regulation. This course may not be offered annually.

EDPA 02490: Public Service Internship 3 to 12 s.h.
Students are provided with an opportunity to get first-hand experience in government administration and related political processes through work in a variety of public settings (government agencies, public officials' offices, law firms, etc.).

EDPA 07333: Social Policy and the Welfare State 3 s.h.
Using a comparative lens, this course examines the main theories and empirical developments in welfare state and social policy analysis. Special attention is paid to the role of politics in both new and emerging social policy debates. A mix of perennial and emerging (e.g. accommodating identity, immigration, and aging) social policy problems are discussed.

INTR 01301: Blockchain Applications 3 s.h.
Prerequisite: Earned at least 60 credit hours
This course explores the platforms of blockchain technology, which include cryptocurrency for digital currency and that of protocol execution for contracts and distributed applications. Cross-functional business and social uses, including public, private, and federated blockchain networks, are also included.

POSC 07100: Introduction To Government And Politics 3 s.h.
Professors who teach this course will normally focus on some, but not all, of the following topics: political and governmental structures, functions, and processes; political behavior; public law and public policy; and political values or philosophies.

POSC 07110: American Government 3 s.h.
This course focuses on the American Federal government, emphasizing the structure, operation and processes of our political system. Coverage will include political values as they are reflected in major public policies.

POSC 07200: Survey Of Western Political Theory 3 s.h.
This course provides students with an understanding of Western political thought from Plato to Karl Marx. It surveys Western political theory and analyzes such major concepts as order, justice, freedom, authority, power and political obligation.

POSC 07220: State And Local Government 3 s.h.
This course studies legislatures, executives, judicial systems and bureaucrats in the working of state and local government and the influence of political parties, interest groups, and elections on government policy. It examines inter-governmental relations and the role of state and local government in the federal system. This course may not be offered annually.

POSC 07230: Comparative Political Systems 3 s.h.
This course presents a comparative analysis of the fundamental law, political institutions, policies and processes and their relationship to political culture in Britain, France, the C.I.S. and a selected Third World country.

POSC 07303: Campaigns, Political Parties And Interest Groups 3 s.h.
This course compares the functions of U.S. political parties, interest groups, and political movements in recruiting and nominating candidates for public office, supporting campaigns and elections, organizing and staffing government, representing and shaping public opinion, and rationalizing and mobilizing the vote. The U.S. system is compared to the systems of other countries. Special attention is given to the civil rights movement, the reform of the presidential election process, and the candidate-centered professional campaign in the decline of the influence of the political parties.

POSC 07305: The Legislative Process 3 s.h.
This course examines the structure, politics and policy-making functions within the legislative process, focusing on the role of Congress and the state legislature in the U.S. political system. This course may not be offered annually.

POSC 07306: The Presidency 3 s.h.
This course studies the office of the President, its history, powers and role in the American political system. The course stresses the relationship of the presidency to other branches of government and of the White House agencies to the other elements of the Executive Branch. This course may not be offered annually.

POSC 07308: Current Problems In American Politics 3 s.h.
This course deals with selected issues of topical concern in American politics. Issues may be "headlines" that are receiving current media attention (usually policy debates), or they may focus on more persistent problems of the kind that concern political scientists, e.g. the consequences of party decline, the role of media in elections, etc. This course may not be offered annually.

POSC 07310: American Constitutional Law 3 s.h.
An introduction to major concepts of constitutional law as reflected in landmark cases, this course considers such matters as judicial review, national supremacy, the separation of powers, constitutional federalism and the commerce clause as well as the impact of various judicial philosophies on the decisions of the Supreme Court.

POSC 07311: Women And American Politics 3 s.h.
This course examines the historical role of women in a variety of political movements, varied views of feminism and the impact of participation on the changing status of women in American society. This course may not be offered annually.

POSC 07312: Freedom Of Expression 3 s.h.
This course considers the range of first amendment issues relating to speech, the press and the right to assemble. Issues of censorship and national security, obscene speech, commercial speech, and libel, among others, will be discussed. This course may not be offered annually.

POSC 07319: International Security 3 s.h.
The course discusses the theories used to explain international security, modern warfare, and asymmetric threats. It examines pressing problems in international security that are on the agenda of nation-states and international organizations. Examples could include armed violence, terrorism, organized crime, nuclear proliferation, poverty, infectious diseases, energy security, and environmental degradation. The course will also address the various responses to these security threats.

POSC 07320: International Relations 3 s.h.
This course studies the distribution of power among states in the international system, the effect of system change on national behavior, external and domestic sources of international influence and the relationship of capabilities and intentions in foreign policy decisions.

POSC 07321: Contemporary World Problems 3 s.h.
This course examines selected problems such as terrorism, world population and hunger, regional conflicts and arms control and disarmament.

POSC 07323: The Politics of Poverty: Class, Gender, and Race in America 3 s.h.
This course studies American responses to poverty from the New Deal through the present day. The class focuses on the critical role that race and gender play in the formation and implementation of these policies. This course will be offered annually.

POSC 07324: The Politics of Race in American Society 3 s.h.
This course examines the central role of race in American political culture and American politics at large. We will examine concepts through the use of interdisciplinary resources including film, biography and scholarly materials. The course will approach the study of race through an intersectional lens.

POSC 07327: Social Movements and Political Activism 3 s.h.
This course examines political participation and civic engagement through the lens of mass based social movements. The course also brings to bear a focus on how social movements can lead to policy change. This class is a mix of student led field work and traditional course work on theories of social movements and political participation.

POSC 07330: Contemporary U.S. Foreign Policy 3 s.h.
This course presents historical themes and patterns of U.S. foreign policy with special focus on the post-World War II period. It considers the sources of influence on policy-making and the major issues in contemporary policy. This course may not be offered annually.

POSC 07335: Mass Media and Politics 3 s.h.
This course explores various types of media, government regulation of the media, the gathering and distribution of political news, and media use in election campaigns. It will focus primarily on the media in the United States; however, we will also examine the broadcast media in a comparative perspective. The course will begin with an examination of the concept of citizenship in democracy. It will study the role of new media in the American political arena and the consequences of the current media environment for democratic governance.

POSC 07340: Civil Rights And Civil Liberties 3 s.h.
This course examines major trends and court decisions which have affected civil rights and civil liberties. Topics which may be raised include religion, speech, press, privacy, voting, equal protection, and due process.

POSC 07341: Russian, East European And Eurasian Politics 3 s.h.
This course examines the politics and history of Eastern Europe and the fifteen Soviet successor states in contemporary Eurasia. Processses of political, economic and social change are studied with an eye on institutional, attitudinal, and behavioral adaptations to the new realities. This course may not be offered annually.

POSC 07345: GOVT/POLIT MID-EST 3 s.h.

POSC 07346: Politics And Society Of Great Britain 3 s.h.
This course studies the unique aspects of a political system which has functioned without a written constitution. It emphasizes the historic development of British constitutional notions, and the relationships between the major institutions of monarchy, the parliament, the cabinet and political parties. This course may not be offered annually.

POSC 07347: Politics Of The Middle East 3 s.h.
This course provides students with an introduction to the rise of states, social movements, and contentious politics in the greater Middle East region. The course begins with the decline of empires and state formation up through the 20th century, then examines political change in the region, (Islamist mobilization, revolution, civil war and democratization), and concludes with a survey of contemporary issues, such as nationalism, Muslim minority politics, women and politics, and changes in international politics since September 11, 2001.

POSC 07350: Introduction To Asian Political Systems 3 s.h.
This course focuses on the political systems and processes of major Asian nations: India, Pakistan, Sri Lanka, Indonesia, Japan and China. This course may not be offered annually.

POSC 07351: Russian Foreign Policy 3 s.h.
Students study the historical record of Soviet foreign policy since l9l7, examining the relative importance of ideology and national interest and other domestic and external influences on Soviet policy-making. The course also discusses policy process and contemporary problems of policy. This course may not be offered annually.

POSC 07360: Methodology And Statistics In Political Science Research 3 s.h.
This course considers the varied ways that political scientists study problems, with primary attention to scientific method and quantitative skills. Students are expected to become adept at using and interpreting forms of descriptive statistics commonly used in the social sciences.

POSC 07370: Special Topics In Political Science 3 s.h.
This course is a vehicle to allow visiting scholars to offer courses in their specialties which are not part of regular course offerings. This course may not be offered annually.

POSC 07375: Politics And The Judicial Process 3 s.h.
This course describes and analyzes the American judicial process, with particular attention to the role of the judicial branch in developing public policy. Topics to be explored include jurisprudential theories of the law, the organization and staffing of courts, civil and criminal process, judicial selection methods, judicial behavior, the legal profession, law and social change and the political and social impact of court decisions.

POSC 07380: Politics On Film 3 s.h.
This course in American national politics and government uses film and other examples of popular culture as tests to supplement conventional readings, lectures, and assignments. Topics include political culture, political institutions, campaigns, and public policy.

POSC 07385: Environmental Policy 3 s.h.
This course will introduce students to major national debates over environmental politics and policy. It will discuss both theory and practice, emphasizing the political, organizational, scientific and economic drivers shaping environmental policy. It will also use case studies to explore the history and results of the environmental movement.

POSC 07400: American Political Thought 3 s.h.
This course studies the development of American political thought from colonial times to the present through major thinkers. Ideas are considered in relation to political events and broader historical movements to which they are connected. This course may not be offered annually.

POSC 07401: Contemporary Political Thought 3 s.h.
This course considers major l9th and 20th century ideologies from the perspectives of thinkers who helped shape them. It considers socialism, fascism, liberalism and conservatism through the works of writers like Marx, Mill, Ortega and Burke. The course may also consider contemporary rethinking of contract theory (e.g. Rawls, Nozick). This course may not be offered annually.

POSC 07410: Selected Problems In Constitutional Law 3 s.h.
Prerequisites: POSC 07310
This course explores specific issues in recent Supreme Court decisions, and the process through which such issues are resolved, emphasizing one or two areas of current interest. This course may not be offered annually.

POSC 07415: In-Depth Study Of The Current Supreme Court 3 s.h.
Students spend three days hearing oral arguments at the Supreme Court. Prior research on an assigned case will culminate in a paper in which the student will predict the outcome of the Court's decision.

POSC 07420: International Law 3 s.h.
This course considers the role of law among nations, the source of international law in practice and convention and the national courts, international courts and other vehicles for adjudicating and enforcing international law. This course may not be offered annually.

POSC 07421: International Organizations 3 s.h.
This course studies the League of Nations, the United Nations and other international and regional organizations in relation to such functions as peace-keeping, conflict resolution, international consensus-building, etc. This course may not be offered annually.

POSC 07441: Political Problems Of Modern Africa 3 s.h.

POSC 07489: Seminar in Political Science - WI 3 s.h.
Prerequisites: COMP 01112 and POSC 07360
This course stresses careful reading and research in primary and secondary material related to selected problems in political science. Primary emphasis will be on writing a critical and analytical paper.

POSC 07490: Seminar In Political Science 3 s.h.
(Open only to senior political science majors) This course stresses careful reading and research in primary and secondary material related to selected problems in political science. Primary emphasis will be on writing a critical and analytical paper.

POSC 07491: Independent Study In Political Science 3 to 9 s.h.
This course focuses on individual projects under the guidance of a faculty member; it cannot be used as a substitute for a course offered by the department. This course may not be offered annually.

CANN 03101: CANNABIS HISTORY, CULTURE, & SOCIAL INSTITUTIONS 3 s.h.
This introductory course will present the rich history and culture of cannabis, its use and impact on society and social institutions. Students will study the history of cannabis from its ancient past to its place in the contemporary globalized 21st century world. Student will learn the cultural influence of cannabis on entertainment, politics, religion, race, gender, and class, exploring its evolution over time. This course is designed to foster critical thinking and logic about past, present, and future impacts of cannabis on cultures and social institutions by developing a more in depth understanding of its history. To this end, it is important that students recognize the inclusive approach toward understanding the equity issues related to the history and culture of marijuana.

CANN 03201: Cannabis Legislation and Society 3 s.h.
This course will present an overview of the creation of legislation, legislative process and statutory interpretation of legislation. The course will focus on the practice of law as it relates to the emerging area of cannabis law, legal ethics, and inclusive responsibility within the field of cannabis law. While an emphasis will be on New Jersey, there will be an examination of the burgeoning field of law surrounding the diverse use, sale, and production of cannabis. Students will have a clear understanding of federal and state laws that govern the legalization of cannabis. Moreover, the course will discuss the basic elements of the political, social, and economic forces that affect change thereby guiding the future direction of cannabis law.

CANN 03301: Cannabis Industry 3 s.h.
Cannabis Industry offers a diverse overview of the burgeoning field of the production, sale, consumption of cannabis. Students will have an understanding of the social, anthropological, historical, economic, and cultural forces that shape the cannabis industry.

PSY 00371: Social Psychology of Sport 3 s.h.
Prerequisite(s): PSY 01107 and HES 00370
Social Psychology of Sport examines issues related to athletic performance based on theoretical perspectives and current research addressing the impact of social concepts on sport and exercise. Topics include relationships in sport, such as coach-athlete and peer, team cohesion, group dynamics, effective communication, coach impact on leadership, motivational climates and athletic transition.

PSY 01105: The Psychology Of Ethnic Identity & Community In America 3 s.h.
Prerequisites: PSY 01107 or PSY 01108
This course will facilitate students' development of knowledge and appreciation of racial/ethnic identity formations and their impact on intergroup relations and orientations toward community in America. Students will engage in a variety of individual and collaborative strategies for studying their own and others' racial/ethnic identities, interracial and interethnic relations and the prospects for constructing a sense of pluralistic and egalitarian communities.

PSY 01107: Essentials Of Psychology 3 s.h.
Students will be introduced to psychology, the scientific study of behavior. This course will highlight the key areas in psychology that help to explain human behavior. This course will include discussion of diverse topics such as, perception, learning, thinking, memory, motivation, emotion, stress, and health, personality, physiological processes, psychological disorders and treatment, development, intelligence, and social psychology.

PSY 01108: Essentials of Psychology for Pre-Health Students 3 s.h.
Prerequisites: Declared Pre-Health Concentration or enrolled in CMSRU Post-Bac in Premedical Sciences program
This specific Essentials of Psychology course is designed for students planning to attend medical school and take the MCAT, which includes a new section on Psychology. This class will prepare students to take that section of the MCAT. Students will be introduced to psychology, the scientific study of behavior. This course will highlight the key areas in psychology that help to explain human behavior. This course will include discussion of diverse topics such as perception, learning, thinking, memory, motivation, emotion, stress, and health, personality, physiological processes, psychological disorders and treatment, development, intelligence, and social psychology.

PSY 01199: Navigating Psychology 1 s.h.
Prerequisite: B.A. in Psychology or B.S. in Psychological Science as declared major
This course provides students with information and guidance regarding their future education in Psychology. This introductory class gives incoming Psychology students resources that they will need to guide their coursework, professional development, and research/employment to further their psychological education and future careers. This course will prepare students to make decisions that will tailor their Psychology program to their interests and goals. During this course, assessments are also taken as a part of larger program assessment.

PSY 01200: Psychology Of Women & Cultural Experience 3 s.h.
Prerequisites: PSY 01107 or PSY 01108
This course explores the influence of gender, race, and class in the psychological development and experience of women in cultural contexts. Although it will primarily focus on the lives of women in the United States, an attempt will be made to provide linkage to women's experiences globally. Topics covered will include the role of gender bias in the history of psychology, female personality development, women in the workplace, women's psychosexual issues, and the role of gender in health and wellness.

PSY 01230: Psychology Of Personality 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
Students study major theories of personality and techniques for measuring personality. Personality is that field of psychology that investigates the predispositions or inherited characteristics and the acquired or learned qualities that affect an individual.

PSY 01235: African American Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course introduces students to a critical analysis of the psychosocial development, behavior and relationships of Black people within the sociohistorical context of the United States. It facilitates students' examination of issues relating to methodology and assumptions underlying past and current research on the psychological study of African Americans. The course also enables students to examine theory and research on the effects of significant sociocultural factors on the lives of African Americans, with particular focus on physical development, language and communication styles, models of identity and social-emotional development, intellectual and academic development, sexual behavior and attitudes, health issues, and empowerment.

PSY 01301: Psychology of Scientific Thinking 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
Students will be introduced to the methods of science and the role that science plays in the understanding of how the world works. The development of critical thinking skills and an evidence based approach to evaluating scientific claims will be emphasized. Students will also be introduced to the psychological processes that underlie the scientific method and the persistence of belief in pseudoscientific and non-scientific claims.

PSY 01302: Research In Perception - WI 4 s.h.
Prerequisites: PSY 01104 and PSY 07210
This course provides an overview of how the study of perception integrates psychophysics, sensory and physiological psychology, and neuropsychology in an attempt to understand the principles guiding the way in which humans obtain information about the world. Topics include the scientific study of the sensory systems, classical and contemporary psychophysical methods, principles of perceptual organization, aftereffects, perceptual illusions, and the real-world implications of these phenomena. This course contains a laboratory component that emphasizes the use of scientific methodologies in Perception. Only matriculated psychology majors may register for this course.

PSY 01305: Psychology And Law 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
A course in the relationship of psychology and law, this course studies how the law has used psychological concepts and data. It examines legal issues of significance for psychologists and examines psychological research as it relates to the legal process.

PSY 01310: Psychology Of Racism And Ethnocentrism: Causes, Development, Consequences, Solutions 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course provides an opportunity for students to develop critical understanding of psychological perspectives regarding the root causes, complex patterns, and the individual, group, and societal consequences of racism and ethnocentrism in the United States of America. The course will draw upon comparative data regarding the psychological factors involved in historic or contemporary race and ethnic relations within selected international contexts to explore parallel and unique cross-cultural phenomena.

PSY 01316: Behavioral Assessment And Measurement 3 s.h.
Prerequisite: PSY 02310
This course provides students with the knowledge and skills needed to conduct behavioral assessments and choose appropriate target outcomes and intervention strategies. Additionally, students will learn to objectively measure behavior, display data graphically, and experimentally evaluate the effectiveness of behavioral interventions. This course is one of the courses required for the Specialization in Behavioral Services for Children and Their Families in the psychology department.

PSY 01326: Perception 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course involves the study of sensation and perception. Topics include the scientific study of sensory systems, classical and contemporary psychophysical methods, principles of perceptual organization, aftereffects, illusions and space perception.

PSY 01327: Cognitive Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course involves the study of information processing. Its topics may include the history and methods of cognitive psychology, selection and processing of sensory information, pattern recognition, memory processes, language acquisition and cognition.

PSY 01329: Health Psychology 3 s.h.
Prerequisite(s): (PSY 01107 or PSY 01108) and PSY 01301
This course is concerned with the role of biophsychosocial factors in teh promotion of health, prevention of and treatment of illness, the etiology of illness, and ways to improve the health care system. Students will learn widely studied and empirically supported theories of health behaviors in relation to behavioral risk factors. They will focus on theories, assessement and treatment of the primary behavioral problems encountered within behavioral medicine, such as sleep disorders, sexual dysfunction, high risk sexual behaviors, obesity, eating disorders, chronic pain, substance abuse/dependency, and tobacco addiction.

PSY 01331: Occupational Health Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
Occupational Health Psychology focuses upon factors affecting the physical and mental health of individuals within organizations. Students will learn the various aspects of organizational structure and policy that can favorably or negatively impact upon worker stress, engagement, and productivity, and understand the actions that both individuals and organizations can take to address those factors and improve employee health.

PSY 01336: Positive Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
Positive psychology is the scientific study of optimal human functioning, with a focus on the character strengths and virtues that enable individuals to live lives that are rich in meaning and direction. The class will emphasize various aspects of well-being, including happiness, engagement and purpose, and will explore applications of the positive paradigm to personal change, clinical and counseling work, and the development of positive organizational and educational practices.

PSY 01419: Independent Study In Psychology .5 to 6 s.h.
Individual educational and research projects including independent study are offered. Student must have approval of faculty instructor before registering for this course. Regular meetings with faculty instructor are required.

PSY 01420: Advanced Research I-WI 3 s.h.
Prerequisites: Minimum B grade in the following: PSY 01301 AND PSY 07301 AND PSY 07303
This course is the first in a two-course sequence focused on conducting empirical research in psychology. During this course, students will begin an empirical research project, including a literature review, conceptualization of the hypothesis, design of the methodology, and exposure to ethical review board procedures. Students will write an APA-formatted research proposal.

PSY 01421: Advanced Research II-WI 3 s.h.
Prerequisite: PSY01420 minimum grade B.
This is the second in a two-course sequence focused on conducting empirical research in psyhology. During this course students will complete an empirical research project that was started in Advanced Research I-WI (PSY 01.420). This course includes data collection, statistical analysis, and interpretation of results. The final project will be reported in an APA-formatted research paper.

PSY 01422: Field Experiences In Psychology 3 to 6 s.h.
Prerequisite: PSY 01107 or PSY 01108
Because of the limited enrollment in this course, priority is given to psychology majors. It is suggested that the student have a minimum of 60 hours of college credit which should include at least 15 hours in psychology. Students are assigned placements in supervised settings such as community mental health centers, drug rehabilitation centers, and schools.

PSY 01423: Seminar In Psychology: Topics 3 to 6 s.h.
Prerequisites: PSY 01107 or PSY 01108 AND 2 or more 300 or 400 PSY courses
This course enables the faculty to offer substantive courses in specialty areas which are not offered on a regular basis. Students should have substantive preparation in the specialty area of the course.

PSY 01424: Professional Issues In Applied Behavior Analysis 3 s.h.
Prerequisites: PSY 02305 (Concurrency Allowed) AND PSY 02310AND PSY 02320 AND PSY 02325
This course is a capstone course in Specialization for Behavioral Services for Children and their Families, providing an in-depth overview of innovative and empirically validated behavior assessment and intervention techniques aimed at promoting system-wide change. Students will be exposed to professional development as behavior analysts including ethical issues, career options and responsibilities, and development of clinical skills.

PSY 01425: Fieldwork in Applied Behavior Analysis 3 s.h.
Prerequisites: PSY 02305 AND PSY 02320 AND PSY 02325
Students should be matriculated in the Specialization for Behavioral Services for Children & Families OR the Post-Baccalaureate in ABA to enroll in this course due to limited enrollment. Students are assigned placements in applied settings under the supervision of a Board Certified Behavior Analyst (BCBA) to gain experience in the design and implementation of behavioral interventions. Students are required to complete 150 hours of supervised fieldwork in their assigned placements.

PSY 01426: Research Clinic in Psychology 3 s.h.
Prequisite(s): Must be a Psychology major with 60+ credits, and PSY 01301 and PSY 07301 and PSY 07303 and Permission of Instructor
This course focuses on developing students' skills in conducting psychological research at the undergraduate level. Students will develop skills in writing and presenting their research work at a professional level. They will disseminate their work through seminar and conference presentations.

PSY 01429: History & Systems In Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course presents the history of psychology, giving a comprehensive treatment of theories and systems in psychology. The student should have a substantial background in psychology before taking this course.

PSY 01499: Psychology Senior Capstone 1 s.h.
Prerequisite: Students must have at least 100 completed credits
This course provides students with information and guidance regarding their future careers in Psychology and the resources they will need to further their education and possible careers. During this course, assessments are also taken as a part of larger program assessment.

PSY 02200: Essential Skills for Behavior Technicians 3 s.h.
In this competency-based course, students will acquire the skills needed to work directly with individuals with significant behavioral needs within a tiered service delivery model. In this course, students will complete the 40-hour training requirement and competency assessment for eligibility for the Registered Behavior Technician® (RBT®) credential.

PSY 02300: Psychology as a Profession and Practice 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course will introduce students to traditional and emerging applied areas in psychology, with the goal of increasing students' knowledge about how psychological information is used to impact peoples lives. In addition, students will learn how psychological knowledge can be applied in ways that allow us to better understand the individual and the broader social world. Finally, students will explore possible career paths in psychology and learn how to best prepare themselves for a career in psychology or related fields post graduation.

PSY 02305: Applied Behavior Analysis 3 s.h.
Prerequisite: PSY 02310
This course deals with the principles, procedures and utility of behavior modification in normal and clinical settings.

PSY 02307: Research In Cognitive Psychology - WI 4 s.h.
Prerequisites: PSY 01104 and PSY 07210
This course involves the study of information processing. Its topics may include the history and methods of cognitive psychology, selection and processing of sensory information pattern recognition, memory processes, language acquisition and cognition. A laboratory component is appended to the course, but does not fulfill General Education laboratory requirements.

PSY 02308: Research In Learning And Behavior-WI 4 s.h.
Prerequisites: PSY 01104 and PSY 07210
This course provides an overview of theories of learning and the experimental analysis of behavior. Topics may include classical conditioning, operant conditioning, and schedules of reinforcement. This course contains a laboratory component which emphasizes the use of the scientific method in learning and the experimental analysis of behavior. Only matriculated psychology majors may register for this course.

PSY 02309: Research In Social Psychology - WI 4 s.h.
Prerequisites: PSY 01100 and PSY 07210
This course provides an overview of how individuals affect the thoughts and behaviors of other individuals. It examines social behavior from a multicultural perspective which emphasizes the effects of gender, race, and ethnicity on social interaction. Topics may include social cognition, attitude change, affiliation, conformity, intergroup conflict and cooperation. This course contains a laboratory component which emphasizes the use of the scientific method in social psychology. Only matriculated psychology majors may register for this course.

PSY 02310: Learning And Behavior 3 s.h.
Prerequisites: (PSY 01107or PSY 01108) or Matriculation in the Post-Baccalaureate Certificate in Applied Behavior Analysis
This course provides an overview of the experimental analysis of behavior with minor attention to other theories of learning. Topics may include classical conditioning, operant conditioning, and schedules of reinforcement.

PSY 02320: Single-Subject Research Methodology 3 s.h.
Prerequisite: PSY 02310
This course provides students with the knowledge and skills to choose and implement an appropriate single-subject experimental design. Single-subject designs, in contrast to group designs, focus on repeated assessment of a small number of participants. Visual display and analysis of data is common in single-subject design research and will therefore be a focus in the course.

PSY 02325: Functional Behavior Assessment 3 s.h.
Prerequisites: PSY 02310 and (PSY 02320 may be taken concurrently)
This course provides students with the knowledge and skills needed to conduct behavior assessments, interpret behavioral data obtained from behavior assessments, and choose appropriate, socially significant behavior change outcomes and intervention strategies based on these interpretations. The course will emphasize the breadth of the function-based behavior analytic problem solving approach and demonstrate the model's ability to effectively and ethically address a wide variety of problems of human concern. This course is required for students in the Concentration in Behavioral Services for Children and their Families and the Post-Baccalaureate Certificate in Applied Behavior Analysis.

PSY 03200: Abnormal Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
Abnormal Psychology is a division of the science of psychology that investigates disordered behaviors, deficiencies in behavior capacities, and the persons exhibiting them. This course of Abnormal Psychology is concerned with the application of the methods, concepts, principles and findings of psychological research to deviant behavior. It is also concerned with perception, learning, development and social factors as related to disturbed behavior and experiences of individuals.

PSY 03205: Intake And Interviewing Skills In Psychology 3 s.h.
Prerequisites: (PSY 01107 or PSY 01108) and PSY 03200
This course is designed to prepare undergraduates to be able to perform an initial interview or intake in an entry level, human service position. Topics include basic skill development, understanding of content and process in interviewing, family interviews, use of standard intake procedures, and ethical considerations in interviewing.

PSY 03320: Introduction to Clinical and Counseling Psychology 3 s.h.
Prerequisites: Matriculation in BA in Psychology or PSY 03200 or PSY 09305 BS in Psychological Science and
The goal of this course is to introduce students to fields of clinical and counseling psychology. This course will survey core principles and practices in the fields of clinical and counseling psychology, including major theoretical and training models, research methods in clinical and counseling psychology, basics of evidence-based clinical assessment and diagnosis, and evidence-based approaches to psychotherapy. This course will help interested students explore potential careers in clinical and counseling psychology and learn about the differences and similarities between the two fields.

PSY 03320: Introduction to Clinical and Counseling Psychology 3 s.h.
Prerequisites: Matriculation in BA in Psychology or PSY 03200 or PSY 09305 BS in Psychological Science and
The goal of this course is to introduce students to fields of clinical and counseling psychology. This course will survey core principles and practices in the fields of clinical and counseling psychology, including major theoretical and training models, research methods in clinical and counseling psychology, basics of evidence-based clinical assessment and diagnosis, and evidence-based approaches to psychotherapy. This course will help interested students explore potential careers in clinical and counseling psychology and learn about the differences and similarities between the two fields.

PSY 03400: Motivational Interviewing Processes in Psychology 3 s.h.
Prerequisite: PSY 03205
This course will provide students with an overview of the psychological constructs underlying human motivations for behavior change and a basis in entry level skills and techniques in motivational interviewing. Students will learn the role of motivational interviewing and basic motivational interviewing skills in behavior change. Theory and skills application opportunities include substance use and abuse disorders, mental health disorders, problematic health behaviors, healthcare treatment adherence, academic achievement, and personal goal attainment. The cross disciplinary nature of motivational interviewing theory and skills and the intersection of psychology and counseling, educational, healthcare, and criminal justice fields will be examined from a practical standpoint. Students will have an opportunity to learn and practice basic applied skills.

PSY 05205: Environmental Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course involves the study of people and their physical setting. Its topics include environmental perception and cognition, social processes and the environment, individual development and the environment, contrast between natural and built environment and city and urban design.

PSY 05206: Social Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course examines the psychological, social and cultural factors that shape the social behavior of the individual. It investigates such topics as affiliation, conformity, leadership, group processes; attitude formation and change; intergroup cooperation and conflict. The primary focus is on the individual in social context.

PSY 05310: Psychology Of Human Sexuality 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course provides an overview of the current scientific knowledge concerning human sexuality. It examines data from national surveys and controlled laboratory studies.

PSY 05320: Introduction to Sport and Exercise Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
Introduction to Sport and Exercise Psychology examines theories and models of psychology related to performance. Topics include personality, exercise environments, motivation, arousal, stress and anxiety, group processes, performance enhancement and exercise and psychological well-being. This course is a prerequisite for Social Psychology of Sport.

PSY 05402: Psychology Of Conflict And Conflict Resolution 3 s.h.
Prerequisite(s): PSY 01107 or PSY 01108
Students investigate the basis for conflict in social and personal situations. The course attempts to isolate a number of contributive variables and explores possible alternatives to destructive conflict. It employs different research approaches and attempts to help interested students examine and develop innovative approaches to use in the resolution of conflict within social relationships.

PSY 05410: Community Psychology 3 s.h.
Prerequisite(s): PSY 05206 and PSY 01107
This course provides an overview of the field of community psychology. Its topics will include preventive approaches to mental health, crisis intervention, community-based treatment approaches, systems theory, community mental health centers, organization theory, paraprofessionals, the use of self-help groups and community psychology in the schools and criminal justice system. The course provides a conceptual framework for community psychology.

PSY 06300: Psychological Tests And Measurements 3 s.h.
This course examines the nature and use of psychological tests and the social and ethical implications of testing. It emphasizes principles of test construction: reliability, validity and item analysis. Statistics should be completed before or concurrently with this course.

PSY 07300: Psychology Learning Assistant Seminar 3 s.h.
Prerequisite: Permission of Instructor
This course is designed to aid students in their undergraduate Learning Assistantships. Students will apply and extend their knowledge of content in their assigned course by giving presentations on topics in the course that they are assisting. Students will also develop skills to excel as tutors and potential future teaching assistants or instructors.

PSY 07301: Statistics in Psychology 3 s.h.
Prerequisites: (PSY 01107 or PSY 01108) AND PSY 01301
This course focuses on the many statistical procedures used in psychological research. Students will learn to select and calculate appropriate procedures to analyze both quantitative and qualitative data. They will gain an understanding of how to select and perform descriptive, correlational, and inferential procedures. There will also be emphasis throughout the course on learning to use statistical software.

PSY 07303: Research Methods in Psychology 3 s.h.
Prerequisites: (PSY 01107 or PSY 01108) AND PSY 01301 AND PSY 07301
This course addresses research design and methodologies for data collection in psychological research. Observation, correlational, and experimental techniques are studied. Also examined are ethics in research and responsible interpretation of research results. There will also be an emphasis throughout the course on applying statistical concepts learned in Statistics in Psychology (PSY 07301), culminating in a formal research project.

PSY 07400: Advanced Statistics in Psychology 3 s.h.
Prerequisite: PSY 07301 with minimum grade of B
This course builds upon the material covered in Statistics in Psychology (PSY 07303) and focuses on the more advanced statistical procedures commonly used in psychological research. Topics will include data management, factorial ANOVAs, and multiple regression analyses. Students will learn how to conduct analyses using statistical software, interpret results appropriately, and report the results according to the guidelines of the American Psychological Association.

PSY 08215: Consumer Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course introduces behavioral science research and methods in consumer behaviors. It emphasizes the processes of learning, perception, motivation, and social behavior and their effect on consumer attitude, buying behavior, advertising and effective mass persuasion. The course also includes product design and evaluation and consumer protection and awareness.

PSY 08220: Personnel Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course introduces the application of psychological principals and research findings in the personnel systems of organizations. Its topics include personnel testing and selection; instrument development; job analysis and evaluation; performance appraisal; training systems, and the models for human resource utilization.

PSY 08310: Industrial/Organizational Psychology 3 s.h.
Prerequisites: PSY 01107 or PSY 01108
This course studies application of psychological theories, methods, principles and findings to various problems of industrial, business and public organizations. It covers personnel selection, testing, and training; organizational behavior; safety, equipment and systems design, and consumer behavior.

PSY 09209: Child and Adolescent Development 3 s.h.
The content of this course covers the physical, cognitive, perceptual, linguistic, emotional, social, moral and sexual development in humans, from the womb through adolescence. The influence of biological and sociocultural mechanisms underlying development within these domains are also considered.

PSY 09210: Adolescent Development 3 s.h.
This course studies current theory and practice related to biological, cognitive, psychoanalytic, psychosocial, sexual and moral development in adolescence. Students gain experience in developing beginning levels skills in selection and use of evaluative techniques and in the use of activities appropriate to the various levels of adolescent development. This course is intended for nonmajors and will not fulfill requirements of the Psychology major. Psychology majors must take Lifespan Development (PSY 01308) in order to fulfill the requirements of the major.

PSY 09218: Lifespan Development 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course provides an overview of human development across the lifespan, including physical, cognitive, social, and personality development. All the major lifespan developmental theories and research will be presented, with heavy emphasis on students' critical thinking about research. This course will cover both normative and atypical development across the lifespan, including the major physical, mental health, and social problems occurring during the life span.

PSY 09305: Developmental Psychopathology 3 s.h.
Prerequisite(s): (PSY 01107 or PSY 01108) and PSY 09209 or PSY 09218
Using a developmental framework, the student will examine normal and abnormal behavior from infancy through adolescence. Students will learn about the pathways to normal and abnormal behavior, explore the factors that place children at risk for problems as well as the factors that protect children from adversity. Topics will include autism, depression, anxiety, aggression, attentional difficulties, developmental delay, and physical illness.

PSY 09400: Introduction to Human Factors 3 s.h.
Prerequisites: PSY 01107 or PSY 01108 or ENGR 01102 or INTR 01265 or PSY 01327 or PSY 07202 or STAT 02100 or MATH 01130 or HES 00346
This course will define Human Factors (HF), which looks at design from the perspective of users and their needs, and demonstrate the various applications of HF in our daily lives (e.g., gaming, social media, healthcare, telecommunications, and defense). This course will explore the complexity and limitations of human information processing, and illustrate how to take this information into account when designing systems. Students will gain an appreciation of the cognitive, physical, environmental, and social aspects in design, and of the impact of cognitive biases. Students will also learn how to apply human centered design best practices to make a system, product, process, or application both usable and useful.

PSY 09401: Human Factors Methodology 3 s.h.
Prerequisite: PSY 07303 or Permission from Instructor
This course is a follow up to Introduction to Human Factors (PSY 09400). This is an elective course for Psychology, Engineering, and Computer Science majors and minors who are interested in careers specializing in human-centered design, User Experience (UX) design, and Human Factors Engineering (HFE). This course will discuss specific Human Factors research methods such as task analysis, cognitive task analysis, user testing and interviews, prototyping, protocol analysis, safety and reliability analysis, and heuristic evaluation. Students will learn the purposes and practices of Human Factors methods and will experience the research process including concept proposal, experimentation, writing the research paper, and presenting the findings.

PSY 10315: Physiological Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
An introductory course in physiological psychology designed to give the student an understanding of the neural processes mediating behavior. A study of advances in such areas as the neural coding of memory and learning; control of human behavior and emotions through physiological changes; the environment as it affects the nervous system; psychobiology of sex; psychosomatic illness; and instrumentation and techniques for investigating problems in physiological psychology.

PSY 10375: Drugs, The Brain, and Behavior 3 s.h.
Prerequisites: PSY 10315 or PSY 01326
This course examines the basic neurophysiological functioning of drugs and their influence on behavior. Students will learn about the properties of depressants, stimulants, and hallucinogens, and how they change human behavior. Biological advances in the area of addiction will also be studied. Topics covered in this course also include how drugs are used to treat psychological and neurological conditions.

PSY 10415: Neuroplasticity and Learning 3 s.h.
Prerequisite: B+ or higher in PSY 10315
This course is designed to address a central question of psychology and cognitive neuroscience: how does the brain encode new information? In this class, students will explore leading theories on the brain changes that accompany learning and memory processes. Topics will include synaptic plasticity, long-term potentiation, and neurogenesis.

PSY 10425: Hormones, The Brain, and Behavior 3 s.h.
Prerequisite(s): PSY 10315 or PSY 01326
This course examines the basic neurophysiological functioning of hormones, how they interact with the nervous system, and their influence on behavior. Students will learn about the properties of hormones and how they affect sexual differentiation and reproductive behaviors, learning, memory, biological rhythms, homeostasis, and psychological disorders. Biological advances in behavioral neuroendocrinology will also be studied.

PSY 10480: Cognitive Neuroscience 3 s.h.
Prerequisite(s): B+ or higher grade in PSY 10315,or Permission of Instructor.
This course examines the neurological bases of the mind and mental processes. Topics will include the historical bases of thought and mind, anatomical foundations of thought at the systems and neural levels, methods for testing mental processes, and subject areas encompassing perception, attention, memory, development, change, and disease. Students will be required to contribute to class discussions, present summaries of major theories and findings to the class, and critically assess current opinions and techniques used in the field.

PSY 10610: Psychopharmacology And Biological Bases Of Behavior 3 s.h.
Prerequisites: Matriculation in CAGS in Clinical Mental Health Counseling OR MA in Clinical Mental Health Counseling OR MA in Clinical Mental Health Counseling and B- of more in PSY 01623
This course will provide an understanding of basic neurological mechanisms and how they are affected by psychotropic medications. It includes a description of the functioning of neurotransmitters and their role in the etiology of some mental illnesses. The course will review the major classes of psychotropic medications and their use for specific psychological disorders. The integration of psychotropic medications into best practice treatment plans and case management is discussed.

PSY 22215: Educational Psychology 3 s.h.
Prerequisite: PSY 01107 or PSY 01108
This course considers the fundamental principles of learning and the implications of these principles for the understanding of human behavior. It covers empirical and theoretical issues in learning through examination of laboratory data and their extension to life situations.

PSY 22320: Theories Of Learning 3 s.h.
This course deals with several major learning theorists and their work. Students critically describe, explain and integrate research findings. This course is generally recommended by graduate schools.

PSY 22512: Educational Psychology 3 s.h.
The dynamics involved in the process of learning are emphasized. An objective of the course is a consideration of the ways psychology can be of value in facilitating the teaching-learning process. Such topics as formulating objectives, motivation and evaluation of learning are considered.

PSY 22586: Psychology Of Motivation And Learning 3 s.h.
An intensive study of the basic theories of learning and current research in motivation and learning is emphasized in this course. Stress is placed upon the significance of these theories and investigations for educational practices.

ADV 04232: Advertising Media Budgeting 3 s.h.
Media planning is a key element of advertising campaigns, focused on configuring the brand message, audience, frequency, time/timing, and advertising media mix within a given budget. In this course, students use primary and secondary data from a variety of marketing consumer information sources, databases, and reports to define the consumer profile and media mix for an advertising campaign.

ADV 04330: Introduction To Advertising 3 s.h.
Prerequisite(s): Public Relations/Advertising Major and COMP 01112 or HONR 01112 or ENGR 01201
The course provides an overview, including techniques and terminology that are useful in the professional world. Topics include history of advertising, marketing, ethics, law, consumer behavior, print and electronic media, and retail and corporate advertising. The course combines theory of advertising with practical applications.

ADV 04352: Advertising Strategies 3 s.h.
Prerequisites: ADV 04375 and PR 06310
This course explores the methodologies and tactics involved in planning advertising campaigns. Students examine research sources, strategic planning techniques, media placement, copywriting & testing. Students will review presentation techniques, theme-within-a-theme and other related strategic thinking.

ADV 04355: Advertising Practicum 1 to 3 s.h.
Prerequisites: 75 Credits Required
Advertising practicum allows students to apply their skills and knowledge by working on campus with department faculty on a variety of technical, creative, or research-related assignments. Students can earn 1 credit for every 40 hours of work, with most practica implemented for 3 credit hours. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum and submit the work to the faculty supervisor for grading.

ADV 04360: Integrated Marketing Communication 3 s.h.
Prerequisites: PR 06350 and ADV 04330
This course explores the expanded as well as the communication portion of the organization's business and marketing plans. Emphasis is placed on how to translate marketing strategies into a well-defined and seamless communication program directed at all of the organization's publics.

ADV 04370: Essentials of Design 3 s.h.
This course develops visual communication skills, teaching non-art majors how to think like a designer. Students will explore the creative design process with digital tools and design software, learning to effectively use and organize basic elements: typography, images, and color. They will examine and analyze case studies in graphic design, developing ability to critique design solutions. Students will use critical thinking skills, learning the essential descriptive vocabulary of graphic design and typography and how to designer's choices about type and image work together to communicate specific content.

ADV 04375: Advertising Copywriting 3 s.h.
This course introduces students to creative writing in advertising. It will explore the basic principles of writing copy and developing creative products for print and electronic vehicles.

ADV 04405: Independent Study - Advertising 1 to 6 s.h.

ADV 04420: Portfolio Preparation 3 s.h.
Prerequisites: ADV 04330 and PR 06310and ADV 04375
This course will provide students practical application of creativity in advertising. It covers a range of topics including the nature of creativity and the application of creative strategy to various media. By the end of the term, students will develop and produce finished campaigns that will provide a well-defined portfolio.

ADV 04421: Account Planning 3 s.h.
Prerequisites: ADV 04330 and PR 06310and ADV 04375
This course will explore the role of account planning and its contribution to developing strategic advertsising campaigns. Students will learn to review and interpret qualitative and quantitative research and to translate this research into valuable consumer insights.

ADV 04432: Media Planning 3 s.h.
Prerequisite(s): Introduction to Advertising (ADV 04330) and 75.0 s.h.
Students study media as social and economic forces in our society; the course examines major media with emphasis on comparative value in regards to cost, audience, production problems, time factors, product stability and cost effectiveness. Students get considerable actual practice in media planning activities. A research unit is included.

ADV 04434: Advertising Campaigns - Wi 3 s.h.
Prerequisites: ADV 04352 and ENGL 01112
This course prepares students to undertake and complete an extensive, creative, effective professional advertising campaign. The course includes instruction on how to prepare the speech which is made when the campaign is pitched to the client, extensive marketing and advertising research, final polishing of copywriting skills and a well prepared final oral presentation.

MAPR 01565: Integrated Marketing Communication and New Media 3 s.h.

MAPR 01568: Graduate Strategic Visual Communication 3 s.h.
The ability to conceive, produce and deploy rich visual imagery is now a core requirement for advertising and PR practitioners. To help students prepare for this rapidly evolving field, this class explores how and why visual media have overtaken text-based content. Through practical, hands-on individual experiences and class projects, it provides a framework for understanding the different types of visual media and their participants, choosing the right tools, and devising the strategies to succeed in this new digital era.

MAPR 06515: Online Public Relations 3 s.h.
Public relations has moved to the Internet, and in the process online communication skills have become essential to online and offline public relations practice. Online public relations explores the practical tools necessary for using the internet in public relations and provides a broad overview for creating an online newsroom.

PR 01403: Special Topics In Public Relations 1 to 3 s.h.

PR 05101: Contemporary Issues in Strategic Communication 3 s.h.
This introductory course provides an overview of prominent issues affecting the practice of strategic communication in diverse industries, such as entertainment, sports, media and the news, business, and government. Students will explore contemporary challenges posed by the digital, global, and increasingly competitive nature of modern strategic communication. This course is for all students who wish to survey the diverse nature and important aspects of strategic communication.

PR 05317: Strategic Public Relations in Health Care 3 s.h.
Prerequisites: COMP 01111 and COMP 01112
This course focuses on the role of public relations within the healthcare system. Students will learn to apply fundamental research and public relations planning models to health care, including how to use professional principles and practices in strategic public relations when working within corporate, government, agency, community and nonprofit settings to build relationships with key constituents.

PR 05318: Strategic Visual Communication 3 s.h.
Strategic Visual Communication explores the media visual technology that has become an essential part of the advertising and public relations world. Through practical, hands-on individual experiences and class projects, the course helps students understand the different types of visual media and their participants, choose the right tools, and devise strategies necessary to succeed as they develop this critical skill for Advertising and Public Relations practitioners.

PR 05319: International Public Relations 3 s.h.
This course focuses on the nature of international communication in an increasingly interconnected and interdependent world. Students will explore the nature of shared culture and the power of effective communication within different community and global structures.

PR 05350: Strategic Communication Overview 3 s.h.
Strategic Communication Overview will provide a comprehensive look at the integration of public relations, advertising and marketing communication. The class develops the role of public relations and advertising in the strategic communication environment. It addresses research, public opinion, the media, as well as law and ethics.

PR 06301: Basic Public Relations Writing 3 s.h.
Basic Public Relations Writing introduces students to the tasks of writing and editing required in a public relations position. Students will learn to write for both print and electronic media, develop their skills in grammar, syntax and usage and learn to copy edit their own work and the work of others.

PR 06303: Writing Basics In Public Relations And Advertising 1 s.h.
Writing Basics in PR and Advertising is a 5-week writing boot camp that helps students to better transition into more advanced forms of public relations writing. The course helps polish students' writing and provides an overview of grammar and usage rules along with sentence structure, organization, and proofreading.

PR 06305: Advanced Public Relations Writing 3 s.h.
Prerequisites: ADV 06301
Advanced Public Relations Writing polishes writing and editing skills students need for a professional public relations position. Students will learn how to write persuasive copy for both internal and external audiences, produce written marketing support products, and prepare speeches and advanced editorial copy for business and organizations. Students will also learn advanced copy preparation techniques.

PR 06306: Social Media and Sports Communication 3 s.h.
Prerequisite(s): PR 05350 or ADV 04330 and PR 06350
In this course students will learn strategies for engaging key constituencies through the use of targeted social media communication. Key concepts include choosing appropriate social media platforms, building a social media policy, crafting and planning messages that enhance current communication activities, and using social media to build relationships with the fan base and local communities.

PR 06307: Sports & Entertainment Event Planning 3 s.h.
Prerequisites: (PR 06350 and ADV 04330) OR PR 05350
In this course students will explore theoretical and technical aspects of designing and producing sports and entertainment events for the local, national, and international stage. Students will review the important concepts related to events management and rights management necessary for managing, promoting, and facilitating events as strategic components of an organization's efforts to develop relationships with internal and external constituencies.

PR 06308: Reputation Management and Crisis in Sports 3 s.h.
This course explores the process of managing sports communications before, during, and after crisis situations occur as part of the overall effort to maintain positive relationships with key publics and establish, or re-establish, organizational reputation. In this course students will review common crisis situations affecting sports entities, including those related to individual and team performance inside and outside of the playing arena.

PR 06309: Sports Branding and Fan Relations 3 s.h.
Prerequisite(s): PR 05350 or ADV 04330 and PR 06350
In this course students will learn strategies for using elements of branding to develop key relationships with fan bases and the sports community. Key concepts include establishing an identity for the sports team as a part of the larger community, using branding to set expectations for the fan experience, leveraging brand equity to expand the influence of sports programs and athletes, and implementing strategies to grow fan bases in support of larger causes including those related to youth and community development activities.

PR 06310: Introduction To Public Relations/Advertising Research 3 s.h.
Prerequisites: 60 credits required
The course studies both qualitative and quantitative research methods necessary for success in the fields of public relations and advertising. Emphasis is placed on evaluation of secondary searches, individual and group interviews, media audience measurements, market structure, segmentation and usage studies, and tracking studies.

PR 06324: Social Media Management and Metrics 3 s.h.
Prerequisite: COMP 01111
Media Metrics and Analytics provides a thorough grounding in how media consumption is measured (metrics) and utilized (analytics) by media organizations and independent professionals. The course spans traditional circulation of print publications, broadcast, cable, and radio ratings, web site traffic measures, social media statistics and advertising data. Media Metrics and Analytics examines the types of measures that, for example, are now commonly displayed on monitors in newsrooms as a way to gauge success of a story, or are used by entrepreneurs to evaluate the overall success of various media. No special statistical background is necessary, and the course is geared toward using programs and tools that are designed for use by non-technical personnel.

PR 06350: Introduction To Public Relations 3 s.h.
Prerequisite(s): COMP 01112
This course explores the history and role of public relations in society. Students explore mass media, persuasion, publicity, radio and television. Students examine special events, crisis management, communication techniques, research and evaluation, communication law and ethics. Basically a theory course, this introduction also applies ideas practically to real clients and organizations.

PR 06353: Case Studies In Public Relations - Wi 3 s.h.
Prerequisites: PR 06305 and PR 06310 and COMP 01112
This course reviews and predicts how organizations solve their public relations challenges. Students write case statements, position papers and solutions involving publicity demands, special events, promotions, image problems and other challenges. Students role-play key personnel, working through problems in seminar simulations. Writing, speaking, thinking and presenting ideas are emphasized.

PR 06354: Impact Of Public Relations On The News 3 s.h.
Prerequisites: PR 06301 or JRN 02310
The course is a semester-long journey into the information management world where the professions of journalism and public relations often find strong parallels but equally as often are locked in competiton over how important local, national and world events and issues will be reported and explained to the public.

PR 06355: Public Relations/Advertising Law and Ethics 3 s.h.
Prerequisites: (PR 06350 and PR 06301) or (ADV 04330 and ADV 04375)
The course will give students a broad perspective into law and ethics as they relate to the public relations and advertising professions. Specifically, the course will familiarize students with the "Code of Professional Standards" of the Public Relations Society of America and with major laws governing advertising, broadcasting, publishing and speaking. The course will also focus on First Amendment Law and examine business case law that pertains to public relations and advertising. Students will develop ethical stances about communication and will improve in judging ethically unclear situations.

PR 06359: Public Relations Practicum 1 to 3 s.h.
Prerequisites: 75 credits required
Public relations practicum allows students to apply their skills and knowledge by working on campus with department faculty on a variety of technical, creative, or research-related assignments. Students can earn 1 credit for every 40 hours of work, with most practica implemented for 3 credit hours. Students can earn credit for working for PRAction, Rowan University's in-house agency for its Public Relations Student Society of America Chapter. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum and submit the work to the faculty supervisor for grading.

PR 06360: Public Relations/Advertising Internship I 3 s.h.
Prerequisites: Public Relations or Advertising majorwith Major GPA of 2.5 and (PR 06301 and PR 06305)or (ADV 04375 and ADV 04421) or ADV 04420
Under professional supervision in the field, students practice theories and skills learned in the classroom. Students earn 3 credits for 120 hours of work. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their faculty supervisor.

PR 06362: Public Relations/Advertising Internship II 3 s.h.
Prerequisites: Public Relations or Advertising majorwith Major GPA of 2.5 and (PR 06301 and PR 06305)or (ADV 04375 and ADV 04421) or ADV 04420
Under professional supervision in the field, students practice theories and skills learned in the classroom. Students earn 3 credits for 120 hours of work. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their faculty supervisor. Field Experience II is offered to students who successfully complete Field Experience I and who seek to get an additional 3 credits of internship experience.

PR 06364: Public Relations/Advertising Internship III 6 s.h.
Prerequisites: Public Relations or Advertising majorwith Major GPA of 2.5 and (PR 06301 and PR 06305)or (ADV 04375 and ADV 04421) or ADV 04420
Under professional supervision in the field, students practice theories and skills learned in the classroom. Students earn 6 credits for 240 hours of work. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their faculty supervisor. Field Experience III is reserved for students who wish to complete all 6 credits of their 240-hour internship with the same sponsor.

PR 06405: Independent Study 1 to 6 s.h.

PR 06454: Public Relations Planning - Wi 3 s.h.
Prerequisites: PR 06353 and COMP 01112
This course introduces students to the components of a comprehensive public relations campaign: research, audience identification, message construction, channel selection and evaluation. Working with clients, students create and write an entire program for a variety of challenges, including image change, new product or service introduction, information, recruitment, crisis management, employee relations, persuasion and others. Students practice a complete PR plan.

PR 99362: Public Opinion 3 s.h.
Prerequisites: PR 06310
This course includes the nature and role of public opinion, the dynamics of public opinion processes and the numerous factors which shape or influence opinion. Students examine the mass media, evaluating their roles as molders and reflectors of public opinion. Major topics that influence public opinion are discussed, including gratifications, agenda setting, knowledge gaps, censorships and propaganda.

ART 09366: Introduction to 3D Animation Introduction to 3D Animation 3 s.h.
Co-requisite(s); BMV 09630 and BMV 09253 Pre-requisite(s): ART 09253 and ART 09360
This studio course is designed as an introductory platform to aesthetically investigate and discover specific techniques in 3D Animation as applied to commercial industry standards and outcomes. This course introduces students to all the major features of 3D Animation software with a focus on specific 3D animation techniques from basic expressions of time, curves, motion paths, shape deformations, basic rigging, introductory dynamics and simulated scenarios (fluid, cloth and particles), along with teaching the professional workflow for multi-frame rendering and short movie composites. The student is exposed to all relevant aspects of 3D Animation CG creation with an eye toward giving the student a base foundation from which to explore and expand their creative ideas and stories. Students will learn how to depict narratives in 3D with a focus on their major specific content, interdisciplinary projects and collaborations. The lecture and demonstrations in the course are balanced between learning 3D animation software and the art studio practice of applied theory, history, and concepts that give a foundation of context and audience reception. The Introduction to 3D Animation course is open to all majors with the required pre-requisites.

BMV 09251: Introduction to Figure Anatomy for the Artist 3 s.h.
This course is designed to strengthen the students understanding of observational figure drawing and anatomy. Students will develop skills and techniques to accurately recreate the human form by learning the fundamentals of skeletal and muscle anatomy of the human body. The course will serve to improve observational and realistic figure drawing skills, by learning the anatomical relationships and techniques for visualizing form. This course will provide the student the opportunity to interpret anatomy knowledge by working directly from the figure in the drawing studio and the human cadaver at the Cooper Medical School.

BMV 09252: Introduction to Natural Science & Zoological Illustration 3 s.h.
This course is designed to develop a strong foundation in concept development and observational drawing skills. As well as integrate traditional and introductory digital media techniques within the subject matter of drawing plants, animals, and natural science content. Both traditional forms of media (graphite, pen/ink, charcoal, color pencil etc.) and digital forms of media production will be used to illustrate subjects through demonstrations and visual problems. The course will focus on the integration of traditional and digital media, as it related to realistic and representational drawing. Students will learn professional production methods and design conventions within the field of natural science and zoological illustration.

BMV 09253: Introduction to Digital 3D Modeling 3 s.h.
This is an aesthetics based media course that communicates digital 3D content for both biomedical art (didactic) media and entertainment media (illustration, animation, game design etc.). The course is designed to cover concepts in digital 3D organic and inorganic object modeling, which includes observational modeling, conceptual process modeling, and narrative modeling. Students will learn to develop a broad range of modeled content including but not limited to characters, objects, and environments. The digital models designed are rendered and composited as 2D illustration to solve specific visual communication problems. The software (Autodesk 3D Studio Max and Mudbox) used in the course are industry standards for 3D computer graphics production. The subject matter within the Specialization in Biomedical Art and Visualization reflects the subject matter of science and medicine. Students in broader areas of art (sculpture, illustration, painting, etc.) will be able to focus on specific subjects relevant to their artistic goals using the 3D methods and techniques.

BMV 09356: Introduction to Digital Rendering and Illustration Methods 3 s.h.
This course is designed to develop strong observational skills, and integrate digital media rendering and painting techniques within the scope of biomedical content and visual problems solving. This goal will be to convey an aesthetically powerful illustration, which effectively provides a solution for a specific visual communication. The student will learn a vocabulary for expressing pertinent natural science and medical art concepts in relation to technique design, composition, object accuracy/integrity, and context. Students will learn digital rendering techniques and methods to depict concepts in digital continuous tone and color (Adobe Photoshop and Illustrator). The integration of digital techniques will be uses in unique ways to explore the boundaries of medium and convention in modern production. Elective students in the broader areas of Art, Design, Science, and Medicine will be required to apply the concepts and techniques taught in class to specific content pertinent to their major of study.

BMV 09360: Storyboarding & Animation 3 s.h.
This is an aesthetics based course that communicates animated narratives in the areas of art and science. This course serves as an introduction to animation of objects, environments, animals, humans and natural science subjects. Students will learn to create 2D and 3D animations of narratives with goals to communicate a message and/or educate the viewer on their story. The student will learn pre-visualization skills in the form of storyboarding to problem solve their ideals before animation. The student will use pre-visualized concept art to animated short stories of the body, environment, and/or natural science through the medium of 2D and 3D digital animation software (Adobe Flash, After Effects and Autodesk 3D Studio Max.) The principles of 2D and 3D digital space and motion/timing will be used as the foundation of production. The subject matter within the Specialization in Biomedical Art and Visualization reflects the subject matter of science and medicine. Students in broader areas of art (sculpture, illustration, painting, etc.) will be able to focus on specific subjects relevant to their artistic goals using the animation methods and techniques.

BMV 09361: Scientific and Medical Sculpture 3 s.h.
This course is designed for students interested in learning the structure, anatomy, and features of the head and its relation to facial reconstruction. This course will strengthen the student's understanding of the muscles in the face, bone, and landmarks of the skull. Students will also understand how these two groups contribute to each individual's appearance. Age, race, and gender will be discussed and considered in the re-creation of the face. Demonstrations of techniques, lectures, and critiques are part of the course work. Projects will include study sheets, in-class assignments and some projects that can be completed at home. However, most assignments will be done in class. The course is needed for the instruction of advanced techniques and concepts in biomedical visualization. The course contains specific projects, which reflect the demands of industry specialization and career training expectations. Specific visualization problems in: medical sculpture, prosthetics, and forensic sculpture are required in the course.

BMV 09366: Introduction to 3D Animation Introduction to 3D Animation 3 s.h.
Co-requisite(s); ART 09630 and ART 09253 Pre-requisite(s): BMV 09253 and BMV 09360
This studio course is designed as an introductory platform to aesthetically investigate and discover specific techniques in 3D Animation as applied to commercial industry standards and outcomes. This course introduces students to all the major features of 3D Animation software with a focus on specific 3D animation techniques from basic expressions of time, curves, motion paths, shape deformations, basic rigging, introductory dynamics and simulated scenarios (fluid, cloth and particles), along with teaching the professional workflow for multi-frame rendering and short movie composites. The student is exposed to all relevant aspects of 3D Animation CG creation with an eye toward giving the student a base foundation from which to explore and expand their creative ideas and stories. Students will learn how to depict narratives in 3D with a focus on their major specific content, interdisciplinary projects and collaborations. The lecture and demonstrations in the course are balanced between learning 3D animation software and the art studio practice of applied theory, history, and concepts

that give a foundation of context and audience reception. The Introduction to 3D Animation course is open to all majors with the required pre-requisites.

BMV 09373: Advanced Problems in Biomedical Art 3 s.h.
Prerequisite(s): ART 02222 and (ART 09251 or BMV 09251) and (ART 09252 or BMV 09252) and (ART 09356 or BMV 09356)
This course entails developing skills and knowledge necessary for effective visual communication of complex biomedical concepts and subject matter. The focus will be on developing conceptual visual story telling skills. Students will learn to take complex information presented by specific biomedical subject matter and selectively simplify it to solve visual communication problems effectively for the target audience. Students will work exclusively in digital media to develop competence and efficiency in the rendering methodologies and learn the conventions of modern production. The course is needed for the instruction of advanced techniques and concepts in biomedical visualization. The course contains specific projects which reflect the demands of industry specialization and career training expectations. Specific visualization problems in: medical/legal, veterinary, pharmaceutical, molecular, editorial, textbook, journal visualizations and required in the course.

BMV 09400: Independent Study .5 to 9 s.h.

BMV 09453: Introduction to Game Media Design 3 s.h.
This is an aesthetics based course that communicates and focuses on educational and casual game content through the fundamentals of game media design. The course materials and projects will help students understand how and why games can be used for learning in the fields of health, medicine, science, and social change. Students will also learn how casual games can be a powerful learning tool in social situations. The course exposes students to examples of current work and research in game design mechanics, game art production, game learning mechanics, and assessment mechanics, which are important to designing successful and engaging games. Students will learn use traditional drawings media, the Adobe Creative Cloud, and specific game engines to develop their games. Students will be exposed to industry-specific examples of educational and casual games (social games, learning games, news games, health and science games, and exercise-games etc.) These examples alone with specific lecture topics, demonstrations and material, will allow students to learn how to develop their own educational and casual games projects that deliver content through game media and design.

BMV 09454: Surgical Illustration and Media 3 s.h.
Prerequisite(s): ART 02222 and (ART 09251 or BMV 09251) and (ART 09356 or BMV 09356)
This studio course is an introduction to the illustration of surgical procedures and its fundamental application within the discipline of biomedical art. It is based on the belief that understanding the concepts of medical/and or veterinary surgery is essential to creating effective illustrations and other media that visually communicate the information. Students will research surgical procedures and techniques, sketch procedures in the operating room, prepare comprehensive sketches outlining visual narrative of surgical procedures, and render final illustrations/media presentations using a variety of digital media.

BMV 09456: Biomedical Art Senior Thesis Exhibition & Portfolio Capstone 3 s.h.
Prerequisite(s): ART 02222 and (ART 09251 or BMV 09251) and (ART 09252 or BMV 09252) and (ART 09356 or BMV 09356) and (ART 09360 or BMV 09360) and (ART 09453 or BMV 09453) and (ART 09454 or BMV 09454) and (ART 09253 or BMV 09253) andART 09352 and ART 09353
This course is designed to act as a summative experience for the student. The final BFA Thesis Project will be defined by the student and work with a level of professional collaboration. The requirements for the BFA Thesis will be to solve and effectively visually communicate a medical and scientific problem. Integration of outside resources, research effective collaborator/expert communication, professional practices, presentation (oral and written) and documentation of the process of the semester long project. The project visualization will be student driven; content needs will be determined by the student and the research/collaboration. The emphasis in this course will be on the conceptual development of the content accuracy/relevance and its realization through the design process. The final B.F.A. capstone project will have the following: A two Sentence (Maximum) Thesis Statement, a designed/written proposal, research paper, business oriented documentation, a digital presentation to explain the work, artist statement/project scope statement, and the final project depicting the solution for the BFA Exhibition.

RTF 01402: Special Topics 3 s.h.

RTF 03100: Radio Production I 3 s.h.
The course is designed to provide students with a basic understanding of producing a news program and developing a radio documentary. Students will gain an understanding of how to produce a radio news program by working with The Rowan Report, a half-hour news show that airs on WGLS-FM, on a weekly basis during the semester. Students are expected to serve as producers and on-air talent for the show. Also, they will gain hands-on experience with Metro Source, a news-gathering system used by Rowan Radio and audio editing software.

RTF 03150: Survey of American Film and Television 3 s.h.
Prerequisite: COMP 01111
Through a survey of contemporary American film and television, this course will introduce students to the major analytical and critical approaches scholars have used to understand these complex cultural forms in both their aesthetic and ideological dimensions. This course will introduce non-RTF majors to the basic concepts of film and television analysis and criticism, as well as the history and economics of the two mediums.

RTF 03200: Podcasting 3 s.h.
Prerequisite: RTF 03100
This course offers students advanced concepts and techniques for the production of audio content using sound as the primary medium. Students will learn editing concepts, audio post production techniques, and sound design, through the study and production of content for podcasting.

RTF 03201: Foundations of Media Production 3 s.h.
Prerequisite: COMP 01111
This course is a hands-on overview of the technology currently applied in the fields of radio, television, film and new media. From the elements of photography, sound capture, editing, lighting, and studio operation, students will rotate through workshops and assignments that will give them the necessary foundations to pursue more field-specific courses in media production. This course is only open to RTF majors.

RTF 03202: Client Based Media Productions 3 s.h.
Prerequisite(s): RTF 03201
This course introduces students to the creative processes and practical production skills required to work in the client-based media industry. The course will outline a variety of styles and genres produced in the industry through lectures, workshops and online discussions. Assignments will involve students in the professional processes required by the industry, such as analyzing client briefs; developing a proposal and producing a short video at short notice to address client requirements. This will be achieved by putting them through three practical projects with real client briefs each semester. Through this practice, students will learn to deal with client requirements; develop an understanding of creative design and improve on their teamwork and production skills.

RTF 03205: TV History And Appreciation 3 s.h.
Prerequisite(s): COMP 01111 and RTF 03275
TV History and Appreciation explores 50 years of the art and impact of one of the most persuasive, pervasive information delivery systems ever invented. By viewing and discussing a wide array of clips and full episodes of programming (many from the earliest days of the medium), students will develop an appreciation of the foundation of all entertainment and informational programming. As well, students examine how television has affected American society and how American society has affected television.

RTF 03206: TV History And Appreciation, 1960s - 1970s 3 s.h.
Prerequisites: COMP 01111 and COMP 01112 and 45 earned credit hours
Students will explore televisions formative years. The course is a sequel of sorts to the earlier course, but can be taken independently or concurrently. Students will learn about and discuss the cultural, economic and regulatory decisions that shaped the medium and analyze TV's changing portrayal of the American family, gender roles, minority representation and other key concepts. The history of breaking news coverage, the emergence of cable, and the rise and fall of various programming genres - from live TV drama and the variety show to newsmagazines and reality TV - will be examined.

RTF 03210: Evolution of Quality TV 3 s.h.
Prerequisite(s): COMP 01111 and COMP 01112
This course presents and examines programs from television's past and present, as well as programs that have yet to be televised—to make connections about the evolution of quality TV. Students will be required to provide detailed reactions to what is screened in class, and both define and defend what qualifies a work as "Quality TV" in the first place.

RTF 03215: Motion Graphics 3 s.h.
This course introduces fundamental concepts in moving image theory and practice. Motion graphics, compositing, codecs, LUTS, kinetic typography, motion perception, lenses and lighting, video editing, animation, projection, video art, immersive video and other applications are explored through use of readings, screenings, and studio projects. Students will gain an understanding of both historical and contemporary moving image concepts and technologies and apply them to kinetic works in both analog and digital formats.

RTF 03220: The Television Industry 3 s.h.
Prerequisite(s): COMP 01111
Designed to provide students with an understanding of the contemporary American commercial television industry, this course analyzes the interrelationships among broadcast and non-broadcast delivery systems, stations, networks, programming, advertising, audiences and the federal government.

RTF 03221: The Radio Industry 3 s.h.
Prerequisite(s): COMP 01111
This course introduces students to the principles and techniques of commercial radio broadcasting. Students learn about licensing, sales, research, programming, and federal regulations. Students get hands-on experience with up-to-date broadcast equipment while learning audio console operation.

RTF 03222: Television Production I 3 s.h.
Prerequisite: RTF 03370
The course introduces students to the principles and techniques of TV production. Students work in production teams within a professional television studio setting. Students gain experience in all phases of production, including conception of ideas, scripting, directing, and operation of equipment to produce various types of programs. Programming includes newscasts and talk shows. Students also learn to edit 30-second commercials and PSAs.

RTF 03224: Sound Communication 3 s.h.
Prerequisites: COMP 01111 and COMP 01112 and RTF Major
This course introduces students to the production process through the medium of sound. Topics include the history, physics, and function of sound recording as it relates to radio, television, and film media. Students will be introduced to basic storytelling concepts and will write, create, and edit projects that incorporate sound as a primary communication tool.

RTF 03230: Television Production 3 s.h.
Pre-requisites: RTF 03201 and RTF 03275
Students will build upon knowledge and skills gained in Foundations of Media Production as they learn principles and hands-on techniques specific to television production in both the studio and field/post environments. Through small practical workshop assignments and larger course projects, students will gain intermediate proficiency in pre-production planning, production in the single-camera mode, including advanced lighting and field audio acquisition, production in the multi-camera studio mode, and post-production editing, graphics and effects. Students will gain experience in non-fiction storytelling through the production of television feature packages and related projects that culminate in a long format magazine-style television show.

RTF 03270: Film History to 1940 3 s.h.
Prerequisite(s): COMP 01111 and RTF 03275
Students trace the development of motion pictures as an art form from the 1890s to 1941. Representative selections from the various genres are screened, then discussed in terms of art, technique, content and historical perspective, as well as directorial style. Part I is not a prerequisite for Part II; these courses may be taken in any order; students may opt for one or both courses.

RTF 03271: Film History Since 1940 3 s.h.
Prerequisite: COMP 01111 and COMP 01112
This course is a continuation of RTF 03.270 with emphasis on contemporary genres and implications. Students trace the modern cinema from 1941 to the present. Students may take Part II prior to Part I; although the content is chronological, Part I is not a prerequisite for Part II.

RTF 03272: Images Of Women In Film 3 s.h.
Prerequisites: COMP 01111 and COMP 01112
This course uses the medium of motion pictures to study cultural perspectives on women at various times through history and in differing cultural environments. Students discuss a wide range of film treatments to examine women's changing role, as well as social attitudes toward women as expressed by representative works of a cultural era and by writers, directors and actors.

RTF 03273: The Movie Industry 3 s.h.
Prerequisite(s): COMP 01111
This course introduces students to the language of the technical elements of the motion picture and to a method for analyzing the artwork created and the messages communicated by the motion picture. Students analyze the components of motion pictures including color, lighting, editing, scripting, directing and acting.

RTF 03274: Queer Film 3 s.h.
This is an introductory course in film analysis where students explore the landscape of queer film through an historical, cultural, and political lens. Discussion will focus on queer filmmakers, characters, and themes. Through a combination of both mainstream and independent films, students will view and discuss queer films from various decades. Students will learn methods used in film analysis and will be required write a series of analysis papers.

RTF 03275: Applied Media Aesthetics: Sight, Sound And Story 3 s.h.
This course offers students an introduction to the aesthetic concepts as applied directly to radio, television, and film media. Using examples from these media, students will study, discuss, and analyze design and composition elements as they apply to the production process. A basic vocabulary of aesthetic terminology will be assembled and students will be responsible for understanding and applying those terms through various written and visual assignments.

RTF 03280: African American Film History 3 s.h.
Prerequisites: COMP 01111 and COMP 01112
This course offers students an introduction to the little-known yet important area of African American Film History, beginning with the development of Race Movies by such directors as Oscar Micheaux, and continuing to the present day. Through lectures, screenings and reports students will study, discuss and analyze the historical and cultural significance of these films and their influence on society.

RTF 03285: Experiencing Documentary 3 s.h.
Prerequisite: COMP 01112
Since the orgins of film, documentaries have ehlped expose social injustice, provoke dialogue about issues, educate about historical events, and brought some of film's most memorable characters to the screen. This course provides non-media majors the foundational production skills and conceptual framework to create ideas for documentary films. Film production experience is not required.

RTF 03290: The Media Industries 3 s.h.
Prerequisite: 30 s.h. or more
Designed to provide an understanding of the contemporary American commercial media industries, this course affords students the opportunity to explore media production careers and contemporary production practices within the contexts of conglomeration, deregulation, globalization, and digitization. Students will analyze and discuss recent trends in the movie and television industries.

RTF 03294: Contemporary International Cinema 3 s.h.
Prerequisites: COMP 01111 and COMP 01112
Contemporary International Cinema is designed as a basic introduction to world cinema, defined as the film output of other nations, regions and non-Hollywood cinema. Students will examine the major filmmakers, production and distribution practices of the global filmmaking community. Students will explore definitions of national and transnational cinema, issues of representation and post-colonialism, and concepts of authorship and genre from a global perspective. Students will gain a critical awareness of the ways in which cinema shapes our attitudes or perceptions of other cultures, and an appreciation of cinematic representations that originate from within other cultures. Through readings, discussion, screenings and research, students will gain a broader perspective of the current state of film as an art form, a globalized industry and cultural products.

RTF 03295: Introduction To New Media 3 s.h.
Prerequisite(s): COMP 01111 AND COMP 01112
Introduction to New Media surveys emerging digital communication and entertainment media and teaches new media from the perspective of the producer. Students will discuss the evolution, social and historical implications, and production of media forms with an emphasis on social networking, user generated and other web media.

RTF 03321: Television Production II 3 s.h.
Prerequisites: COMP 01111 and COMP 01112 and RTF 03224 and RTF 03275 and RTF 03220 and RTF 03222 and RTF Major
This hands-on course provides experience in advanced television production. Students work in production teams which create, research, script, shoot, and edit one-minute promotional pieces and a 30-minute magazine program. All programming airs on Rowan's cable network, Channel 5. Students will shoot in the studio and in the field, learning to use digital production equipment in preparation for professional career work in television. All projects are edited on Avid editing systems.

RTF 03331: Radio Broadcasting II 3 s.h.
Prerequisites: RTF 03224 and RTF 03275
Radio Broadcasting II is designed to develop the skills obtained in Radio I by increasing the knowledge about various audio devices. Shows developed in Radio II will be scheduled as a regular part of the WGLS-FM programming. Topics covered will further enhance the students' understanding of audio production and the associated equipment and develop announcing skills vital not only to radio, but to all forms of audio/visual presentation.

RTF 03335: A/V Production Systems 3 s.h.
Prerequisites: RTF 03221 or RTF 03222
The course expands students' knowledge of audio and video production equipment and its specific application in production and post-production facilities. Students learn the principles of audio and video measurement, editing requirements and equipment interfacing. Students will understand future trends and the impact of A/V Technology on industry economics. Demonstrations are applied to classroom experiences. This course may not be offered annually.

RTF 03340: Rtf Research & Criticism 3 s.h.
Prerequisite: COMP 01112
This course studies the range and importance of research and criticism in the Radio, Television and Motion Picture industries. Academic models of research and criticism are investigated as are industry practices like demographics and ratings. Students inform their perspective of RTF as professionals and members of electronic media and cinema's global audience.

RTF 03345: Live Event TV & Video Production 3 s.h.
Prerequisite: RTF 03222 or RTF 03230
This course provides students with opportunities to gain both theoretical and practical understanding of all phases of live event TV & video production work, including but not limited to considerations for audio/video aesthetics, technical requirements and proficiencies, and delivering media specific to an audience and/or client. Hands-on projects and related assignments will allow students to explore event coverage approaches and techniques ranging from single-camera record/edit to multi-camera live switch and broadcast/stream, and everything in between.

RTF 03346: Sports TV Production 3 s.h.
Pre-requisites: RTF 03222 or RTF 03230
This course offers practical learning in sports television production. Experiential learning exercises, workshops and assignments prepare students for producing sports content for an episodic style sportscast/magazine television show, and contributing to live coverage of sporting events. Students work in on-camera and behind-the-scenes roles in studio, field and post work. This is an advanced course that builds on introductory production concepts and techniques from the first level RTF television production course. Students seeking on-air experience are highly recommended, but not required, to take RTF/JRN Sports Broadcasting I prior to this course.

RTF 03350: Rtf Practicum 3 s.h.
Prerequisites: 75 credits required
RTF Practicum gives students the opportunity to test their skills and knowledge of the field while working on campus with department faculty and professional staff on a variety of technical, creative and/or research related assignments. Students can earn 3 credit hours for 120 hours of work on Practicum-related assignments.

RTF 03351: Rtf Internship I 3 s.h.
Prerequisites: 75 credits required andRadio/TV/Film major
Students earn 3 credit hours for 120 hours of field experience on the job in a Radio, Television or Film professional setting. The students will fulfill a wide range of duties described by the on-site supervisor and agreed to by both the student and the on-campus faculty supervisor. Students may take up to 6 credit hours of field experience.

RTF 03352: Rtf Internship II 3 s.h.
Prerequisites: 75 credits required andRadio/TV/Film major
Students earn 3 credit hours for 120 hours of field experience on the job in a Radio, Television or Film professional setting. The students will fulfill a wide range of duties described by the on-site supervisor and agreed to by both the student and the on-campus faculty supervisor. Students may take up to 6 credit hours of field experience.

RTF 03353: Rtf Internship III 3 s.h.
Prerequisites: 75 credits required andRadio/TV/Film major
Students earn 6 credit hours for 240 hours of field experience on the job in a Radio, Television or Film professional setting. The students will fulfill a wide range of duties described by the on-site supervisor and agreed to by both the student and the on-campus faculty supervisor. Students may take up to 6 credit hours of field experience.

RTF 03354: RTF Internship IV 3 s.h.
Prerequisites: 75 credits required and RTF majorand COMP 01112 and RTF 03222 and RTF 03370
Students earn 3 credit hours for 120 hours of intership experience on the job in a Radio, Television or Film professional setting. The students will fulfill a wide range of duties described by the on-site supervisor and agreed to by both the student and the on-campus faculty supervisor.

RTF 03370: Film Production I 3 s.h.
Prerequisite: RTF 03222
The course introduces students to the principles and techniques of film style production. Students work in production teams to make a series of short films designed to familiarize them with film production techniques including camera operation, shot composition, and editing. In addition students gain experience applying basic cinematic narrative concepts.

RTF 03371: Film Production II 3 s.h.
Prerequisites: COMP 01111 and COMP 01112 andRTF 03224 and RTF 0375 and RTF 03370
This is an intermediate synch-sound 16mm production course which emphasizes studio production techniques. Students work in crews on short dialogue scenes designed to familiarize them with directing, script analysis, art direction, color cinematography, lighting, and synch-sound digital editing.

RTF 03372: American Film Directors 3 s.h.
Prerequisites: 45 credits required
Through historical perspective and criticism, this course provides an in-depth study of films by American directors. This course may not be offered annually.

RTF 03373: Film Noir 3 s.h.
Prerequisite: 45 credit hours
Film Noir is designed as an advanced film history course to explore the dark cinematic style and crime genre of Film Noir. Students will examine major filmmakers, production, distribution practices and reception of film noir. Through readings, discussion, screenings and research students will gain a broader perspective of how this cinematic cycle changes over time, the production conditions in the classical Hollywood studio system, the industrial considerations and censorship constraints, and how films grew out of earlier film history and cinematic movements overseas and in the United States.

RTF 03375: Broadcast/Video Systems 1 3 s.h.
Prerequisite(s): COMP 01111 and RTF 03222
This course is designed to introduce students to the technological framework of the hardware and software components of video and audio production equipment used in media production. Students will learn the basic signal flows of the modern television production studio and become proficient in the application of technology and terminology in production facilities.

RTF 03376: Broadcast/Video Systems 2 3 s.h.
Prerequisite(s): COMP 01111 and RTF 03375
This course is designed to introduce students to the technological framework of the hardware and software components of video and audio production equipment used in media production. Students will understand the basic application of HD broadcast standards, AM/FM transmission technologies, and internet distribution platforms.

RTF 03380: Acting For The Camera 3 s.h.
Prerequisites: COMP 01112 and RTF 03370 or COMP 01112 and RTF 03222
This course is a basic introduction to acting in front of film and television cameras. Students will study acting styles, techniques, and theory. Each student is expected to act in at least three seperate scenes that will be videotaped and critqued

RTF 03393: Screenwriting 1: Writing the Short - WI 3 s.h.
Prerequisites: COMP 01111 and COMP 01112
The course covers the basic technical requirements for writing movie scripts and the problems of adapting material to screen and script analysis. By viewing contemporary movies and studying plotting, point-of-view, character creation and dialogue, students learn how a film script is put together and write an original script.

RTF 03394: New Media Production 3 s.h.
Prerequisite: RTF 03295
This is the second in a sequence of three courses in the Interactive Media specialization. Students will apply content production skills from radio, television, and film to the production of hybrid media. Students work in teams to plan, design, produce, and test multimedia products. Students are expected to demonstrate a high level of professionalism in completing all work on schedule to professional standards and in their interactions.

RTF 03395: Sound for Film and Video 3 s.h.
Prerequisite: RTF 03275
Sound Communication II will provide students with advanced concepts and practices of sound recording and editing, focusing on their application for the media of film and television. Students will explore historical and aesthetic practices of sound effects and music for film and television, directing those concepts towards the production of the sound design of a student film.

RTF 03396: Sports Broadcasting I 3 s.h.
Prerequisite(s): JRN 02361 or JRN 02310 or JRN 02210 with C- or better
Sports Broadcasting I will include play-by-play, color commentary, pre-game and post-game analysis. Students will learn reporting techniques unique to the world of sports coverage, including interviewing sports figures. They will gain onsite experience at Rowan's radio station as well as with Rowan's television network as they become proficient in sports talk and sports reporting for broadcast.

RTF 03397: Sports Broadcasting II 3 s.h.
Prerequisite(s): JRN 02326 or RTF 03396
This course offers students advanced concepts and techniques for the production and broadcast of sports media. Students will develop proficiency with play-by-play announcing, radio/tv reporting, and sports talk shows.

RTF 03420: Current Issues In Electronic Media 3 s.h.
Prerequisites: RTF 03220 and COMP 01112
This course analyzes and discusses the impact that current trends in media technology, economics, regulation, and management have on content development, distribution, acquisition and consumer use.

RTF 03433: Episodic Screenwriting 1 - WI 3 s.h.
Prerequisite(s): COMP 01111 and COMP 01112 and RTF 03393
This writing workshop course explores the form of episodic writing for the small screen. Students analyze a variety of episodic content, design a complete "show bible," a document that maps a series and provides a clear sense of its characters, tone, structure, and narrative trajectory, and write the opening sequence of a pilot script.

RTF 03434: Episodic Screenwriting 2 - WI 3 s.h.
Prerequisite(s): COMP 01111 and COMP 01112 andRTF 03433 and RTF 03393
This writing workshop course is a continuation of Episodic Screenwriting 1, exploring the form of episodic writing for the small screen. Students analyze episodic content, continue to revise a "show bible," a document that maps a series and provides a clear sense of its characters, tone, structure, and narrative trajectory, and write and revise a complete pilot script.

RTF 03450: Television Documentary And Field Production 3 s.h.
Prerequisites: COMP 01111 and COMP 01112 and RTF 03224 and RTF 03275 and RTF 03222 and RTF 03321 and RTF 03220 and RTF Major
This advanced production course combines extensive research and scriptwriting skills with sophisticated field production techniques. Students select subjects of local interest to feature in high-quality, 20-minute documentaries involving pre-production planning, actual videotaping and post-production editing. Field production includes use of single and multiple camera units.

RTF 03470: Advanced Film Production 3 s.h.
Prerequisites: COMP 01111 and COMP 01112 andRTF 03224 and RTF 03275 and RTF 03370 andRTF 03371
This is an advanced synch-sound 16mm production course which emphasizes professional production practices. Students participate in the planning, shooting and editing of a longer-form narrative synch-sound film project designed to familiarize them with pre-production planning, production scheduling, large crew management, and post-production supervision.

RTF 03471: Techniques Of Documentary Film Production 3 s.h.
Prerequisites: RTF 10370 OR RTF 03370 OR RTF 03220
This course introduces students to the study of documentary form and techniques of production. It provides students with an understanding of the styles and methods of the documentary, giving students a powerful tool for film expression. Students will create a researched proposal for their own documentary.

RTF 03472: New Media Production 2 3 s.h.
Prerequisites: RTF 03295 and RTF 03394
This course will build upon skills and techniques introduced in New Media Production 1. Students will produce advanced, hybrid/interactive media projects. Students work in teams to plan, design and produce multimedia projects and are expected to demonstrate a high level of professionalism in completing all work on time and to professional standards.

RTF 03475: RTF Senior Portfolio Seminar 1 s.h.
This is a required course for all RTF majors. Students will prepare and present a digital portfolio of work created while a student at Rowan. Students will understand the career options available to majors through discussions with various RTF alumni.

RTF 03485: Deconstructing Disney: From Mickey to Marvel 3 s.h.
This course examines the cultural and historical significance of The Walt Disney Company, and its media products. Students will analyze, discuss, and write about Disney using a variety of methods including historiography, industry studies, gender and sexuality studies, critical race studies, and reception studies.

RTF 03493: Screenwriting II: Writing the Feature (WI) 3 s.h.
Prerequisite: RTF 03393
Students will learn the basic concepts of feature screenwriting through readings of professional screenplays and the viewing of selected scenes from award-winning films. Students will develop their understanding of dramatic structure, characterization, tone, and effective dialogue and will research and plan their own feature screenplay. By the end of the semester, each student is expected to executive and workshop the first act of their own original feature screenplay (approximately 30 pages). Discussions will also cover working professionally as a writer in the independent and studio worlds.

RTF 10523: Graduate Screenwriting 3 s.h.
Graduate Screenwriting is an intensive writing workshop where students learn the basics of dramatic writing for the screen. The first half of the course is built around screenings, lectures, discussions and exercises where students explore the fundamentals of daily writing, dramatic structure, visual writing, characterization, dialog and proper screenplay formatting. Film analysis will focus on classic and contemporary shorts and feature films. The second half of the semester focuses on the development, and re-writing of a narrative short film based on an incident from a longer feature screenplay outline.

RTF 10529: Developing the Documentary Series 3 s.h.
Developing the Documentary Series introduces students to the study of the television documentary genre and techniques of production, with particular focus on the serial formats unique to broadcast and streaming television. This course will provide students with an understanding of the styles and methods of documentary through an exploration of its history, the development of broadcast-specific formats including news programming, reality TV, and anthology docuseries, and insight into the way technology has time and again enabled the evolution of the genre, to create a researched proposal for their own documentary series.

EDUC 01282: Teaching In Learning Communities II-Art 3 s.h.
Prerequisite: C- or better in EDUC 01270
Teaching in Learning Communities II Art furthers the understanding of successful and caring learning communities begun in Learning Communities I. A field component is required.

EDUC 01284: Teaching In Learning Communities II-Music 3 s.h.
Prerequisite: C- or better in EDUC 01270
Teaching in learning Communities II Music, is specifically designed to continue the development of an understanding of successful and caring learning communities begun in the Teaching in Learning Communities I course and apply it specifically to the music classroom as a "learning community." This course will be music education specific to develop a broad and deep knowledge of music education processes throughout grades K-12 in music settings. A field component is part of this course.

ENED 13201: Teaching and Learning in the Outdoors 3 s.h.
In this course, we will explore theories of learning applied in outdoor environmental education (EE) settings and develop and teach authentic lessons based on this knowledge. Students will learn effective strategies for teaching and communicating about both ecosystems and environmental issues to a range of audiences. Other course topics will include how various types of education, including experiential, place-based, and science education contribute to teaching and learning in the outdoors. Students will visit several outdoor teaching settings (both on campus and at environmental education centers, parks, etc), and we will discuss the benefits and challenges of teaching in the outdoors after these visits. This course is open to undergraduate students interested in learning more about applying environmental education in the outdoors. The course will include one or two Saturday field trips to various EE settings.

ENED 13202: Approaches to Environmental Education 3 s.h.
This course explores the multiple dimensions of and approaches to environmental education (EE) through various perspectives and current research in the field. Course topics include foundational knowledge about the evolution of the EE field, exploring both formal and informal EE settings – including both indoors and outdoors, various theoretical perspectives from the literature that have contributed to the EE field, the benefit of using a systems approach to teach environmental issues, the importance of helping students develop an ethic of care towards the natural world, and how individual and societal decision-making relate to environmental issues. Students will visit several different settings where EE occurs (for

example, pre-K to 12 classrooms, outdoor EE sites on Rowan's campus, including the Fossil Park, environmental education centers, parks, etc), and we will discuss how context affects how EE is implemented. Finally, we will examine significant issues in the field of EE and discuss practical solutions to these obstacles. This course is open to undergraduate students interested in learning more about the field of environmental education and the various contexts in which it is applied. The course will include one or two Saturday field trips to various EE settings.

HPE 00240: Motor Development and Motor Learning 3 s.h.
Prerequisite(s): HPE 02210
This is an introductory course that includes the study of stability, locomotor and manipulative skills, and developmental and environmental factors that affect learning in these motor skill areas. The course will focus on motor behavior changes. Students will also be introduced to motor learning theories and concepts, assessment, and development of motor skills in various settings. This course requires students to acquire a NJDOE background check and a TB test and has a lab component.

HPE 00252: Foundations of Fitness 3 s.h.
Prerequisite(s): HPE 02210
This course is designed to provide students with the skills and knowledge to be able to design, implement, and assess a fitness program for K-12 students. Content will focus on health and skill related fitness and include designing fitness programs for individuals with differing needs and abilities.

HPE 00270: Technology in Health & Physical Education 2 s.h.
Prerequisite(s): HPE 02210
This course will prepare students in the Health and Physical Education program to use computers and technology for organizing information, amplifying presentation, developing written documents, and gathering and storing information. Students will evaluate software, evaluate internet sources and mobile apps, and explore non-computer media applications as they apply to teaching and learning. An introduction to data collection and basic descriptive statistics will also be a component of this course.

HPE 00286: Pedagogy and Instructional Practices in HPE 3 s.h.
Prerequisite: HPE 00252 and HPE 00240 and HPE 00270
This course is designed to introduce students to teaching health and physical education in K-12 settings. Students explore the roles and responsibilities of teaching with emphasis on instructional and technical skills of teaching, student behaviors, and the classroom environment needed to achieve student learning outcomes which address the New Jersey State Student Learning Standards for Comprehensive Health and Physical Education. Students explore the roles and responsibilities of teachers through the study of professional literature; class discussions and activities; simulation exercises; and direct on, and off-campus, required K-12 field observation experiences with students, teachers and administrators.

HPE 00310: Teaching Concepts of Secondary Physical Education 3 s.h.
Prerequisite: HPE 00316 and HPE 00336 and HPE 00452 and HPE 00325
This course provides an opportunity for students to learn the characteristics of a skilled performance in a variety of activities, including target, individual, team sports and net/wall activities. Students will be able to describe and demonstrate the application of appropriate participation in each activity, as well as effective pedagogical techniques that lead to such participation.

HPE 00316: Teaching Concepts of Dance in Physical Education 3 s.h.
Prerequisite: HPE 00286 and HPE 00336 and HPE 00240
This course introduces health and exercise science majors specializing in teacher certification to the skills, concepts and knowledge necessary for instructing development and performance sequences in various rhythmic activities (creative rhythms, routines with small hand apparatus, and novelty dances) and dance forms (folk, social, square, contra, and line). The study of selected rhythmic activities and dance forms include: terminology, relative movement patterns, techniques, skill performance, evaluation, basic musical structure, and teaching strategies.

HPE 00320: Teaching Concepts of Secondary Physical Education II 3 s.h.
Prerequisite(s): (HPE 00286 or PHED 35286)
This course provides an opportunity for students to learn the characteristics of a skilled performance in a variety of physical activities, including invasion sports. Students will be able to describe and demonstrate the application of appropriate participation in each activity, as well as effective pedagogical techniques that lead to such participation.

HPE 00325: Teaching Concepts of Health Education I 3 s.h.
Prerequiste(s): HPE 00252 and HPE 00240 and HPE 00270
This is the first in a series of two combined pedagogy and health education content courses which provide students with knowledge along with general scope and understanding of current health issues which occur in the human lifecycle. This course also develops an understanding of the competencies essential for planning school health education programs. Students are given learning opportunities to develop sensitivity for the importance of integrating health education in various settings and to address the New Jersey Core Curriculum Content Standards for Comprehensive Health and Physical Education (Standards 2.1 through 2.4) Actual lesson planning and teaching experiences are required. Topics which will be addressed are Alcohol, Tobacco and Other Drugs, Personal Growth and Development, Mental and Emotional Health, Aging and Death and Dying.

HPE 00326: Teaching Concepts of Health Education II 3 s.h.
Prerequisite(s): HPE 00316 and HPE 00336 and HPE 00452 and 00325
This is the second in a series of two combined pedagogy and health education content courses which provide students with knowledge along with general scope and understanding of current health issues which occur in the human lifecycle. This course also develops an understanding of the competencies essential for planning school health education programs. Students are given learning opportunities to develop sensitivity for the importance of integrating health education in various settings and to address the New Jersey Core Curriculum Content Standards for Comprehensive Health and Physical Education (Standards 2.1 through 2.4). Actual lesson planning and teaching experiences are required. Topics which will be addressed are Family Life and Human Sexuality, Personal Health, Chronic and Infectious Diseases, Environmental Health and Consumerism.

HPE 00336: Teaching Concepts of Elementary Physical Education 3 s.h.
Prerequisite(s): (HPE 00286 or PHED 35286) and HES Department Acceptance
This course is an introductory survey course designed to help prepare health and exercise science teacher certification majors to teach relevant curriculum at the elementary school level. Students will be exposed to a number of important activities that comprise the focus of elementary school physical education. Methods, techniques and classroom management as they apply to teaching pertinent curriculum will be highlighted.

HPE 00392: Clinical Experience in Teaching Health and Physical Education 1 s.h.
Prerequisite(s): HPE 00316 and HPE 00336 and HPE 00452 and HPE 00325
This course introduces students to the nature and operation of elementary and secondary schools. Students learn to organize instructional materials into meaningful daily lessons in both health and physical education. The course emphasizes the development of teaching strategies, classroom management techniques and use of educational media. The field experience involves observation, tutoring, microteaching and practice in a variety of other instructional skills. Field assignments are sought that involve the pre-service teacher in a realistic mainstreamed classroom environment. As application for Clinical Experience must be submitted and approved through the Office of Educator Support and Partnerships.

HPE 00450: K-12 Health and Physical Education Curriculum and Instruction 3 s.h.
Prerequisite(s): HPE 00316 and HPE 00336 and HPE 00452 and HPE 00325 Corequisite(s): HPE 00392
K-12 Physical Education Curriculum and Instruction is a critical course designed to help prepare Health and Exercise Science majors to become successful physical education teachers in schools. Teacher candidates will develop expertise in curriculum construction, planning, instruction and evaluation in elementary, middle and high school. In developing this expertise, candidates will address the NJ Core Curriculum Content Standards for Comprehensive Health and Physical Education (Standards 2.1, 2.5 and 2.6).

HPE 00452: Teaching Concepts of Adapted Physical Education 3 s.h.
Prerequisite(s): HPE 00286 and HPE 00240
This course is designed to provide health and physical education teacher candidates with the knowledge and basic skills required to meet the professional and legal mandates pertaining to general physical education for students with unique needs, between ages 3 to 21. The course will focus on the law, placement decisions, assessment, individualized general physical education programming, service delivery, transition planning for individuals with disabilities, professionalism in the workplace, and awareness of the strengths and limitations of those with disabilities and methods for inclusion. This course includes instruction in modifying sports and games, dance, lifetime fitness, and aquatics. The course includes a lab component and completion of clinical experience hours.

HPE 00453: School Health Program Planning 2 s.h.
Prerequisites: HPE 00316 and HPE 00336 and HPE 00452 and HPE 00325
This course develops an understanding of the competencies essential in planning of health programs in schools. Students are given opportunities for integrating and correlating health in K-12 school settings. Field experiences, planning and teaching experiences are a part of this course.

HPE 00457: Clinical Practice I in Health & Physical Education: Elementary 2 s.h.
Prerequisite(s): HPE 00310 and HPE 00453 and HPE 00342 and HPE 00326
This course further develops teacher candidates' knowledge of the operation of elementary schools. Candidates will work under the guidance and direction of an experienced elementary health and physical education teacher. Candidates will develop an understanding of teacher evaluation through the Danielson Framework for Teaching, and prepare for conducting their performance assessment (edTPA) in Clinical Practice II. A minimum of 54 hours will be spent in an elementary school setting. An application for Clinical Practice must be submitted and approved through the Office of Educator Support and Partnerships.

HPE 00458: Clinical Practice I in Health & Physical Education: Secondary 2 s.h.
Prerequisite(s): HPE 00310 and HPE 00453 and HPE 00342 and HPE 00326
This course further develops teacher candidates' knowledge of the operation of secondary schools. Candidates will work under the guidance and direction of an experienced secondary health and physical education teacher. Candidates will develop an understanding of teacher evaluation through the Danielson Framework for Teaching, and prepare for conducting their performance assessment (edTPA) in Clinical Practice II. A minimum of 54 hours will be spent in a secondary school setting. An application for Clinical Practice must be submitted and approved through the Office of Educator Support and Partnerships.

HPE 00459: Assessment Seminar in Health & Physical Education 3 s.h.
Prerequisite(s): HPE 00310 and HPE 00453 and HPE 00342 and HPE 00326
This course runs concurrently with Clinical Practice I. It will prepare teacher candidates in the Health and Physical Education program to use a variety of resources, including technology, for planning and developing assessment strategies to evaluate student learning. It is also designed to prepare students for completing their major performance assessment portfolio (edTPA) during Clinical Practice II. Candidates will use the cycle of planning, instruction and assessment, to prepare them to be reflective practitioners. AN introduction to simple statistical designs will also be a component of this course.

HPE 00460: Clinical Practice II in Health and Physical Education: Elementary 5 s.h.
Prerequisite: HPE 00457 and HPE 00458 and HPE 00459 Corequisite: HPE 00465 and HPE 00461
This course allows teacher candidates to intern on a full time basis under the guidance and direction of an experienced elementary health and physical education teacher. Teacher candidates gain experience and develop insight and skill in the teaching of elementary school health and physical education. An application for Clinical Practice must be submitted and approved through the Office of Educator Support and Partnerships.

HPE 00461: Clinical Practice II in Health and Physical Education: Secondary 5 s.h.
Prerequisite: HPE 00459 Corequisite: HPE 00465
This course allows teacher candidates to intern on a full time basis under the guidance and direction of an experienced secondary health and physical education teacher. Teacher candidates gain experience and develop insight and skill in the teaching of secondary school health and physical education. An application for Clinical Practice must be submitted and approved through the Office of Educator Support and Partnerships.

HPE 00465: Professional Seminar in Health and Physical Education 2 s.h.
Prerequisite: HPE 00459 and HPE 00458 and HPE 00457 Corequisite(s): HPE 00460 & HPE 00461
This senior-level capstone course is designed to be taken concurrently with Clinical Practice II. The seminar will focus on: understanding the current issues in teaching health and physical education; evaluating the application of effective teaching; understanding the parameters of professional and ethical behaviors in teaching; and preparing for a career in the field.

HPE 02210: Introduction to Health & Physical Education 1 s.h.
This course will introduce teacher candidates to core educational instructional practices and pedagogies in health and physical education. Students will be asked to critically examine teaching in health and physical education-specific content that spans across grade spans, with an emphasis on students' ability to develop, and identifies effective strategies and approaches to support the meaningful participation and learning of diverse students. Emphasis will be placed on creating inclusive and diverse educational environments in health and physical education. This course requires students to acquire an NJDOE background check and a TB test.

SECD 03330: Clinical Experience in Teaching and Learning A Art 1 s.h.
Prerequisite: SMED 01282; Corequisite: SECD 31350
This course introduces students to an authentic elementary art classroom in a regional school district. Field visits will involve students in examining school and district policies, the art curriculum, field reports regarding observations of instruction and assessment, classroom management, and teacher-student interactions. Students will collaborate on developing one lesson plan that will be co-taught during this placement. This course consists of a class sessions and field visits.

SECD 03332: Practicum in Teaching and Learning B 1 s.h.
Prerequisite: SECD 03330; Corequisite: SMED 31360
Practicum in Teaching and Learning B is a co-requisite with Teaching and Learning Mathematics B, Teaching and Learning English/Language Arts B, Teaching and Learning Social Studies B, or Teaching and Learning Foreign Language B, Teaching and Learning Science. The course will consist of a general opening session, a general closing session, sessions at a cooperating public high school, and visits to governmental agencies, commercial sites, community sites, campus-based laboratories (when appropriate) and/or museums.

SECD 03435: Clinical Practice In Subject Matter Education 10 s.h.
Corequisites: SECD 03350 and SECD 03436
The clinical practice experience is a supervised, full-time activity conducted in public secondary classrooms, and it requires demonstrated mastery of subject area content, lesson planning, and multiple instructional strategies to meet varied student needs; demonstrated ability to assess learner progress and modify instruction accordingly, ability to manage all aspects of classroom activity, ability to work collaboratively with all instructional, administrative, parental, and community members of the classroom and school community, and ability to document evidence of doing all of the above. This is a full-time field-based course taken in the senior year.

SECD 03436: Subject Matter Clinical Seminar 1 s.h.
Corequisites: SECD 03350 SECD 03435
This capstone seminar is designed to provide pre-service K-12 subject matter teacher candidates with a supportive atmosphere that builds relationships with peers and mentors while offering an opportunity to synthesize the pre-service components of their academic preparation with actual experience and emerging issues in the field of education and their transition into the profession. Teacher candidates develop a holistic concept of their philosophy of teaching; gather and present evidence of their comprehensive knowledge, skills, and dispositions expected of the profession; and demonstrate knowledge of current critical and contemporary issues facing educators and those who have a stake in K-12 subject matter education. Interviewing skills will be developed during this course. A co-requisite field internship is required.

SMED 01282: Introduction to Instruction & Assessment in the Art Classroom 3 s.h.
Prerequisites: INCL 02210, ELEM 02210
This course provides an introduction to instruction and assessment for the visual art classroom, K-8. Built on the learning community philosophy introduced in the course, Principles and Pedagogies in the Inclusive Classroom, this course is a broad overview of the field of Art Education. Standards, philosophies, theories, and teaching and learning principles that underpin Art Education are introduced to enable teacher candidates to develop a personal philosophy of how children learn and what teachers need to do to support and assess their learning. Candidates learn to write lesson plans with rich artistic content and activities that advance a child's artistic abilities and supports their cognitive, emotional, social, and physical growth. Candidates will also learn to design assessments most often used by visual arts teachers to measure student progress and inform future planning and practice. A field component is required wherein Art Education students examine the context and culture of a middle school art classroom and co-teach one art lesson from a lesson set they have designed.

SMED 03313: Residency I: Elementary 1 s.h.
Prerequisite(s): SMED 01120 and INCL 02210 and ELEM 02210 and SMED 02250 and SMED 33420 and READ 30280 and SMED 32329 and (SMED 32330 or SMED 32331)

SMED 03314: Residency I: Secondary 1 s.h.
Prerequisite(s): SMED 01120 and INCL 02210 and ELEM 02210 and SMED 02250 and SMED 33420 and READ 30280 and SMED 32329 and (SMED 32330 or SMED 32331)

SMED 10300: Picture Inquiry with Children 3 s.h.
Prerequisite: Acceptance into the Elementary Education or Early Childhood Education Program
This course introduces teacher candidates in the Elementary and Early Childhood Education programs to the ways in which the visual arts support the physical, social-emotional and cognitive development of young children. An emphasis will be placed on designing instruction for children in grades Pre-K through 6 using theme-based works of art that engage them in critical inquiry and hands-on activities to deepen understanding and foste the development of gross and fine motor skills. Through a series of lectures, readings, class discussions, and planning activities, teacher candidates will prepare a practice portfolio from which they will demonstrate a comprehensive understanding of the knowledge and skills needed for engagine children in inuiry-based learning with visual art.

SMED 31350: Elementary Art Methods: Teaching and Learning Art A 3 s.h.
Prerequisites: C- or better in SMED 01282 andREAD 30319 and SMED 33420Corequisite: SECD 03330
This course prepares pre-service teachers for instructing preschool, elementary and middle school students in the visual arts. Through laboratory and clinical field experiences learners will apply theories of artistic learning to authentic arts classroom situations while under faculty supervision. Assignments involve the learner in examining art curriculums, a variety of assessment strategies used by art teachers in the classroom, and approaches for critiquing student works and aesthetic enrichment. The learner will be required to prepare art lessons and units of study that demonstrate: a working knowledge of

artistic concepts and skills, an understanding of the artistic development of children, and considerations for adaptive learning in the arts for special populations.

SMED 31351: Clinical Practice I: Elementary and Secondary Art Education 2 s.h.
Prerequisites: SMED 31350, SECD 03330, ART 09201, SMED 31360, SECD 03332, ART 09202
This course provides teacher candidates with opportunities to apply the knowledge, theories, and frameworks for learning throughout a semester-long field-based art classroom teaching experience at both the elementary and secondary levels. In addition, a series of discussions, readings, and course assignments will focus teacher candidates on the cycle of lesson planning, implementation, assessment, and reflection/revision. In this course, candidates develop and present evidence of their comprehensive knowledge, skills, and dispositions expected in the teaching cycle. The teacher candidates will demonstrate appropriate instructional planning, implementation, assessment, and reflection/revision throughout this field experience.

SMED 31360: Secondary Art Methods: Teaching and Learning Art B 3 s.h.
Prerequisites: SMED 31350 and SECD 03330
This course prepares pre-service teachers for instructing high school students in the visual arts. Through laboratory and clinical field experiences learners will apply theories of artistic learning to authentic arts classroom situations while under faculty supervision. Assignments involve the learner in examining high school art curriculums, a variety of assessment strategies used by art teachers in the classroom, and approaches for critiquing student works and aesthetic enrichment. The learner will be required to prepare art lessons and units of study that demonstrate: a working knowledge of artistic concepts and skills, an understanding of the artistic development of the adolescent, and considerations for adaptive learning in the arts for special populations.

SMED 31450: Clinical Practice II: Elementary and Secondary Art 10 s.h.
Prerequisite: SMED 31351 Corequisite(s): SMED 31451 and SECD 03350
This senior level course provides the teacher education candidate with opportunities to demonstrate the professional knowledge, pedagogic skills and dispositions developed in preservice professional course work. The student teaching experience is a supervised, full-time activity conducted in public elementary, middle, and secondary art classrooms. The experience requires demonstrated mastery of artistic content, lesson planning, instructional techniques in the arts, student assessment and classroom management. Admission to this course requires completion of professional education courses and near completion of academic major courses. A minimum grade point average of 3.0 in major and professional education courses is required.

SMED 31451: Clinical Practice II: Seminar for Art Education 1 s.h.
Prerequisite: SMED 31351 Corequisite(s): SMED 31450 and SECD 03350
This capstone seminar for art teacher candidates provides an opportunity to establish structural knowledge that will enable the integration of applied art classroom experiences during the subsequent weeks of student teaching and, creates a forum for students to process new experiences in the elementary, middle and secondary schools with art professionals who share an understanding of the context in the art classroom. Interviewing skills and a professional portfolio will be developed during this course.

SMED 32411: Clinical Practice In Music 10 s.h.
Corequisites: SECD 03350 and SMED 32412
This senior level course provides the teacher education candidate with opportunities to demonstrate the professional knowledge, pedagogic skills and problem-solving ability developed in preservice, professional course work. The student teaching experience is a supervised, full-time activity conducted off-campus in a public secondary school classroom. The experience requires demonstrated proficiency in lesson planning and evaluation, instructional techniques, student assessment and classroom management. Admission to student teaching requires near completion of academic major, minimum grade point average of 3.0 in major and recommendations by major field academic department and teacher education faculty.

SMED 32412: Clinical Practice Seminar In Music 1 s.h.
Corequisites: SECD 03350
This capstone seminar for music student teachers provides an opportunity to establish structural knowledge apriori that will enable the integration of applied music classroom experiences during the subsequent weeks of student teaching, and creates a forum for students to process their new experiences in the schools with music professionals who share the context for the music classroom.

SMED 32413: Residency II: Elementary Music 5 s.h.
Prerequisites: SMED 32313 (Allows Concurrency) and smed 32329 and (SMED 32330 or SMED 32331). Corequisites: SMED 32412 and SMED 21414 and SECD 03350.
This senior level course provides the teacher education candidate with opportunities to demonstrate the professional knowledge, pedagogic skills and dispositions developed in pre-service professional course work. The student teaching experience is a supervised, full-time activity conducted in public elementary music classrooms. The experience requires demonstrated mastery of music content, lesson planning, instructional techniques, student assessment and classroom management in elementary music. Admission to this course requires completion of professional education courses and near completion of academic major courses. A minimum grade point average of 3.0 in major and professional education courses is required.

SMED 32414: Residency II: Secondary Music 5 s.h.
Prerequisites: SMED 32329 AND (SMED 32330 OR SMED 32331)
This senior level course provides the teacher education candidate with opportunities to demonstrate the professional knowledge, pedagogic skills and dispositions developed in pre-service professional course work. The student teaching experience is a supervised, full-time activity conducted in public secondary music classrooms. The experience requires demonstrated mastery of music content, lesson planning, instructional techniques, student assessment and classroom management in secondary music. Admission to this course requires completion of professional education courses and near completion of academic major courses. A minimum grade point average of 3.0 in major and professional courses is required.

SMED 33220: Educational Technology 1 s.h.
This laboratory course focuses on the use of educational technology in support of student learning, and integration of technology into the P-12 curriculum. Strategies to incorporate technology and the World Wide Web into the school curriculum will be explored.

SMED 33330: Teaching/Learning A: Mathematics 3 s.h.
Prerequisite: C- or better in EDUC 01272 andREAD 30319 and SMED 33420Corequisite: SPED 08316 and SECD 03330
This first in a sequence of two three-credit courses is designed for students majoring in mathematics and planning careers as K-12 mathematics teachers. Teacher candidates will learn to organize instructional materials into standards-based mathematics units and daily lessons focused on scaffolding learning experiences in number sense, operations, and algebraic thinking. In conjunction with a co-requisite practicum, this course includes both community- and public school-based experiences dealing with a range of topics necessary to building a functioning learning community, including mathematics pedagogy and praxis, learner diversity, lesson and unit planning, and national and state standards for mathematics.

SMED 33331: Teaching/Learning B: Mathematics 3 s.h.
Corequisites: SECD 03332 Prerequisites: SMED 33330
This second in a sequence of two three-credit courses is designed for students majoring in mathematics and planning careers as K-12 mathematics teachers. Teacher candidates will learn to organize instructional materials into standards-based mathematics units and daily lessons focused on scaffolding learning experiences in geometry, measurement, probability, statistics, and discrete mathematics. In conjunction with a co-requisite practicum, this course includes both community- and public school-based experiences dealing with a range of topics necessary to building a functioning learning community, including mathematics pedagogy and praxis, learner diversity, lesson and unit planning, and national and state standards for mathematics.

SMED 34330: Teaching/Learning A: Science 3 s.h.
Prerequisite: C grades or better in EDUC 01270 and EDUC 01272 and SMED 33420 Corequisites: SPED 08316 and SECD 03330
This first in a sequence of two three-credit courses, in conjunction with the matching field experience/practicum, focuses on K-12 content and instructional methodology in science for the K-12 classroom with an emphasis on middle school levels. The course content revolves around the use of the American Association for the Advancement of Science (AAAS) themes in Science for All Americans as the guiding goal for K-12 science. It introduces and elaborates on the National and New Jersey Science Standards as the means to reach specific objectives for prospective science teachers and their future students. The course concentrates on the use of inquiry based models in the teaching of science as defined by both the National and New Jersey Science Standards for grades K-8.

SMED 34331: Teaching/Learning B: Science 3 s.h.
Corequisite: SECD 03332; Prerequisites: SMED 34330 Minimum Grade of C and SECD 03330 Minimum Grade of C
This second in a sequence of two three-credit courses, in conjunction with the matching field experience/practicum, focuses on K-12 content and instructional methodology in science for the K-12 classroom with an emphasis on high school levels. The course content revolves around the use of the American Association for the Advancement of Science (AAAS) themes in Science for All Americans as the guiding goal for K-12 science. It introduces and elaborates on the National and New Jersey Science Standards as the means to reach specific objectives for prospective science teachers and their future students. The course concentrates on the use of inquiry based models in the teaching of science as defined by both the National and New Jersey Science Standards for grades 9-12.

STEM 60501: STEM: Teaching & Research Methods I 3 s.h.
Prerequisite(s): Matriculation in the MA in STEM EducationCorequisite(s): Teaching STEM in Diverse Settings (STEM 60510) and READ 305020: Content Area Literacy
{STEM 60501): STEM Teaching & Research Methods I 3 sh Prerequisite: Matriculation in the MA in STEM Education Corequisites: Teaching STEM in Diverse Settings (STEM 60510) and READ 30520: Content Area Literacy This is the first course in the 3-course STEM methods sequence for candidates in the Master of Arts in STEM Education program. Through integrated STEM coursework, candidates will focus on learning how to make content explicit; eliciting and interpret students' thinking; engage in strategic relationship-building conversations with students; analyze instruction for the purpose of improving it; and communicate with other professionals. Faculty workload: 3 sh

STEM 60502: STEM: Teaching & Research Methods II: Mathematics 5 s.h.
Prerequisite(s): B- or higher in: STEM 60501, STEM 60510,and READ 30520
This is the second course in the 3-course STEM methods sequence for candidates in the Mathematics specialization in the Master of Arts in STEM Education program. Grounded in national and state mathematics standards, the course introduces teaching models that support good mathematics teaching practices. Course activities and assignment are directly connected to the co-requisite resident experiences. The course will help prepare pre-service mathematics teachers to develop STEM pedagogy in the teaching of mathematics. This course is offered annually during the fall semester.

STEM 60503: STEM: Teaching & Research Methods III: Mathematics 6 s.h.
Prerequisites B- or higher in STEM 60501, STEM 60510, READ 30520Co-requisites: STEM 60512
This is the final course in the 3-course STEM methods sequence for candidates in the Mathematics Specialization in the Master of Arts in STEM Education program. Grounded in relevant research in mathematics and STEM education with implications for teaching practice and national and state mathematics standards, the course continues to build on teaching models that support good mathematics teaching practices. In addition, this course explores contemporary issues in mathematics and STEM education. Course activities and assignments and directly connected to the co-requisite residency experiences. This course is offered annually during the Spring semester.

STEM 60504: Professional Seminar for STEM Educators 3 s.h.
Prerequisite(s): B- or higher in STEM 60513 and STEM 60503 or STEM 60523
This is the capstone course in the MA in STEM Education and will prepare candidates for their teaching positions by focusing on issues critical to new teachers. The course is designed to support candidates in their final transition from teacher candidate to teacher. Topics include understanding school climate, developing a professional development plan, developing a plan for communicating with families, planning for the first six weeks (or unit) of school, and preparing for a substitute teacher.

STEM 60510: Teaching STEM in Diverse Settings 3 s.h.
Prerequisite(s): Matriculation in the MA in STEM EducationCorequisite(s): STEM 60501, READ 30520
This course will enable STEM Education candidates to gain a multifaceted understanding of the individual and institutional elements that impact student achievement in STEM. Candidates will investigate the role that gender, SES, race, ethnicity, home language, religion, and other identity-based aspects shape school experiences, learning, and achievement in STEM. Candidates will then learn about specific approaches and instructional practices that they can use in the classroom to promote learning for nonmainstream students, including teaching academic language, differentiating instruction and assessments, and supporting home, community and school partnerships.

STEM 60512: STEM: Education Residency I 1 s.h.
Prerequisite(s): B- or higher in: STEM 60501, STEM 60510; and READ 30520 Corequisite(s): STEM 60502 OR 60522
This course serves as the first semester of the yearlong teacher residency required for candidates in the MA in STEM Education. Each resident is placed in a middle or high school and attends that placement 3 full days per week during the Fall semester. Using both Rowan and placement school district measures of teaching effectiveness, supervisors will evaluate residents on demonstrated mastery of subject area content, lesson planning, and multiple instructional strategies to meet varied student needs and demonstrated ability to assess learner progress and modify instruction accordingly, manage all aspects of classroom activity, and work collaboratively with all instructional, administrative, parental, and community members of the classroom and school community. Candidates will attend their field placement 4 full days per week during the Fall semester.

STEM 60513: STEM: Education Residency II 3 s.h.
Prerequisite(s): B- or higher in: STEM 60502 or STEM 60522, STEM 60512 and SELN 60576; Corequisite(s): STEM 60503 OR 60523
This is the second of the two field experiences required for candidates in the MA in STEM Education. Continuing in their field placement from STEM Education Residency I, candidates will attend their field placements 4 full days per week during the Spring semester. Using both Rowan and placement school district measures of teaching effectiveness, supervisors will evaluate residents on requires demonstrated mastery of subject area content, lesson planning, and multiple instructional strategies to meet varied student needs and demonstrated ability to assess learner progress and modify instruction accordingly, manage all aspects of classroom activity, and work collaboratively with all instructional, administrative, parental, and community members of the classroom and school community. The course will run from January through June

to enable candidates to engage in all end-of-year activities at their residency sites.

STEM 60522: STEM: Teaching & Research Methods II: Science 5 s.h.
Prerequisite: STEM 60501 and READ 30520 and STEM 60510; Co-requisite: STEM 60512 and SELN 60576
This is the second course in the 3-course STEM methods sequence for candidates in the Master of Arts in STEM Education program. Grounded in national and state science standards, the course introduces teaching models that support good science teaching practices. Courses activities and assignments are directly connected to the co-requisite residency experiences. The course will help prepare pre-service science teachers to develop STEM pedagogy in the teaching of science. This course is offered annually during the Fall semester.

STEM 60523: STEM: Teaching & Research Methods III: Science 6 s.h.
Prerequisites: B- or higher in STEM 60522 and STEM 60512 and SLEN 60576; Corequisite: STEM 60513
This is the final course in the 3-course STEM methods sequence for science candidates in the Master of Arts in STEM Education program. Grounded in relevant research in science teaching, this course continues to build on teaching models that support good science teaching practices. In addition, this course explores contemporary issues in science and STEM education. Course activities and assignments are directly connected to the co-requisite residency experiences. This course is offered annually during the Spring semester. Upon completion of the course, candidates will demonstrate the ability to: Set long and short-term learning goals for students referenced to external benchmark; Appraise, choose, and modify tasks and texts for a specific learning goal; Design a sequence of lessons toward a specific learning goal; Select and use particular methods to check understanding and monitor student learning; Compose, select, interpret, and use information from methods of summative assessment; Analyze instruction for the purpose of improving it; Communicate with other professionals

ANTH 02200: Introduction to Bioarchaeology 3 s.h.
This course introduces students to bioarchaeology- the study of human, animal, and other biological remains in the archaeological context. Through lectures, readings, discussions, and hands-on activities, students will learn how the analysis of skeletal remains, and their burial and temporal contexts, can aid in the reconstruction of past cultural adaptations and evolution, and interpret patterns of subsistence, diet, disease, demography, biological variation, and physical activity. The course also promotes understanding of the ethics of working with archaeological and historical human remains, explores different case studies of bioarchaeological discoveries and their significance, and explores the legal implications of bioarchaeological finds and studies in the United States and abroad.

ANTH 02202: Introduction To Cultural Anthropology 3 s.h.
This course presents cultural anthropology as a coherent system of data and theory designed to explain the variety of human group behavior, giving special emphasis to the structure and function of non-western cultures.

ANTH 02203: Introduction To Archeology 3 s.h.
This course covers the rudiments of archeological field techniques, methods of analysis and dating methods.

ANTH 02205: Mummies and Burial Practices of Ancient Cultures 3 s.h.
This course examines the scientific and cultural dimensions of artificially treated and naturally formed human and animal mummies of ancient cultures. Through a variety of readings and class activities, students will examine mummification processes and burial practices, and identify where in the world mummies have been found, how they are studied scientifically, what environmental factors promote mummification, how intentional human manipulation affects the process, and what the different forms of mummification uncover about the cultural practices and beliefs of ancient peoples.

ANTH 02210: Natives of South America 3 s.h.
The pre-history and cultures of native South Americans are examined in this course via the archeological record and ethnographic accounts. The concepts of culture, cultural evolution, and adaptation are emphasized while undertaking a comprehensive survey of the diverse native South American societies and their environments. This course is offered annually.

ANTH 02215: Medical Anthropology 3 s.h.
This course surveys the evolutionary, ecological, cultural, and political factors affecting patterns and experiences of health, disease, and healing in past and present societies. Students will examine recent research on contemporary medical and social concerns such as HIV in Africa and medical communication issues with immigrant populations in the U.S. This course is ideal for students who plan future careers in the medical and helping professions, providing them with the fundamental skills necessary to be culturally competent health professionals.

ANTH 02221: Human Variation 3 s.h.
In this course, the genetic, immunological, anatomical and physiological variation among modern populations of humans across the globe is examined. The course will enable students to explain human biological adaptation to the biocultural environments in which they live, as well as to understand environmental influences on the human life cycle such as on fertility, growth, and longevity. No prerequisites

ANTH 02225: Arts and Medicine 3 s.h.
This course will introduce students to the ways in which the arts - - dance, drama, music, art, and poetry - - are a part of therapeutic encounters in a variety of sociocultural contexts. Students will explore how the arts are employed in the diagnosis of disease, facilitate the creative expression of the illness experience, and motivate "healing" through self-transformational processes. Ethnographic films and experiential exercises led by guest speakers who incorporate the arts in therapeutic practice will complement the lectures and reading materials. Students will also engage in their own ethnographic research on the aesthetic aspects of medical practices.

ANTH 02240: Food and Culture 3 s.h.
Food is a universal, yet highly diverse, feature of the human condition. Foodways function to create social unity, but also to distinguish cultures. How and why do cultures develop unique methods of food preparation and consumption? How do food rules develop and how are they maintained? The goal of this class is to gain an understanding of foodways in different cultures and how food habits function beyond providing calories and sustenance. The course uses information from biological anthropology, archaeology, cultural anthropology, and human ecology to understand the historical development of foodways and modern cultural variation in food habits in different areas of the world. It also examines issues related to modern disparities in health and nutrition in light of globalization and the political, technological, and environmental factors that result in differential production and access to food resources. This course may not be offered annually.

ANTH 02245: Sport and Culture 3 s.h.
Sport, games, and competition serve as a nexus for humanity's innate fascination with movement and social activity. These social activities (competition, play, martial arts, etc.) have served throughout history to encourage the proliferation of human culture for any number of exclusive or inclusive motivations: money, fame, health, spirituality, or social and cultural solidarity. This course examines the role of sport in human culture. The dynamics of race, gender, politics, sexuality, mythmaking, celebrity, national identity, and international relations all can be examined through the study of how sports are developed and played within and between cultures.

ANTH 02250: Introduction to Anthropological Linguistics 3 s.h.
Students in this interdisciplinary course will engage in the scientific study of language with particular reference to the relationships among the languages, thoughts, and cultures of speech communities living all over the world, including within the United States, France, India, Canada, Spain, Japan and Peru, among others. Additional course topics include the process of human language acquisition, structures of human language, bilingualism and the ways in which race, class, gender, and other social characteristics may be displayed through the use of language. This course is offered every other year, beginning in 2009.

ANTH 02270: New World Archaeology 3 s.h.
Prerequisites: ANTH 02203 with minimum grade of C-
This course covers the prehistoric and early historic cultural adaptations of the native peoples of the Americas. Emphases will be placed upon: current research trends and findings particularly in the last three decades; prehistoric cultural ecology; culture change and culture process; and current new and traditional controversies, from the earliest Native American hunter-gatherers to settled societies, animal and plant domestication, to the impact of colonization, and the impact of archaeological conservation. Students will research articles on discoveries and debates, prepare a research report, and apply learned archaeological methods in a simulated excavation. This course may not be offered annually.

ANTH 02275: Anthropology of Race and Ethnicity 3 s.h.
This course focuses on the historical development and current status of the race concept, a purported descriptor of human diversity and potential. Using the perspectives of four-field anthropology, this course covers the historical development of the race concept as well as current scholarship, controversies and consequences of race. Students will read relevant texts from biological anthropology, linguistics, cultural anthropology and archaeology.

ANTH 02280: Old World Archeology 3 s.h.
Prerequisite: ANTH 02203 with minimum grade of C-
This course will explore the ancient cultures of the Old World from an archaeological perspective. Possible topics include, but are not limited to, European Prehistory, Ancient Egypt, Archaeology of Greece and Rome, African Prehistory, Indus Valley Prehistory, and the Prehistory of China. Emphases will be placed upon: current research trends and findings particularly in the last three decades; prehistoric cultural ecology; culture change and culture process; and current new and traditional controversies, from the earliest hunter-gatherers to settled societies, animal and plant domestication, to the impact of civilizations and empires, and the impact of archaeological conservation. Students will research articles on discoveries and debates, prepare a research report, and apply learned archaeological methods in a simulated excavation. This

courses will be offered annually.

ANTH 02290: Museum Studies 3 s.h.
This course provides an introduction to the history, purposes, and internal workings of museums from an anthropological perspective. Students will learn how museums that focus on natural history and cultural history related to the anthropological studies of archaeology, human evolution, and world ethnography operate in both physical museum exhibit space and virtually on the worldwide web. It will cover the relevance of anthropological training to careers in the museum field, as well as the importance of conducting anthropological investigations in the museum environment. This course will be offered annually.

ANTH 02295: Introduction to Qualitative Research 3 s.h.
This course will introduce students to the current methods and theories of qualitative analysis in social science research and will prepare students to be able to do entry-level work in research settings in a variety of fields including economics, political science, sociology, anthropology, medicine, education, and engineering. This course will be offered annually.

ANTH 02301: Human Evolution 3 s.h.
Prerequisites: (ANTH 02201 OR ANTH 02221 with minimum grade of C-) OR BIOL 02100 OR BIOL01104 ORBIOL 01110 OR BIOL 01113 OR BIOL 01310
Students of Human Evolution will study anthropological genetics and, evolutionary theory, basics of primate and human skeletal anatomy, dating and excavation techniques and the fossil evidence of hominid evolution from 7 million years ago to the present. Recent discoveries and controversies will be discussed and evaluated. The course will be offered annually.

ANTH 02305: Primatology 3 s.h.
Prerequisite(s): ANTH 02221 or BIOL 0100 or BIOL 01104 or BIOL 01110 or BIOL 01113 or biol 01310 or ANTH 02301 or INTR 01144 or BIOL 20150
This course introduces students to our closest living relatives, the primates. Students will study evolutionary theory, primate evolution and adaptation, primate skeletal anatomy, dating techniques, and the fossil evidence of primate evolution from the first true primates that evolved in the beginning of the Eocene Epoch to the Miocene. The course uses concepts from evolutionary biology and the scientific method to explore the diverse anatomical and behavioral adaptations of different primate species, and provides an evolutionary and ecological framework with which to understand ancient and modern primates.

ANTH 02310: Native North America 3 s.h.
This is an ethnographic and archaeological survey of the native peoples of North America, emphasizing cultural diversity and adaptation. The course will cover the time span from the settling of North America to the present. It analyzes the present-day problems of reservation life, the contributions of Native Americans, and the Native American's place in society. Students will analyze issues affecting Native North Americans.

ANTH 02311: People and Cultures of Africa 3 s.h.
This is an ethnographic and archaeological survey of the peoples of Africa, emphasizing cultural diversity and adaptation. The course will cover the time span from the settling of Africa to the present. It analyzes the present-day problems of preservation of traditional cultures and the contributions of African peoples to world cultures. Students will analyze issues affecting African peoples. This course may not be offered annually.

ANTH 02312: Anthropological Perspectives on Physical Growth and Development. 3 s.h.
This course will introduce students to anthropological perspectives on the study of the human life cycle, examining how environmental conditions as well as cultural beliefs and practices affect physical, cognitive, and social development throughout the lifespan. Students will also learn about unique traditions of societies around the world regarding pregnancy, childbirth, infancy and childhood, parenting, adolescence, adulthood, middle-age, and aging. This course is offered annually and will be of particular value to students planning to work in psychology, education, nursing, social work, or medicine.

ANTH 02315: Forensic Anthropology 4 s.h.
Prerequisites: ANTH 02221 with minimum grade of C- OR BIOL 10210
Forensic Anthropology employs the methods of physical anthropology and archeology to identify human skeletal remains. Proper excavation technique for recovery of remains in order to fulfill the requirements of the legal system will be taught. Students will learn to determine age, sex, height, life history, cause of and time since death and population affinity from the human skeleton. There is a weekly Friday morning laboratory session in addition to classes. A weekend day-long excavation is required. Grading is based on homework, a case report, performance on exams and a final paper. This course may not be offered annually.

ANTH 02321: Cultural Ecology 3 s.h.
Prerequisite: ANTH 02202 with minimum grade of C-
This course examines the relation of human groups to their environments as mediated by culture. It emphasizes the interaction of significant variables in the natural habitat, technology, and social institutions. This course may not be offered annually.

ANTH 02322: Sex And Sex Roles in a Cross Cultural Perspective 3 s.h.
Prerequisite: ANTH 02202 with minimum grade of C-
This course examines the impact of sexuality on the structure of human cultures, and on how sexuality and gendered behavior are expressed and employed in different cultural contexts. This course may not be offered annually.

ANTH 02323: Anthropology of Magic and Religion 3 s.h.
This course examines the diversity of magical and religious beliefs in human cultures and explores how religious systems are interconnected with environment, economics, politics, and family structures. Course material emphasizes use of a comparative approach to explore the relationship between culture, magico-religious practices, and spirituality. The course will be offered annually.

ANTH 02324: Archaeological Field Methods 4 s.h.
Prerequisite: ANTH 02203
This course will introduce students to the practical and important elements of archaeological fieldwork. Students will be trained in excavation, on-site cataloguing, site and unit mapping, archaeological site testing, archaeological photography, and other important field techniques. Basic laboratory techniques in how to identify cultural remains, catalogue and prepare finds for storage, and perform basic artifact analysis will be acquired. In addition to on-site training, the class will involve lectures on regional pre-history, history, and field trips to cultural sites and museums.

ANTH 02326: The Maya 3 s.h.
Prerequisites: ANTH 02202 OR ANTH 02310 with minimum grade of C-
This course traces the development of Maya culture from its earliest archaeological evidence to the eve of Old World contact, focusing on its adaptation to a variety of ecological settings, its interaction with other Mesoamerican cultures, the development and transformation of city states, Mayan cosmology and world view, and the development of an indigenous system of writing. This course may not be offered annually.

ANTH 02335: Archaeology of Ancient Egypt 3 s.h.
Prerequisite: ANTH 02203
This course gives students a broad overview of the archaeology of ancient Egypt from the Predynastic to the Greco-Roman Period (3500-31 BC). Using the archaeological record, this course explores Egyptian gods, animal deities, divine kings, pyramids, temples, mummification, society, government, and crafts. The course deals with ancient Egyptians' beliefs about identity, religion, medicine, magic, sex, childbirth, slavery, and death through a focus on material culture and social agency. Current issues of heritage, conservation & repatriation as well as colonial European interpretations of this African civilization will also be addressed.

ANTH 02336: Visual Culture of Ancient Egypt 3 s.h.
This course examines the art of ancient Egypt from the Pre-Dynastic Period through the end of the New Kingdom by studying sculpture, relief, painting, and minor/luxury arts. The class will explore questions in regards to stylistic and iconographic changes by setting the monuments and objects within their cultural context. Students will examine questions of how the Egyptians interpreted the human figure and landscape; absorbed foreign influences; and what impact did other Bronze Age cultures have on Egyptian art. Other issues under study will include past and current views and interpretations of Egyptian Art in the museum setting and how its study impacts the ways the public thinks of ancient culture.

ANTH 02350: Comparative Cultures 3 s.h.
Students conduct a survey and comparative study of a variety of cultures around the world, analyzing both cultural forms and the methods used by anthropologists to study them. This course may not be offered annually.

ANTH 02355: Global Health in Anthropological Perspective 3 s.h.
This course provides an introduction and overview of the interdisciplinary field of global health. Based on the principle that population-level patterns and individual experiences of health and disease are affected by both global and local forces (sociocultural, political-economic, biological, and environmental), this course takes an in-depth case study approach to contemporary issues to analyze interconnections between local, national, and international health problems including health equity, gender and health, pandemics and epidemics, and non-communicable chronic diseases.

ANTH 02371: Anthropological Approaches to Global Development 3 s.h.
Prerequisites: ANTH 02202 OR SOC 08120 with minimum grade of C-
Using a sociocultural approach emphasizing both the theoretical and applied aspects (i.e. the "anthropology of development"), this course covers globalization, global inequality, development policy and local culture change in the 20th and 21st centuries. Specific topics addressed will include conservation, resource management, disease emergence and identity preservation using ethnographic research and anthropological insights to understand issues in these areas. Recommended for students considering careers with multinational corporations, foreign service, U.N., NGOs, etc. This course may not be offered annually.

ANTH 02375: Anthropology of Media 3 s.h.
Using anthropological theory and principles, this course gives students an overview of the effects that mass media have on human societies, both industrialized and non-industrialized, as well as societies that are "developed" and "developing." It covers popular and scientific depictions of non-Western versus Western societies as well as media use cross culturally. It includes a brief overview of basic anthropological concepts (so that an anthropology background is not required) and outlines a basic framework with which we can use these to understand media. Students learn how anthropologists have used media technologies to study human cultures. The course also looks at media use by indigenous peoples and other traditional anthropological subjects.

ANTH 02376: Anthropology Through Film 3 s.h.
Anthropology Through Film is an examination of anthropological principles through the viewing, discussion and analysis of ethnographic, documentary and fiction films. Topics covered will include ethnocentrism and cultural relativism, culture change and development, inequality and oppression, and the relationship of filmmakers and/or scientists to subjects and informants.

ANTH 02378: Public Archaeology 3 s.h.
Prerequisite: ANTH 02203
Course focuses on the role of museums, federal and state agencies, cultural resource management firms, indigenous people, and amateur archaeologists in producing and sharing knowledge about the past. The course reviews the legislation that shapes archaeological practice, media representations of archaeology and archaeologists, career paths and preparation in public archaeology, archaeological ethics, outreach and education to share archaeological knowledge with the public, community partnerships between archaeologists and the public, looting and destruction of cultural heritage, amateur archaeologists, and heritage tourism. All sections emphasize the importance of civic engagement which is necessary to disseminate archaeological knowledge by considering alternative views and the impacts of archaeological research on different communities.

ANTH 02395: Anthropological Theory 3 s.h.
Prerequisite(s): (COMP 01112 and ANTH 02202 and ANTH 02203) or ANTH 02221 or ANTH 02250
This course introduces students to the major theories and debates that inspire and inform anthropological analysis by investigating a range of theoretical propositions concerning topics including agency, structure, history, biology, ecology, social change, power, material culture, and the politics of representation. Each theory will be examined in terms of its analytical and explanatory power for understanding human behavior within its cultural context. Student will also examine theoretical positions within the social and historical contexts that produced them and contexts that are contributing to current dialogues and debate in anthropology.

ANTH 02400: Field Methods in Egyptology 3 s.h.
Prerequisite(s): ANTH 02203 OR ANTH 02290 OR ANTH 02336
Field Methods in Egyptology trains students in the research, examination, and evaluation of archaeological data (architecture, artifacts, art) that can be applied to specific cultural questions. Through readings and lectures on synthetic topics of Egyptian cultural development, students will develop research questions before traveling to Egypt to visit a variety of archaeological sites and museums. While in Egypt, students will gather data that supports or challenges their thesis through the collection of photographs and field notes. While in Egypt and upon returning to Rowan, students will be asked to use their observations and evidence in conjunction with library research to publish their findings on the MARU blog.

ANTH 02420: Psychological Anthropology 3 s.h.
This course examines the diverse and complex ways that cultural factors influence an individual's sense of self and social identity. Students will learn about the main theoretical and empirical developments in the field of psychological anthropology (past and present), explore cultural beliefs and practices related to mental health, and gain an understanding of ethnographic and life history approaches to psychological research. The course is offered annually.

ANTH 02450: Anthropology Senior Seminar - WI 3 s.h.
This seminar is a capstone experience designed for Anthropology majors focusing on the integration of core knowledge from the subfields of anthropology and their application to prehistorical, historical, and contemporary topics. Students will engage in oral discussions and presentations as well as written exercises, essays, and a guided capstone project to demonstrate an understanding of the anthropological perspective and theoretical approaches and methods. The course also addresses professional opportunities for anthropologists and provides career development opportunities for Anthropology majors. The substantive focus of the seminar will vary by instructor.

ANTH 02491: Independent Study in Anthropology 3 s.h.
Students have an opportunity to pursue individual specialized topics under the guidance of a staff member. This course may not be used as a substitute for a course offered by the department. This course may not be offered annually.

ANTH 02492: Undergraduate Research Seminar in Anthropology: Special Topics 3 s.h.
Students participate in planning a research project, collecting data and preparing a report suitable for publication. Subjects of research (e.g., applied anthropology, Egyptology, theory, current issues and controversies, visual anthroplogy) are selected according to student interest. This course may not be offered annually.

DPEM 00211: Incident Command: Theory & Practice 3 s.h.
Incident Command System (ICS) organization is at the heart of emergency management. Following the National Incident Management System (NIMS), this course will focus on ICS fundamentals, incident/event assessment, unified command structures, incident resource management, planning process, demobilization, transfer of command, and close out. The National Incident Management System (NIMS) is a critical component in managing an emergency incident. Furthermore, this course will emphasize the different stages in which the Incident Command System (ICS) can expand and retract depending on the complexity of the incident, recognize the importance of an effective management system, and give the students the ability to recognize, exercise, and understand the various components of the ICS system.

DPEM 00222: Search and Rescue Operations: Wilderness and Natural Environments 3 s.h.
The Search and Rescue Operations: Wilderness and Natural Environments course is designed for emergency response personnel or activities coordinators who want to understand the scope of a search or rescue mission. While the course will employ the wilderness and natural environments in Southern New Jersey, different search and rescue environments will be introduced. Additionally, topics in this course will include, but are not limited to: components of search and rescue, land navigation and orienteering, communications, search and rescue systems, search and rescue theory, interviewing, incident command, direction finding, and the development a search capability. This course will require twelve (12) hours of additional field experience.

DPEM 00240: Diversity, Inclusion, and Understanding Bias for First Responders 2 s.h.
This course will review the social science literature on intergroup bias (stereotyping, prejudice, and discrimination), with a heavy emphasis on diversity and implicit bias from a multidisciplinary perspective. This course is designed to help students understand the role of automatic associations people make between groups of people and stereotypes about those groups and how such associations can potentially influence behavior. This course will explore topics such as social and cognitive aspects of bias, the influence of culture, society, economics, gender, and race. The aim of the course is to establish a firm, social scientific understanding of the nature of intergroup bias in order to promote nondiscriminatory behaviors, attitudes, and policies within the context of the first responder and safety communities.

DPEM 00280: Global Catastrophes 3 s.h.
This course examines the impact of natural and technological disasters around the globe from a cross-cultural interdisciplinary perspective, including hurricanes, droughts, disease outbreaks, nuclear disasters, earthquakes, etc. The course will focus on global, national, regional, and local patterns of development, examining the social, geographical, and cultural factors that put people differentially at risk before, during, and after disasters. Using a case study approach, students will explore how vulnerable social groups are affected by and cope with hazardous conditions and events, as well as study the capacities of these groups that foster resilience.

DPEM 00282: Drones: Foundations, Design, and Maintenance 3 s.h.
This course offers an introduction to using unmanned aerial vehicles (UAV), commonly known as drones. The course is designed to give the student the foundational knowledge to safely operate and maintain UAVs for recreational and professional use. Emphasis is placed on the Federal Aviation Administration's Part 107 material related to safety, flying, weather, pilot-in-command responsibilities and becoming licensed to use drones for commercial purposes (should the student pursue the FAA Part 107 exam beyond this course of study). As part of this class, students will receive supervised structured flight time where possible.

DPEM 00290: U.S. Military Commands and Disaster Relief Operations 3 s.h.
This course examines the impact and role of the United States military from the context of disaster response to natural, technological and human-induced events in the United States and in international contexts. The course will focus on response operations to include the National Guard (Title 32), active duty (Title 10) and the reserve military components. Using a case study approach, students will explore how the response as the United States' military and civilian authorities interact as part of a disaster response or humanitarian relief efforts from multiple perspectives including, but not limited to legal, policy, ethical, logistical, and human rights considerations.

DPEM 00300: Bioterrorism and Weapons of Mass Destruction 3 s.h.
This introductory course provides an overview of the different agents of biological, chemical and nuclear weapons of mass destruction. The intelligence preparation for vulnerability analyses from nuclear, biological and chemical weapons including low-level radiation, depleted uranium, toxic industrial chemical concerns and vulnerability reduction measures that can be implemented for population protection are also addressed.

DPEM 00321: Humanitarian Response: Evacuation and Shelter Management 3 s.h.
Disasters, crisis and civil unrest pose chronic threats to human security. Such events stretch governments' capacity and diminish the effectiveness of existing systems to offer humanitarian assistance and the potential of new technologies to transform humanitarian response. The course will highlight evacuation processes and shelter management across multiple contexts including: immediate crisis, short-term/long-term sheltering, special needs sheltering, medical sheltering, and refugee sheltering. This course is an in-depth analysis of the complex ethical and resource issues along with the management skills needed to engage in humanitarian work across a variety of settings. The course will focus on "real-world" scenarios that arise in the field.

DPEM 00325: Technology and Border Surveillance in Homeland Security 3 s.h.
This course provides a comprehensive, overview of border security from an all-hazards perspective as a fundamental component of Homeland Security, critical infra-structure, and the gathering of intelligence as a part of how technologies and societies interact to produce security. Moreover, students will review the roles and responsibilities of government agencies, non-government organizations, and individual citizens' role in border surveillance along ports of entry and non-ports of entry within a Homeland Security context.

DPEM 00333: Search and Rescue: Management and Lost Person Behavior 3 s.h.
Prerequisite: DPEM 00222
The Search and Rescue: Management and Lost Person behavior course, designed for emergency response personnel or activities coordinators, goes beyond the fundamentals of the wilderness and natural environments course. The primary focus of this course is to engage the participant in a series of exercises and skills-building activities while simultaneously integrating the core leadership skills needed to activate, maintain, and deactivate a search and rescue experience, public communications, lost person behavior, search team management, volunteer management, and the integration of efforts with law enforcement and other public safety officials. Moreover, the course will discuss additional search features such as aerial search with drones and helicopters and the use of canines to assist in the search and rescue process. This course will require an additional fifteen (15) hours field experience.

DPEM 00370: Research and Data Analysis in Emergency Management and Homeland Security 3 s.h.
Prerequisite: DPEM 00101
This course provides basic research methods skills for addressing emergency management and homeland security issues in the field in the areas of research planning, basic statistical methods, primary and secondary data collection, and qualitative data analysis methods and how these methods relate to the larger field of social science research. This course prepares students for intermediate and advanced emergency management, homeland security and intelligence methods. Moreover, this course provides an overview of basic approaches used to understand research, data analysis and evaluation strategies aimed at determining program effectiveness.

DPEM 00380: Drone Applications in Emergency Management 3 s.h.
Prerequisite(s): GEOG 16160
This course is designed to help students understand the multiple uses of drones within the first responder agencies for emergency, surveillance, inspection, and general purposes including: investigating and assessing fires, law enforcement, search and rescue operations, emergency response, traffic investigations, and HAZMAT operations. In this class, students will refine navigation, drone video, and drone photography skills necessary to understand critical infrastructure inspection processes, data collection, and evidence collection.

DPEM 00381: Drones: Legal, Ethical, and Security Issues 3 s.h.
Prerequisite(s): DPEM 00282
This course is designed to underscore the ethical concerns and/or issues that must be addressed or at least communicated with the drone pilots-in-command to ensure adherence to state, local and federal laws, professional ethics, and drone security protocols. These concerns include the adherence to a professional Code of Ethics to ensure the ethical, legal, and safe maintenance of drones and an understanding of which technologies can be restricted for use by the United States government for purposes that threaten the homeland security, public safety, and violate lawful usages.

DPEM 00391: Natural and Technological Hazards: Mitigation and Response 3 s.h.
Emergency management, at its core, encompasses the recognition and management of natural disasters, technological disasters, and Na-Tech (hybrid) disasters. This course examines different types of natural hazards and integrates perspectives on risk, vulnerability, resilience, and mitigation planning through an examination of natural and technological hazards including earthquakes, tsunamis, volcanoes, floods, landslides, hurricanes, tornadoes, wildfires, climate change, and a host of technological and human-induced hazards. Moreover, the class underscores the basic tenets of emergency management as a set of diverse responses to various emergencies from the federal, state, and local perspectives, the management of mass casualties, and ways to rebuild more resilient communities following a disaster.

DPEM 00412: Health Operations Management 3 s.h.
This course will introduce students to fundamental operations management principles in the health care setting with specific operations management approaches employed across a range of health care settings to include clinical, management and support processes in the medical and public health system. Key to this course will be the identification of operations management issues and the use of techniques to help healthcare leaders make informed management decisions and apply techniques to build and maintain a productive health care organization.

DPEM 00422: Health Care Organization Leadership 3 s.h.
This course provides an introduction and overview to leadership, management, and organizational behavior in health care, reflecting the uniqueness of this sector. By integrating theory with practice, students gain a better understanding of the sector from different organizational perspectives. Finally, the course examines the complex healthcare industry, with specific emphasis on emergency medical services, and the challenges facing its leaders at all levels of the healthcare sector including departments, laboratories, units, emergency medical units, clinics/hospitals or residential/outpatient care facilities.

DPEM 00429: Grant Acquisition and Administration for Emergency Managers 3 s.h.
This course will help to develop the skills and knowledge to construct and manage grant proposals. This course offers students an opportunity to understand the grant lifecycle for government, non-profit grant, and corporate grant acquisition processes and management.

DPEM 00442: Public Health Emergency Preparedness and Response 3 s.h.
This course provides training and education on public health preparedness and response to large-scale emergencies and disasters. Students will be introduced to the knowledge, skills, capabilities, and behaviors required for competency in public health preparedness and emergency response and become familiar with the major categories and classification of disaster events, including weapons of mass destruction. Other course topics include how the public health system integrates with the National Response Plan and Framework to ensure effective preparedness and response to large-scale emergencies and disasters. Furthermore, students will discuss Threat and Hazard Identification and Risk Assessment (THIRA) and its role in determining community vulnerabilities and understand how to implement and evaluate public health emergency preparedness and response plan elements.

DPEM 00444: Emerging Health Threats: Risks and Surveillance 3 s.h.
This course will focus on the risk and surveillance of infectious diseases as part of an overall disaster preparedness and emergency response operations plan both nationally and internationally. Students will understand various types of public health interventions to address the rapid spread of disease. Case studies will be used to illustrate emergency management approaches to threats from infectious diseases and other strategies deployed to understand and control disease emergence and spread. Principles of ethical practice, treatment of infectious population, and quarantine will also be examined.

DPEM 00451: Counterterrorism and National Security Issues: Theory and Practice 3 s.h.
Prerequisite: DPEM 00300 or DPEM 00420 or LAWJ 05326 or DPEM 00101
This course conceptualizes a terror attack as a human-induced disaster and employs emergency management principles and strategies to respond to terrorism with counterterrorism measures at every stage of the disaster cycle. Moreover, the course provides students an opportunity to develop a more complete picture of the complex security challenges that can pose significant threats to civilians. This course takes into full consideration the national, regional, and international security issues and implications of an effective emergency response through the application of the incident command system model to formulating and implementing strategies in contingency planning, hazard and risk assessment, joint operations, mitigation, and policy to respond to terrorism activities.

DPEM 00480: Advanced Topics in Emergency Management Homeland Security 3 s.h.
Prerequisite: DPEM 00101
This course provides a seminar experience in areas of emergency management that are not a part of the recurring course offerings, with an emphasis on student participation. Consult the Master Schedule each semester for specific topics related to emergency management being offered. This course may not be offered annually.

DPEM 00631: Security, Securitization, and Migration in Emergency Management and Homeland Security 3 s.h.
This course addresses the impact of international migration and its implications for crisis management and national security. Students will critically analyze migration-related security and securitization as part of regional, national, and local crisis management responses to migrants, refugees, and displaced persons. Moreover, this course examines various historical and contemporary cases of displacement, integrating diverse disciplinary approaches, including legal, political, social, cultural, and moral analysis. Key to this course will be the analysis of violent extremism and terrorism in security and migration flows and the roles governments, international organizations, and non-governmental organizations play to ensure security.

DPEM 43355: Emergency Exercises-Design, Implementation and Evaluation 3 s.h.
Prerequisite(s): DPEM 43101
This course provides insight into the tasks, roles and responsibilities required to design and conduct an emergency management exercise that is a part of a long-term, carefully constructed plan in which exercises help the community prepare for disasters. Students will use a community needs assessment to develop the case for exercises, design an exercise, and outline an evaluation plan aimed at improving competence in all emergency functions. Students will also be introduced to the concept of a comprehensive exercise program used to improve on the four phases of emergency management. The course instruction will follow and meet the guidelines established by the Federal Emergency Management Agency exercise design and evaluation courses and the Department of Homeland Security Exercise and Evaluation Program.

DPEM 43395: Emergency Operations and Business Continuity 3 s.h.
Prerequisite(s): DPEM 00101 and DPEM 00400 or Permission of Instructor
This course provides a step-by-step approach to the development of a comprehensive emergency/disaster/crisis management plan for organizations (e.g. manufacturing companies, corporate officers, retailers, utilities, government agencies, or any organization where people work or gather). By analyzing how organizations prepare for, respond to, and recover from an emergency/crisis (e.g., severe winter storm) or more localized (e.g., chemical spill, building fire), this course emphasizes collaborative processes, applied methodologies used to plan and recover systems and processes when faced with various types of disaster and crisis recovery scenarios that impact communities, businesses and organizations as they seek to continue their operations. Finally, the course will emphasize how disaster preparedness directly correlates to the ability to continue organizational operations.

DPEM 43420: Risk Analysis for Disaster Preparedness and Homeland Security 3 s.h.
Prerequisite(s): DPEM 43101
This course provides an analysis of vulnerability assessment as the foundation for effective hazard mitigation by introducing and explaining various methodologies to carry out the process of vulnerability assessment. Moreover, this course will introduce students to (1) material in the risk communication/risk perception literature; (2) basic modeling techniques in quantitative risk assessment; (3) a risk management framework suitable for quantitative risk modeling and risk communication, and (4) case studies related to technological hazards and natural hazards.

DPEM 43495: Internship in Disaster Preparedness and Emergency Management 3 to 6 s.h.
Prerequisite(s): DPEM 43101 and DPEM 43400 or Permission of Instructor
This course is designed to provide students with an experience in the profession of emergency management, homeland security and disaster preparedness beyond that of the classroom.
NOTE: Additional placement requirements such as background checks and fingerprinting may be required.

DPEM 43496: Advanced Internship in Disaster Preparedness and Emergency Management 3 s.h.
Prerequisite: DPEM 43495
This course is designed to provide students with additional experience beyond the first Internship course in the profession of emergency management, homeland security and disaster preparedness beyond that of the classroom. This internship need not be a continuation of the first internship experience. NOTE: Additional placement requirements such as background checks and fingerprinting may be required.

HCM 51101: Introduction to Healthcare Management 3 s.h.
This introductory course discusses the roles of patients, physicians, hospitals, insurers, and pharmaceutical companies within the context of healthcare and the interaction among these groups. Students will be introduced to resource management, managing people, complex systems, and processes within healthcare services in the changing environment of healthcare delivery and services.

HCM 51201: Healthcare Informatics 3 s.h.
Prerequisite: HCM 51101 with concurrent registration permitted
Healthcare management professionals need to know information management practices within healthcare delivery systems. This course will cover a variety of data management strategies and security practices that conform to HIPPA in various healthcare settings, including: in hospitals, clinics, doctors' offices, nursing homes, pharmacies, insurance companies, to improve healthcare quality, respond to regulations, and contain costs. Additional topics will include, ethical issues and the patient record, electronic health records (EHRs), data collection standards, legal aspects of health information, medical coding, and reimbursement.

HCM 51400: Strategic Management in Healthcare 3 s.h.
Prerequisites: HCM 51101 and HCM 51201
Students will learn key principles of strategic management within a broadly-defined health care setting to include the ongoing planning, monitoring, analysis, negotiating, problem solving, and decision making necessary within a risk-based environment. The course examines strategic management and the role of managers at every level of healthcare organizations designed to meet organizational goals and objectives within healthcare enterprises including: public health organizations, physician practices and clinics, hospitals and health systems, agencies and service organizations, for-profit firms, and not-for-profits.

HCM 51498: Advanced Topics in Healthcare Management 3 s.h.
Prerequisites: HCM 51101 and HCM 51329
This course examines a variety of emerging healthcare administration topics. These topics are drivers of the industry that impact quality, cost transparency, consumers, strategic planning, implementation, privacy, public policy, legal regulations, labor relations, and the role of leadership in overcoming the challenges of managing the cost of healthcare.

HSRV 01100: Introduction to Human Services 3 s.h.
Prerequisite: BA in Human Services Majors
An interdisciplinary orientation to major Human Services agencies and institutions in this region, including social work, education, corrections, substance abuse, child welfare, mental health, recreation, geriatrics, etc. Participants will study the roles and functions of professionals in these types of Human Services careers.

HSRV 01311: Field Experiences in Human Services I 3 s.h.
Prerequisite: HSRV 01320
This course provides students with the opportunity to be engaged in a field experience which will require them to apply the knowledge they have gained from their previous classes focused on human services course content, theory, and research methods. Students are required to take the course, followed by HSRV 01411 Field Experience II during the fall semester and HSRV 01412 Field Experience III during the spring semester. The goals are understanding yourself, developing professionalism, utilizing supervision, understanding organizational structures, and beginning to understand programmatic effectiveness.

HSRV 01320: Applied Ethics in Human Services 3 s.h.
Applied Ethics in Human Services provides an in-depth analysis of human services ethics, application of the National Organization of Human Services (NOHS) Code of Ethics, and concepts and dilemmas specific to service relationships. From a foundation in multicultural values, the course investigates the issues of responsible practice through critical analysis and discussion. The student will apply decision making skills and critical analysis to professional situations where standards conflict. Topics include: confidentiality, duty to warn, client rights, dual relationships, competence, multicultural issues, sanity, malpractice and expert testimony.

HSRV 01400: Senior Seminar in Human Services 3 s.h.
Prerequisite: senior standing and completion of core requirements.
HSRV 01400: Senior Seminar in Human Services - WI Senior Seminar constitutes the capstone experience for students majoring in Human Services and represents the culminating exit course for students. This course is a writing intensive experience designed to help students integrate their classroom and field experience into a coherent sense of human services as a profession as well as a sense of the student's personal commitment to the values and ethics of the profession. As a culminating experience, this course is based on a portfolio created from the experience the student has accrued during his/her participation in both the academic and experiential components of the major. Prerequisite: senior standing and completion of core requirements

HSRV 01403: Introduction to Child Abuse, Protection and Permanency Planning 3 s.h.
Prerequisites: (HSRV 01320 AND HSRV 01100) OR (LAWJ 43303)
This course will examine the sociological constructs which create a "determination of abuse" and the interventions established in the social systems that surround this social problem. Introduction to Child Protection & Permanency will introduce students to the identification, investigation, placement, counseling and reunification process, including legal and criminal coordination.

HSRV 01411: Field Experience in Human Services II 3 s.h.
Prerequisite: HSRV 01311
Field Experiences in Human Services II advances the students' learning and application from HSRV 01311 Field Experience in Human Services I. The learning goals of this course are obtaining cultural competence, understanding the application of ethics and ethical values, understanding communities being served, and understanding the impact of policy on practice.

HSRV 01412: Human Services Field Experience in Human Services III 3 s.h.
Prerequisite: HSRV 01411
Field Experience in Human Services III advances the students' learning and application from HSRV 01311 Field Experience in Human Services I and HSRV Field Experience in Human Services II. The goals of this capstone experience course are developing ethical practice habits, understanding the ongoing requirements for learning and career paths, understanding the legal environment in which practice takes place, and understanding resource availability and funding streams.

HSRV 01480: Human Services Selected Topics 3 s.h.
This course will focus on various specialized topics in Human Services. Topics will vary as Rowan faculty, executives in local, state, or federal politics, leaders of non-profit agencies, and experts in specialized human services fields may bring current theories and conditions to the students. Students may retake this course for credit when offered by a different instructor in a different topic.

HSRV 08310: Research Methods for Human Services 3 s.h.
Prerequisites: HSRV 0110, either STAT 02100 or STAT 02260 AND EITHER SOC 08120 or PSY 01107
This course introduces the student to the scientific methods used in the social sciences, the relationship between theory and methodologies of data collection and analysis, the rudimentaries of basic types of data analysis and interpretation. Given the applied nature of the human services degree, particular emphasis is placed on qualitative research methods and analyses. This course is offered annually.

SOC 08120: Introduction to Sociology 3 s.h.
This course analyzes the characteristics of social organization and focuses on the study of social relationships and interaction. It examines the social basis of behavior patterns, the nature of social problems and the possibilities for social change. (Required for Sociology majors)

SOC 08121: Introduction to Sociology for Premed Students 3 s.h.
This course provides students with a general understanding of the theoretical, conceptual, and methodological approaches to studying people in groups, institutions, societies and interpersonal interaction. It examines some of the realities of everyday life and critically analyzes perceptions of these social phenomena. Special attention is given to understanding social phenomena with particular relevance to health and medicine, as well as a wide range of other social arenas.

SOC 08130: INTRO RES EXP-SOC 3 s.h.

SOC 08146: Identity, Culture, and Democracy: Being an American 3 s.h.
This course strengthens writing and critical thinking skills through explorations of one's cultural history and an investigation of American society and national identity(ies). It will acclimate students to American cultural, social and political roots and sensitize students to patterns of difference that constitute life in the twenty-first century United States.

SOC 08220: Sociology of the Family 3 s.h.
This course examines the relationships between the family and other societal institutions as well as the related interaction patterns within the family, both from an historical and a cross-cultural perspective. The course also includes such specific topics as gender roles, women's movement, sexuality and social class differences.

SOC 08221: Social Problems 3 s.h.
This course examines major social problems in the society as a part of the ongoing social process, with particular reference to their economic, political and other social roots. Topics covered can include such areas as mental illness, poverty, structured inequality, various forms of addiction, war, racism and crime.

SOC 08223: Sociology of Social Welfare 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course examines the socio-historical development of social welfare, focusing upon changes in the theory and practice of social welfare in American and other societies. This course may not be offered annually.

SOC 08228: Science, Technology and Society 3 s.h.
This course offers a guided introduction to major trajectories of theory and empirical research in the interdisciplinary field of Science and Technology Studies (STS). Considerable attention will be devoted to exploring the nature of science and technology, their relationships to and interactions with one another, social institutions, and the natural world, and the influences these interactions exert in shaping what humans value. A fundamental goal of the course is to cultivate awareness and understanding of the social organization of technology and scientific knowledge production, and the technoscientific structuring of modern social life broadly.

SOC 08230: Sociology Of Minority Groups 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course analyzes the nature of the relationships among ethnic, racial and other groupings in our society. It examines and tests sociological theories by the study of specific past and present minority group situations.

SOC 08269: Self And Society 3 s.h.
This introductory course in the study of behavior in everyday life examines the sociology of the familiar, looking at the socialization processes, the effect of social interaction and re-socialization. The course focuses on the individual as a social interacting organism.

SOC 08281: Sexuality and Society 3 s.h.
This course is an introduction to the sociological study of sexuality. Students will look at the ways that sexual desires, acts, identities, and meanings are shaped and structured by the larger social world through policies, institutions, norms, and rituals. Students will explore why discussions of sex are taboo and why sexual issues tend to be so polarizing in contemporary American society. Furthermore, students will work to develop the skills and knowledge needed to discuss sexuality as a social construct that shapes sexual ethics, human rights, and personal freedoms.

SOC 08320: Urban Sociology 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course examines the process, conditions and problems of urbanization. It emphasizes the social phenomena of the contemporary urban scene, the problems of mass society and their possible solution, mass organization, mass communication and regional interdependence.

SOC 08322: The Sociology of Religion 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course studies sociological theories of the origin and nature of religion. It includes the relationship of religion to family life, sexuality, ethnic identity, economic inequality and political power. Students also study conservative and radical religious movements in contemporary society and secularization and secular substitutes for religion. This course may not be offered annually.

SOC 08323: The Sociology of Social Work 3 s.h.
Prerequisites: SOC 08120 AND SOC 08121 with minimum grades of C-
This course examines the socio-historical development of social work, giving attention to the processes of casework, group work and community organization as well as aspects of social work as a profession. This course may not be offered annually.

SOC 08325: Deviant Behavior and Social Control - WI 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C- AND COMP 01112
This course explores the major theoretical and research issues in the study of deviant behavior. Then, drawing on a wide variety of types of deviant behavior, the course studies three levels of social reality: the interpersonal, the organizational and the structural. The course seeks to place deviant behavior within the context of traditional social processes and structures. Writing Intensive (WI)

SOC 08326: Socialization of the Child Through Adolescence - WI 3 s.h.
Prerequisites: (SOC 08120 OR SOC 08121 with minimum grade of C-) AND COMP 01112
This course focuses upon the processes and social forces which facilitate the ways in which individuals are prepared to enter various groups within the life cycle. Writing Intensive (WI)

SOC 08327: Comparative Education in Sociological Perspective 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course compares the educational systems of different societies and their relationships to other social institutions in their societies. Such features as the overall purposes and goals of education, its accessibility to different social strata, gender differences, services to special populations in the society, and the teaching profession are compared. In each case study studied, both unique characteristics of the educational system are highlighted as well as those similar to other societies, with the focus on social forces which influence the makeup and functioning of different educational systems.

SOC 08328: Sociology of Disasters and Crisis 3 s.h.
This course explores disasters and emergency response via a sociological lens and examines the need to systematically understand the social impacts of such tragic events. Participants will learn how to be better prepared to function as an effective member of their community to enhance the chances of improving preparedness, mitigation, and response to possible natural or technological hazards. Furthermore, this course will include discussions of disaster types, individual and collective vulnerabilities of various populations to disasters, disaster-related organization and social policies, issues of disaster preparedness, the media and disaster response, and challenges/opportunities of disaster recovery and prevention.

SOC 08330: Social Stratification 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course examines the major classic and modern theories of social stratification and analyzes the forms and functions of social inequality in contemporary societies. It stresses the influence of class membership on individual behavior and examines the implications of institutionalized inequalities for democratic societies.

SOC 08331: Classical Sociological Theory 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course studies the historical and conceptual development of the major schools of thought within the "sociological tradition." It emphasizes an understanding of the nature of theory and systems of theory, the application of theory, the problems inherent in theorizing about society and social life and the relations between sociological theory and research. (Required for sociology majors)

SOC 08332: Contemporary Sociological Theory 3 s.h.
Prerequisites: SOC 08120 with minimum grade of C-
Contemporary Sociological Theory covers sociological theory developed in recent times. Contemporary Sociological Theory examines the state of the field in the twentieth and twenty-first centuries, focusing on theoretical issues and frameworks that have come to define sociology, its research and methods. It will include consideration of the Parsonian structural functionalism of the 1950s, the critique of Positivism that emerged during the 1960s, and the fragmentation of the field into the many current perspectives and approaches.

SOC 08333: Sociology of Work 3 s.h.
Prerequisites: SOC 08120 or SOC 08121 with minimum grade of C-
This course uses sociological propositions of bureaucracy, professionalization, delegation, goal distortions and informal organization to evaluate critically various management philosophies. It examines interdependence of structure, status, leadership and motivation.

SOC 08334: GROUP DYNAMICS 3 s.h.

SOC 08336: Sociology of Education 3 s.h.
Prerequisites: SOC 08120 or SOC 08121 with minimum grade of C-
The purpose of this course is to study education as a social institution and its interrelationships with other social institutions. It focuses on how education is affected by social forces such as demographic changes, governmental policy, and mass media; and how education itself impacts on the rest of society, such as perpetuating social inequalities.

SOC 08339: Sociological Practice 3 s.h.
Prerequisites: SOC 08120 or SOC 08121 with minimum grade of C-
This course focuses on using sociological theories and concepts, research methods, and ethical decision-making processes to solve problems. Sociological practice occurs at all levels from the individual to societal. The course links the student to a variety of career pathways and occupational settings, including mental health, rehabilitation, work in prisons, and youth and family services.

SOC 08351: Political Sociology 3 s.h.
Prerequisites: SOC 08120 or SOC 08121 with minimum grade of C-
This course analyzes the interplay between society and politics, using both classical and contemporary perspectives. Course topics may include: power, elites, conflict, ideology, political systems, political behavior, political organization, political institutions and political processes and change.

SOC 08353: Sociology of Complex Organizations 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course discusses the major theories and research in complex and formal organizations, giving special attention to a variety of organizational types, including industrial, service and non-profit. It emphasizes examining varying organization types with respect to their size, structure, environments and their dynamics of innovation and change.

SOC 08360: SOCIOLOGY OF LAW 3 s.h.

SOC 08362: Sociology of Disability 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
The Sociology of Disability adopts a narrative approach from the perspectives of disabled persons, based on memoirs, short stories, and novels, which are applied to relevant sociological theories, concepts, and perspectives. Sociological issues examined in this course include how professionals and practitioners variously define disability, the history of how sociologists have discussed the concept, the analysis of "disabled" cultures both in the US and abroad, and the effects of the Disability Rights Movement on selfhood and collective identity. Most importantly, the course examines how persons with disabilities cope with devalued roles, manage stigma, and incorporate disability into identity.

SOC 08365: Contemporary Jewish Life 3 s.h.
This course focuses on contemporary Jewish life with primary focus on American Jews. Situating them in historical and transnational context, the course will explore their significance as a diaspora community, while exploring the role of collective memory, religion, and the construction of Jewish culture. Students will learn the who, what, where and when of this religious/ethnic group, its diversity, and issues relating to integration and intergroup relations with the larger society. Introduction to Sociology or Introduction to American Studies is recommended as a prerequisite, but not required.

SOC 08370: Sociology of Women In Society 3 s.h.
Prerequisites: SOC 08120 OR SOC 08121 with minimum grades of C-
This course investigates the role of women in society. Course topics include: Women and the Economy, Women and the Law, Socialization into Female Sex Roles, Women and Religion and Women in Academia.

SOC 08375: Sociological Research Methods 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course introduces the student to the scientific methods used in the social sciences, the relationship between sociological theory and methodologies of data collection and analysis, the rudimentaries of basic types of data analysis and interpretation. Students will learn to read and summarize basic scientific reports, to critically analyze and evaluate reported research findings in the social sciences, and to recognize ethical concerns associated with sociological research. (Required for Sociology majors)

SOC 08376: Social Statistics 3 s.h.
Prerequisites: SOC 08120 or SOC 08121 with minimum grade of C-
This course familiarizes the student with the basics in elementary statistical methods used in the social sciences and the uses and misuses of statistics for various purposes. The student will learn to calculate and understand the proper use of basic statistics commonly used in the social sciences. (Required for Sociology majors)

SOC 08377: Field Research Experience 3 s.h.
Prerequisite: SOC 08375 with minimum grade of B
This internship-based course is designed for students who are interested in careers that involve social research. Students intern with a research group for 10 weeks, engaging in multiple stages of the research process, including the formulation of research questions, the construction of literature reviews, the design of survey instruments and interview questionnaires, the collection of data, and data analysis. Students are trained to recognize variation, to find and synthesize scholarship, to conceptualize, to maximize validity, to conduct observations, and to identify patterns. They are also trained on how to operate professionally and ethically as researchers and work professionals. Students study social research concepts and practices in a three-week orientation module with the course instructor and classmates before the internship, and reflect on their internship experiences with the course instructor and classmates once every two weeks during the internship.

SOC 08391: Ethnic Minorities in China 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This is an upper level sociology course that will acquaint students with the theoretical frameworks and methodology procedures of ethnic and minority studies. It will introduce to students racial and ethnic compositions and characteristics of the population of China, the administrative arrangement of areas and regions inhabited by minority nationalities and the history and culture of these minorities. The focus of this course will be the examination of ethnic minorities from the sociological points of view that will offer students a comparative and global perspective of ethnic studies.

SOC 08399: Sociology of the Holocaust - WI 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C- AND COMP 01112
This course primarily deals with structural and experiential dimensions of the genocidal process affecting the European Jews, their ethnicity, culture and religious communality after 1933. Gypsies, Jehovah's Witnesses, prisoners of conscience, Russian prisoners of war, the Polish intelligentsia, who with the Jews, became a subject of Nazi persecution are also among those remembered. The Holocaust or shoah will provide a model for compassionate insight into the experience of other persecuted ethnic and religious minorities or any who suffer disadvantage due to long-standing discrimination, such as women and homosexuals. Special emphasis will be given to understanding the interpersonal processes which are part of survival and transcendence of situations where we find society against the self. Writing Intensive (WI)

SOC 08400: Environment, Policy and Society 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course emphasizes the interaction between the social and ecological environments including: technological mechanisms by which societies shape their environments; cultural values that cause people to use the environment in particular ways; and policy implications that may result in social consensus or conflict concerning manipulation of the natural environment.

SOC 08401: Human Service Organizations 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course will focus on the micro and macro aspects of human service organizations of various kinds; for example, hospitals, courts, nursing homes, public agencies, schools, and the like. These organizations will be examined in terms of their structure, delivery of services, their function of "processing" human beings, the internal and external environments in which they operate, and the policy implications for delivery of services and organizational change.

SOC 08403: Sociology of Death, Dying, and Bereavement 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course provides students with an in-depth examination of the social and cultural dimensions of death, dying, and bereavement within the United States. Cross-cultural, historical, and international perspectives are also introduced as various theories and methods of sociology are employed to examine such issues as the meaning of death, the process of dying, facing death across the life course, the death industry, coping with loss and grief, and the social context of death, dying and bereavement. Instruction of the course material frequently takes an applied approach when connections are made between theory and practice as they exist within various occupations and industries centered on death, dying, and/or bereavement.

SOC 08405: Applied Community Development 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course is designed to demonstrate how social science theory and research can be applied to conduct collaborative work between communities and academic research by identifying: 1) social, 2) economic, 3) political and 4) physical infrastructural problems. Moreover, it is the goal of this course to work with communities by developing strategies toward the discovery of sustainable development solutions vis-à-vis community development strategies and planning.

SOC 08420: Sociology of Trauma, Illness and Mental Health 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course examines sociological approaches to trauma, illness and mental health. The focus of this course will be on the history, etiology, social responses, social factors related to mental disorders and mental health treatment associated with illness and trauma. It surveys major perspectives and reviews the history of the perception of mental disorder in western society. Classification, diagnosis, therapeutic approaches and institutional responses in addition to medical, legal, and social issues related to mental health and the treatment of people with mental disorders will be addressed. While there will be attention given to specific mental disorders, the primary considerations will cover the consequences of conceptualizations and treatment of mental illness rather than the development of individual conditions we deem as mental disorders or physical illnesses.

SOC 08422: Social Determinants of Health: Theory, Method and Intervention 3 s.h.
This course views disease risk beyond disease pathology and individual factors to psychological and sociological phenomena by exploring the social and cultural determinants of health behavior with an introduction of health behavior theories and application of interventions such as behavior change models and health program development.

SOC 08425: Sociology Senior Seminar 3 s.h.
Prerequisites: Minimum grades of C- in SOC 08120 AND SOC 08331 AND SOC 08375 AND SOC 08376
This seminar is a capstone experience designed to help students integrate what they have learned as sociology majors in a liberal arts setting. Students will engage in oral discussions and presentations as well as written exercises and essays to demonstrate an understanding of the sociological perspective, theoretical approaches and methods. The substantive focus of the seminar will vary by instructor.

SOC 08426: Sociology Senior Seminar - Wi 3 s.h.
Prerequisites: COMP 01112 AND Minimum grades of C- in SOC 08120 OR SOC 08121 AND SOC 08375 AND SOC 08376
This Senior Seminar is a writing intensive capstone experience designed to help students integrate what they have learned as sociology majors in a liberal arts setting and to write at a publication-ready level within the field or for specific audiences in different professional climates. Students will engage in oral discussions and presentations as well as written exercises and essays, demonstrating as they do an understanding of the field, its theoretical approaches and methods. The substantive focus of the seminar will vary by instructor. Writing Intensive (WI)

SOC 08427: Senior Seminar: Sociological Imagination-WI 3 s.h.
Prerequisites: (SOC 08120 OR SOC 08121) AND SOC 08331 with minimum grades of C- AND COMP 01112
This Senior Seminar course is for the Bachelor of Arts, Liberal Studies: Humanities/Social Science sequence, an interdisciplinary program. It is the writing intensive component of the sociology sequence and is expected to make this senior seminar an especially rich capstone experience, helping students develop as scholars and professionals. The sociological imagination will be evidenced in all of a student's work for the course and be reflected in oral discussions and presentations, as well as written exercises and essays. Writing Intensive (WI)

SOC 08429: Organizational Response to Disasters and Crisis 3 s.h.
Prerequisite(s): SOC 08120 with minimum grade of C-
This course will help students understand the complex social organizations and organizational responses to disasters. A secondary goal of this course is to learn to understand and utilize the vast research published in this interdisciplinary field, while maintaining a specific focus of the sociological core of the research. Students will gain a familiarity with local, state and federal disaster-related organizations and how they respond within the bureaucratic structure to facilitate social recovery in the aftermath of disasters and crisis to enhance the chances of improving disaster preparedness, disaster mitigation, and disaster response to possible natural, human-induced or technological hazards. Furthermore, this course will include discussions of disaster-related organization and social policies, issues of disaster preparedness, the media and disaster response and challenges/opportunities of disaster recovery and prevention.

SOC 08430: Case Management Intervention in Sociological Practice 3 s.h.
Prerequisites: SOC 08120 AND SOC 08121 with minimum grades of C-
This course emphasizes effective case management practice at the micro, mezzo, and macro levels of system intervention for populations at risk; Application of systems thinking to case management issues with individuals, families, and groups; Issues of aging, family mental health, child welfare, adult services and health are interwoven into practice scenarios in an effort to explore the multiple social problems faced by groups in a social service organization on a regular basis.

SOC 08431: Social Psychology of City Life 3 s.h.
Prerequisites: SOC 08120 or SOC 08121 with minimum grade of C-
This advanced course studies everyday behavior in the city. It examines the ways people experience and give meaning to urban life, using different social-psychological conceptions and methodologies.

SOC 08436: Sociology of Medicine 3 s.h.
Prerequisites: SOC 08120 or SOC 08121 with minimum grade of C-
This course analyzes medicine as a major institution in American society. It covers concepts of health and illness, attributes of a profession, the hospital, national health care, ethical issues and biomedical research.

SOC 08440: Selected Topics in Sociology 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course provides a seminar experience in areas of sociology that are not a part of the recurring course offerings. Enrollment is limited, and student participation is maximized. Consult the Master Schedule each semester for specific topics being offered. This course may not be offered annually.

SOC 08441: Sociology of Migration: Contemporary Perspectives 3 s.h.
Prerequisites: SOC 08120 OR SOC 08230 OR SOC 08121 with minimum grades of C-
This course examines the transnational journeys of migrants and refugees to the United States and provides a sociological perspective for understanding the diverse causes, consequences and contexts of contemporary international immigration. It provides students with a good understanding of and ability to analyze the effect of contemporary migration on American society. It is of particular benefit to those who are likely to work with communities containing substantial numbers of recent immigrants.

SOC 08442: Environmental Justice: Race, Class, and Gender 3 s.h.
This course examines issues of environmental equity and social justice. It examines the rights of people to live in a clean environment free from hazardous pollution or contamination and to access the natural resources necessary to sustain health, safety, and livelihoods. A primary focus of this course will be the topics of race, class, and gender as they relate to environmental disputes.

SOC 08450: Sociology of Ethnicity and Politics 3 s.h.
Prerequisites: SOC 08120 OR SOC 08230 OR SOC 08121 with minimum grades of C-
This course provides students with an in-depth look into the relation between ethnicity and politics. It studies ethnic politics from the point of view of its participants by exploring their ideas and actions as well as analyzing the sociological factors that make some social agents involved in ethnic politics more than others. The course analyzes a number of historical and recent cases of nationalist and ethnic politics to discern the main similarities and differences among various types of ethnic ideologies and movements.

SOC 08451: Health Movements in the Americas 3 s.h.
This course is an examination of how people across the Americas act as collective agents of challenge and change to advance health justice. Across Latin America, the most unequal region of the world, and the United States, where inequality is rising, various health movements are pressuring state institutions to more adequately serve their health needs; and resisting social arrangements and cultural practices that inhibit a healthful existence. Through this course, students advance their understanding of these movements and of social change more broadly by interacting with movement actors, by conducting primary and secondary research, by employing social movement theory, and by producing knowledge. This course is useful for students interested in health, advocacy work, social research, and Latin America.

SOC 08488: Critical Race Theory: Social Justice, Advocacy and Intervention 3 s.h.
Prerequisites: SOC 08221 OR SOC 08230 with minimum grades of C-
Students will explore the social construction of race and the subsequent implications this phenomenon has for particular members of this society. Building upon the origins of the Critical Legal Studies Movement and Critical Raced Theory (CRT), students will examine their own dispositions for significant issues from the centrality of race to better understand the need for becoming social justice advocates while learning a variety of social justice intervention strategies.

SOC 08490: Social Dynamics of Political Violence, Insurgency and Civil Unrest 3 s.h.
Prerequisites: SOC 08120 or SOC 08121 or SOC 08221 or DPEM 00101 or Permission of Instructor
Non-state political violence has become one of the major public policy issues in both US foreign policy and increasingly as well in domestic policy by examining policy decisions made in response to both terrorist attacks and the threat of terrorism in homeland security planning, border security, and surveillance. The course emphasizes international non-state violence, such as terrorism, militancy, insurgency, guerilla warfare, low-intensity conflict and civil war, and how communities, states and regions respond. By examining numerous international case examples of responses to terrorism through emergency response organizations, community organizations, and volunteerism, students will have a better understanding of the significance of social factors that serve as catalyst for the root causes of terrorism and factors that strengthen community resilience following terrorism and civil unrest.

SOC 08491: Independent Study in Sociology 1 to 4 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course gives students an opportunity to pursue individual, specialized research under guidance of a staff member. This course may not be used as a substitute for any course offered by the department. Entrance is only with the permission of the instructor and the chairperson of the department. This course may not be offered annually.

SOC 08493: Seminar On Gender Roles 3 s.h.
Prerequisite: SOC 08220 or SOC 08121 with minimum grade of C-
Students develop and present a major seminar paper in the area of the role of men and/or women in society. The range of topics covered in any semester depends upon the interests of the enrolled students. Students will read all class papers prior to presentation.

SOC 08494: Field Experience Seminar in Sociology - WI 3 to 6 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C- AND COMP 01112
This seminar provides the opportunity for students to be engaged in a field experience which will contribute to their sociological development. Students interact with their instructor and the other students in the seminar in the development, supervision and completion of individual projects. Areas of interest may include sociological research, analysis of social agencies and the development of affirmative social action programs.
Writing Intensive - WI

SOC 09323: Sociology of Crime and Criminal Law 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course analyzes crime and criminal law, emphasizing the nature and extent of crime within the context of the nature and functions of criminal law. It stresses problems of sociological theory and research in the area.

SOC 09333: Sociology of Punishment and Correction 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course examines historical and contemporary theories of punishment within a sociological framework. It gives a critical survey of the structure, goals and problems of the American criminal justice system.

SOC 15322: Sociology of Population 3 s.h.
Prerequisite: SOC 08120 or SOC 08121 with minimum grade of C-
This course analyzes population growth and change, especially the American population. It emphasizes urban, rural, ethnic, racial, religious and social class differences. It also examines population variables and population theories. This course may not be offered annually.

THD 07103: Voice for the Stage 3 s.h.
Prerequisites: THD 07105
This course introduces use of the vocal instrument for development of projection and stage vocal ability. Students examine the physical anatomy of breathing, resonation and articulation. The methodologies of Fitzmaurice, Linklater, Alexander, Berry, Rodenberg and other master voice teachers are used to guide students in finding the best approach to develop individual vocal effectiveness when applying their breath, voice and entire physical beings to text for staged performance.

THD 07104: Acting Studio 1 s.h.
Acting studio is a practical, experiential class focused on the rehearsal process with a director. The class occurs in parallel with Directing I, THD 07430. Students will work with each of the directing students, performing in 1-2 scenes per week, off-book, fully staged, and rehearsed with critique to follow.

THD 07105: Introduction to Performance 3 s.h.
This is designed as a first course in performance for majors in the Department of Theatre & Dance. It will stress basic techniques and fundamentals of movement and interpretation. Class exercises will help students to explore the dynamics of stage performance. This course lays the groundwork for advanced study. Open to Theatre Majors only.

THD 07107: Introduction to Design for Performance 1.5 s.h.
Introduction to Design for Performance is a required core course for all BA Theatre students that details the collaborative process of design for performance and explains how all aspects; lighting, set, costume, sound and performers in a live production come together. Students will develop a basic understanding of the vital role collaboration plays in the production of live theater.

THD 07108: Foundations of Acting 3 s.h.
Prerequisite(s): THD 07105 and audition into theActing concentration only
This class is a survey course of approaches, theories and techniques for practicing the art of acting. Each module introduces the student to a specific training methodology, philosophy, pedagogy and/or acting technique. Through reading, discussion, critical analysis and practical training, students gain facility with examining the art of acting through several lenses, deploying different tools as they begin the journey of learning and practicing their craft.

THD 07111: Colloquium in Theatre I .5 s.h.
These courses will provide a core experience for all majors. Through an on-going series of lectures, discussions, demonstrations and seminars, students will explore various aspects of Theatre Art and evaluate career options available to the theatre graduate.

THD 07112: Colloquium in Theatre II .5 s.h.
These courses will provide a core experience for all majors. Through an on-going series of lectures, discussions, demonstrations and seminars, students will explore various aspects of Theatre Art and evaluate career options available to the theatre graduate.

THD 07113: Colloquium in Theatre III 0 s.h.
These courses will provide a core experience for all majors. Through an on-going series of lectures, discussions, demonstrations and seminars, students will explore various aspects of Theatre Art and evaluate career options available to the theatre graduate.

THD 07114: Colloquium in Theatre IV 0 s.h.
These courses will provide a core experience for all majors. Through an on-going series of lectures, discussions, demonstrations and seminars, students will explore various aspects of Theatre Art and evaluate career options available to the theatre graduate.

THD 07115: Colloquium in Theatre V 0 s.h.
These courses will provide a core experience for all majors. Through an on-going series of lectures, discussions, demonstrations and seminars, students will explore various aspects of Theatre Art and evaluate career options available to the theatre graduate.

THD 07116: Colloquium in Theatre VI 0 s.h.
These courses will provide a core experience for all majors. Through an on-going series of lectures, discussions, demonstrations and seminars, students will explore various aspects of Theatre Art and evaluate career options available to the theatre graduate.

THD 07130: The Living Theatre 3 s.h.
This course helps students develop critical appreciation of the various dramatic media (stage, films, television, radio). By introducing them to aims and techniques as well as significant products, the course gives students insight into theatrical art, thereby enriching their enjoyment and sharpening aesthetic judgment.

THD 07135: Oral Interpretation of Literature 3 s.h.
This course studies the basic principles of vocal control applied to oral communication of various forms of literature. It emphasizes such vocal techniques as stress, pause, rate, etc. and these are coordinated with body and facial expression to achieve clarity of meaning and mood.

THD 07195: Exploring Social Issues Through Theatre 3 s.h.
The student will study theatrical styles as a response to the problems of society. Issues like sexism, racism, aging, intercultural conflicts and the AIDS crisis will be explored as they appear in theatrical forms such as the problem play, comedy and the epic theatre.

THD 07201: Introduction to Theatre and Dance 3 s.h.
Students study current and historical examples of Theatre and Dance with emphasis on the distinguishing characteristics of each form of performance and on the principles of temporal composition common to all linear or abstract performing art. The course stresses the fundamentals of interpretation and analysis essential to advanced work in performance, design and criticism.

THD 07202: Script Analysis 3 s.h.
Prerequisite: THD 07.201
This course offers students a working knowledge of the structural elements of dramatic writing and explores dramatic texts as scripts for performance. Students will learn to analyze dramatic structure, character arc and motivation, atmosphere and sensory layers, and the tone, style and dialogue of selected drama. They will view these texts such as scripts for the stage from the perspective of actor, director, and designer. As a way to gain a more profound understanding of the mechanics of dramatics texts, they will also write their own short plays, in which they directly and deliberately apply the aforementioned elements of dramatic writing.

THD 07203: Costuming I 1.5 s.h.
This course will present techniques by which stage costumes are constructed. Students will also be given an outline of the development of fitted clothing. A series of costuming projects will give students a basic understanding of costume design for the theatre.

THD 07205: Costuming II 1.5 s.h.
Prerequisites: THD 07203
This is a continuation of the study begun in Costuming I. THD 07215: Experiencing Acting 3 s.h. This course is for non-major students interested in exploring their talents. Through the use of improvisation, theatre games and scene projects, students examine how actors strengthen and use imagination, awareness and creativity, and how they analyze, prepare and perform a role.

THD 07206: Speech and Dialects 3 s.h.
Prerequisite: THD 07103
This course is an intense technical study of General American (GA) speech and stage dialects. The International Phonetic Alphabet (IPA) is the primary tool used to develop an understanding of GA speech versus individual regionalisms, and staged dialects. An emphasis is placed on improving students' ability to speak in such a way as to assist them in attaining personal and professional goals as an actor or stage performer.

THD 07210: Introduction to CAD for Entertainment Design 3 s.h.
Prerequisite: THD 07230
Introduction to CAD for Entertainment Design will provide basic training in use of Vectorworks as it pertains to 2d Drafting, 3d modeling and rendering. Projects will include creating a professional grade drafting package using the United States Institute of Theatre Technology's drafting standards and modeling a virtual set design for the Tohill Stage.

THD 07215: Experiencing Acting 3 s.h.
This course is for non-major students interested in exploring their talents. Through the use of improvisation theatre games and scene projects, students examine how actors strengthen and use imagination, awareness and creativity, and how they analyze, prepare and perform a role.

THD 07216: Experiencing Acting II 3 s.h.
Prerequisite: THD 07215
This course is for non-major students who have taken Experiencing Acting, or a foundational equivalent, and would like to continue more advanced scene and monologue study in order to further hone acting and performance skills.

THD 07230: Stagecraft Fundamentals 3 s.h.
In this class students will learn the overall principles of modern stagecraft. This course will be broken down into stage carpentry, stage lighting and costume building techniques.

THD 07231: Stagecraft II 1.5 s.h.
Stagecraft II is a continuation of the study begun in Stagecraft Fundamentals.

THD 07232: Stagecraft III 1.5 s.h.
Prerequisites: THD 07230 and THD 07231
These courses concentrate on developing advanced skills in the various aspects of stagecraft including carpentry, property construction and the development of electrics, sound and elevational drawings. Students fulfill assigned responsibilities for actual theatrical productions.

THD 07233: Stagecraft IV 1.5 s.h.
Prerequisites: THD 07230 and THD 07231
This course is a continuation of the study begun in Stagecraft III.

THD 07234: Stagecraft V - Intermediate Concepts 1.5 s.h.
Prerequisite: THD 07233
Prerequisite: THD 07233 Stagecraft V expands upon the work from Stagecraft III and IV, with an emphasis on taking on a leadership position in the production process. The course is based on developing an intermediate working knowledge in the following areas: production organization, shop tools, building processes, electric and sound systems. Students are expected to participate in a leadership role on a Department production.

THD 07235: Acting I (Majors Only) 3 s.h.
Prerequisites: THD 07103
This course covers elementary actor-training, designed to aid the student actor in identifying both strengths and weaknesses. Actor training exercises are designed to awaken the student actor's sensibilities to creative expression (such as improvisations, theatre games, sensitivity exercises, characterization exercises and performance projects). Open to Theatre majors only; others by permission.

THD 07236: Acting II 3 s.h.
Prerequisites: THD 07235 AND THD 08126
An intermediate level acting course, Acting II deepens and extends the basic skills acquired in Acting I. Focusing mainly on improvisation and its application to character creation and role development, the course stresses the relationship between the creativity and spontaneity inherent in improvisation and the discipline and design necessary for the creation of a role from printed scripts.

THD 07240: Practicum - Performance Ensemble 0 to .5 s.h.
Under the supervision of Theatre/Dance performance faculty students participate as performers or directorial/choreographic assistants in department productions. The learning experience and work of the learning community is credited through this course. May be repeated for credit up to an accumulation of 3 s.h. This course is graded as Pass/No Credit.

THD 07241: Practicum - Production Ensemble 0 to .5 s.h.
Under the supervision of Theatre/Dance technical and design faculty students participate in department productions in technical and design capacities. The learning experience and work of the learning community is credited through this course. May be repeated for credit up to an accumulation of 3 s.h. This course is graded as Pass/No Credit.

THD 07245: Stage Makeup 2 s.h.
This course studies the techniques and styles of makeup for the theatre, through demonstration and laboratory work. Students are required to purchase an inexpensive student makeup kit.

THD 07247: Costume Construction 3 s.h.
Prerequisite(s): THD 07230
Students will be introduced to hand and machine sewing techniques utilized in constructing costumes for theater, dance, cosplay and other performance mediums. Hands-on project based work will introduce learners to a range of fabrications, basic patternmaking, and special topics as needed.

THD 07250: Introduction to Theatre Education 3 s.h.
In this course students study and explore techniques for working with high school and middle school students and are offered tools for directing plays/performances with young people. It considers such topics as theatre as pedagogy, preparing theatre lessons, acting techniques, directing/coaching approaches, and age appropriate scene study. The course is designed to inform undergraduate students considering a career in teacher theatre.

THD 07255: Stage Management 3 s.h.
Prerequisite: THD 07230
This course will be a thorough analysis of the technical and organizational aspects as well as the typical responsibilities of stage management. The focus of the course is the stage manager's and/or assistant stage manager's process. Topics include, but are not limited to: preparing for and running rehearsals, communication and paperwork skills, and leadership and team building methods. Production participation is required, nights and weekends of production work required.

THD 07270: Theatre Study Off-Campus 1 to 6 s.h.
This course studies drama at important theatrical centers in the United States or abroad, supervised by faculty. It includes attendance at productions, discussions with practitioners, tours and specialized workshops, investigation of historical and cultural sites. Costs vary according to the center being studied and are borne by the student. May be repeated under a different subtitle.

THD 07275: Children's Theatre Workshop 3 s.h.
This course concentrates on the presentation of a children's show to be mounted and acted by Rowan students for South Jersey elementary school children. The college students will be involved in all phases of the production, including a "mini-tour" of the show following the production at Rowan University. This course may be repeated with consent of instructor. This course may not be offered annually.

THD 07300: Drawing and Rendering for the Theatre 3 s.h.
Prerequisites: THD 07232
This course introduces students to methods of presenting theatrical design ideas in two-dimensional formats. Students will learn such skills as perspective drawing, rendering in watercolor, gouache pencil or marker and/or using computer-aided drawing and painting. In addition, students will complete a portfolio to illustrate the skills learned.

THD 07301: African, African-American Theatre: Intercultural Definitions 3 s.h.
Explores the commonality, or difference of styles and visions, in African and African American Theatre, with works by contemporary African and African American playwrights, such as August Wilson, Wole Soyinka, Imamu Amiri Baraka, Susan Lori Parks, Efua Sutherland and Femi Osofisan. It will also examine the influences of play directors, actors and musicians (Hip-Hop, Jazz, Blues, etc.) who contribute to that aesthetic continuum. The practices, issues and achievements of these playwrights and their unique forms of theater shall be used to project a future for African American theatre in twenty-first century America. These works shall be used as signposts of stylistic and critical commentary. This is a lecture cum performance course in which students will be writing, making and performing their own Theatres of the future as final projects.

THD 07305: Drafting, CAD and Model Making for the Theatre 3 s.h.
Prerequisites: THD 07232
The course provides students with advanced opportunities to practice drafting skills in the preparation of designer's elevations and detail drawings in the production of working drawings for the scenic and electric shops. Students will use traditional drafting methods and tools as well as CAD techniques and machinery. This course may not be offered annually.

THD 07310: Foundations of Theatrical Design 3 s.h.
Prerequisites: THD 07232
In this course, students study the elements that lay the foundation for a successful design career in the theatre. Beginning with an examination of the place of design in the theatre process, students then study the principles of visual composition and elements of design, and study play scripts in order to formulate an appropriate design. Students will also be introduced to the study of historical periods and styles of decor and get exposure to basic sketching and drafting of theatrical designs.

THD 07315: Reader's Theatre Workshop 3 s.h.
Prerequisites: THD 07135
In this course, students study the creative and adaptive processes involved in preparing and presenting literature on stage in a reader's theatre situation. Performances of the manuscripts compiled in the course also help develop the students' own interpretive skills beyond those which they acquired in the introductory course (Oral Interpretation of Literature). This course may not be offered annually.

THD 07325: Painting Scenery for the Theatre 3 s.h.
Prerequisite: THD 07232
Successful painting for the theatre involves techniques that allow for efficient execution of visual effects that read not from up close, but from a distance. In this course, the emphasis is on obtaining such 'tricks of the trade' and presenting that acquired knowledge through the completion of related projects.

THD 07335: Advanced Acting 3 s.h.
Prerequisites: THD 07236
This course makes an intensified study of characterization, while continuing developmental work in bodily and vocal control. It covers approaches to role study as well as the techniques of period acting styles. It combines theory and practice, including class and public performance. This course may not be offered annually.

THD 07336: Stagecraft VI - Intermediate Concepts 1.5 s.h.
Prerequisite: THD 07234
This course is a continuation of the study begun in Stagecraft V.

THD 07338: Touring the Theatre Production 3 s.h.
Students study procedures in touring theatre or dance productions off campus. Students learn sets, properties, costume design and construction, lighting and sound, staging and performance consistency and ways of adapting to a variety of facilities and audiences. Students study promotion, organization and administration of tours. Open to students selected for the cast and crew of the production. May be repeated. This course may not be offered annually.

THD 07339: Theatre History I 3 s.h.
This course studies the important works and writers for the stage, together with the development of theatrical modes of presentation and their influences upon the drama of each period, from the beginnings of theatre in ancient Greece to 1700. Relationships are drawn between the developing theatre and the political and social history of the times.

THD 07340: Theatre History II 3 s.h.
This course is a continuation of THD07.339, bringing the study of theatre and drama from 1700 to the beginning of the modern period with Ibsen, Chekhov, Strindberg and Shaw, then following with German Expressionism, the emergence of American Theatre in the 1920's, the despair of the Great Depression, and the World War II era. (THD07.339 is not a prerequisite for this course.)

THD 07345: Rehearsal and Performance .5 s.h.
This course prepares students for a role for public performance. Once cast, students will study production preparation from initial concept through the rehearsal process into performance, including the improvement of vocal and physical technique and its application to characterization.

THD 07350: Scene Design Studio 3 s.h.
Prerequisites: THD 07231
This course studies the relationship of the space/time arts to the nature and function of scenic design. Theory is combined and tested through practical renderings of various plans of the designer. This course may not be offered annually.

THD 07353: Stage Lighting Design and Practice 3 s.h.
Prerequisites: THD 07231
In this course, students become familiar with the essential elements of color theory, the physics of light, basic electricity, the characteristics of specific stage lighting instruments and dimming control equipment and procedure for designing lighting for a production. Practical experience is included through various types of design problems and work on college theatrical presentations. This course may not be offered annually.

THD 07356: Costume Design 3 s.h.
This course emphasizes the design of costume for the theatre. Costume and its relation to the character and the play are examined. Through a series of costumes projects, students explore the elements of design, figure drawing and costume history. This course may not be offered annually.

THD 07359: Fundamentals of Entertainment Technology I 3 s.h.
Prerequisite(s): THD 07230 and THD 07310
In this course, students become familiar with essential elements of modern entertainment technology as it pertains to lighting and sound. The course covers the basics of electrical theory and safety, the history and characteristics of state lighting units, dimming and control; stage lighting paperwork, lighting color theory, console operation, intelligent lighting, and introduction to event lighting, the physics of sound, the history and mechanics of sound equipment, and its practical use in theater. Industry standard software programs such as Light Wright, Qlab and Vectoworks are used throughout the course. The student will be trained in reading and interpreting state lighting plots, lighting paperwork, hanging focusing lights; console operation; programming intelligent lights; operating DMX effects units and setting up sound systems (playback and live reinforcement). Practical application of the course material is required through work on the Department's Mainstage production.

THD 07360: Musical Theatre 3 s.h.
This course studies the history of musical theatre, the contributions of artists who have contributed to the mature theatre and concludes with an analysis of musical theatre elements. It covers the origins of musical theatre, contributions of major practitioners of the form, current status of musical theatre and critical evaluation.

THD 07363: Singing for the Actor 3 s.h.
Prerequisites: MUS 04118 or MUS 97100
This course is designed to introduce the student actor to the techniques of singing for musical theatre. Students will learn and apply vocal exercises and warm-ups, proper breathing, and vocal support. Students will analyze song structure, read music, and perform the song in a musical theatre context.

THD 07364: Acting for the Musical Theatre 3 s.h.
Prerequisite: THD 07363 Singing for the Actor OR Instructor's approval.
The course is designed as a practical studio course that focuses on duet and trio scenes from the Musical Theatre archive. Students focus on song performance as well as the spoken test work common in Musical Theatre storytelling. Students will work tandem with scene partners and continue to work with a piano accompanist.

THD 07365: Theatre Management 3 s.h.
This course is an introduction to the economic and administrative function of commercial, repertory, educational and community theatre in the United States. Students study the role of the producer/manager in policy-making, budgeting and operations, focusing on legal regulations, personnel, facilities, financing, scheduling, public relations and promotion. Non-theatre majors should have THD07.130 or permission of the instructor. This course may not be offered annually.

THD 07366: Entrepreneurship for the Artist 3 s.h.
Entrepreneurship for the Artist is designed to augment a student's skill set with the current best practices involving the implementation of a self-started business venture; especially as it pertains to self-producing in the arts. Emphasizing mindset, communication, organization, self-marketing and project management, this course covers the cycle of generating an idea and turning it into a viable, successful production. As a practical application of these skills, each student will be required to create and pitch an artistic endeavor.

THD 07369: Devising 3 s.h.
Prerequisite(s): THD 07363 and THD 07235 and THD 08140 and THD 08141 and THD 07310
Devising considers alternatives to literature based and western structured modes of creative performance practices and the need for self-generated artistic practices that have become imperative to contemporary art-making. Solo work, Duet, Trio and group based performance practices will be addressed as well as full ensemble based work that ties into Outreach Theatre will also be addressed. This course will be offered annually.

THD 07370: Independent Study 1 to 6 s.h.
This course allows students to pursue an independent project, as determined by student and adviser.

THD 07375: Theatre Workshop 3 s.h.
This workshop studies the theoretical and practical aspect of theatre arts through supervision of problems in performance, set design, construction, lighting, costuming and makeup, business management and directing. By permission of department only.

THD 07376: Seminar in Dramatic Styles 3 s.h.
Prerequisite: THD 07201
This course offers students a choice of specialized study of a particular dramatic style, movement or artist in theatre.

THD 07380: Technical Production and Organization 3 s.h.
Prerequisites: THD 07232 and THD 07233
This course is an advanced study of Technical Production. It introduces the process, tools and skills needed to organize and run a production from the upper management level of the Technical Director. Topics covered are structural design, building procedures, the proper and safe use of building materials, personnel management and organizational skills. The class will consist of a variety of theoretical and practical projects.

THD 07390: Technical Supervision I .5 s.h.
Prerequisites: THD 07230, THD 07231, THD 07232 and THD 07233
Students learn the artistic and administrative responsibilities of technical staff supervisors on a theatre production team. Positions studied include assistant technical director, stage manager, master carpenter, master electrician, sound engineer properties master, and wardrobe supervisor, with equal emphasis placed upon understanding a job's responsibilities and the techniques of supervising subordinate personnel. Students will be required to function successfully in one assigned supervisory capacity for a mainstage production.

THD 07391: Technical Supervision II .5 s.h.
Further training and experience in supervising technical production work. Students will be working on a different production and in a different capacity than in Technical Supervision I. These two courses may be taken in either order.

THD 07405: Seminar In Theatre 3 s.h.
This course offers students a choice of specialized study of a particular interest area in theatre or dance.

THD 07410: Internship in Theatre 3 to 15 s.h.
A semester's field experience offers the advanced student opportunities to develop theatre skills in supervised on-the-job situations. Students are placed in an appropriate theatre to obtain practical training. By department permission only. Students apply to the department the beginning of the semester prior to the internship. Fall/Spring internships are 15 s.h.; Summer internships, 12 s.h.

THD 07430: Directing I 3 s.h.
Prerequisites: THD 07235 AND THD 07202
This course studies theories and techniques of script analysis and its translation into dramatic action and dramatic sound on the stage, including such concepts as composition, movement, pacing and the development of basic acting ability. Practical directing experience will be utilized.

THD 07431: Directing II 3 s.h.
Prerequisites: THD 07430
This course is a continuation of Directing I in which the skills studied in that course are deepened and extended. In addition to studying techniques of script analysis and staging in greater detail, students investigate various production styles and methodologies. A major portion of time is devoted to a workshop situation in which students stage scenes and submit them to class critique. This course may not be offered annually.

THD 07432: Avant-Garde Performance: History, Theory, and Practice 3 s.h.
Prerequisite(s): THD 07430
This class traces the avant-garde movements in theater and performance art from their inception in the mid-19th century up to the present day. Using plays, performances, theory and history, students will learn the essence of each movement of avant-garde history, and then create and present their own works inspired by these. The ultimate goal is to provide students with the context and critical tools to envision their own avant-garde forms in the future.

THD 07435: Creative Dramatics 3 s.h.
This course covers the philosophy underlying speech and dramatic activities for children. Methods and materials for creative drama, story telling, role playing, word games, listening and pantomime are studied and analyzed. Students participate in demonstrations in the classroom.

THD 07436: Stagecraft VII - Advanced Concepts 1.5 s.h.
Prerequisite: THD 07336
Stagecraft VII continues the work in the Stagecraft Sequence, with an emphasis on the professional execution of a technical production assignment from concept through realization.

THD 07437: Stagecraft VIII - Advanced Concepts 1.5 s.h.
Prerequisite: THD 07436
Stagecraft VIII continues the work in the Stagecraft Sequence, with an emphasis on the professional execution of a technical production assignment from concept through realization.

THD 07440: Contemporary World Theatre - WI 3 s.h.
Prerequisites: COMP 01112 or ENGR 01201
Designed to examine significant developments in world theatre and drama since 1956, this course focuses on writers, actors and groups who have influenced theatre in the last half century. Starting with the angry young men and women of England in the 1950s, the course moves through the work of the absurdists, the Civil Rights Movement, Vietnam and the Age of Protest (the Rock revolution). It delves into environmental theatre, the Women's Movement, gay and lesbian theatre, the Aids epidemic, and considers postmodern theatre practice throughout the world.

THD 07442: Theatre of the Holocaust 3 s.h.
Prerequisites: COMP 01112 OR ENGR 01201
This class provides students with the historic and dramatic background needed to comprehend and explore difficult issues surrounding the World War II Holocaust through the lens of dramatic literature. Students will gain an understanding of how playwrights and other artists use performance and theatre to explore a catastrophic "unthinkable" historic event.

THD 07453: Advanced Theatre Education Advanced Theatre Education 3 s.h.
Prerequisite(s): THD 07250
This course builds on skills learned in Introduction to Theatre Education and enables students to delve deeper into techniques needed to for K-12 theatre pedagogy, theatre lessons, acting techniques, directing/coaching approaches, and age appropriate scene study. The course is designed to prepare undergraduate students considering a career in teacher theatre.

THD 07455: Professional Preparation for Actors 3 s.h.
Prerequisite: THD 07235
This course prepares actors for auditions and offers practical steps for entering the professional world of theatre (film/tv) and/or prep for graduate school auditions. Student actors also work with invited professionals for career advice and gain up-to- date information regarding professional theatre unions.

THD 07460: Senior Project in Theatre Arts 2 s.h.
Prerequisite: for senior-level majors only.
Designed as a capstone experience for Theatre Arts. Selecting a project within a theatre specialty (Performance, Design/Technical, History/Criticism), and working with a faculty adviser, the student will conceive, research and execute a specially devised work for public showing or local publication.

THD 08126: Movement for the Actor 3 s.h.
Prerequisite: THD 07105
Students study the fundamentals of movement as applied to stage movements, communication and characterization. The course covers physical discipline, relaxation, shaping, movement, exploring space, movement in ensemble, emotion and the body, gesture and communication, and physical characterization. Individual and group exercises assist students in developing a physical technique for the actor in action.

THD 08135: Elements of Dance 3 s.h.
This course provides training at the elementary level of technique in ballet, jazz and modern dance. It explores movement in time, space and energy relationships, emphasizing individual and group creative experiences through improvisations.

THD 08140: Dance Improvisation I 1.5 s.h.
The course explores the creation of spontaneous movement experiences with the purpose of increasing body awareness, movement invention and movement creativity. This course is offered in the Fall semester.

THD 08141: Dance Improvisation II 3 s.h.
Prerequisites: THD 08140
The course continues and further develops skills in the creation of spontaneous movement experiences with the purpose of increasing body awareness, movement invention and movement creativity. This course is offered in the Spring semester.

THD 08142: Contact Improvisation 3 s.h.
This course provides experiences in improvisational duet dancing involving weight sharing, touch, lifting, carrying, and active use of momentum. Activities develop sensitivity to partnering and spontaneous creativity.

THD 08146: World Dance Forms 3 s.h.
This is a movement course that introduces students to a broad spectrum of dances from Asia, Europe, the Middle East, Africa, and the Americas. Emphasis is placed upon learning and performing dances from various countries throughout the world. The socio-historical context within which each dance form evolved is also examined. No previous training in dance is required.

THD 08151: Ethnic and Character Dance 3 s.h.
This course studies dance, music, customs and other cultural manifestations of special ethnic regions. It emphasizes the application of the folk art forms for theatre use. Among the dance forms studied are Scandinavian, Central European, African, Latin American, and Mediterranean. Each semester focuses on two or more of these dance forms.

THD 08190: Ballroom Dance 3 s.h.
This movement course introduces the student to various forms of Ballroom Dance: foxtrot, waltz, swing, jitterbug, disco, club, samba, merengue, rumba, cha cha, and tango. Emphasis is placed upon basic steps, body placement, style, musicality, choreography, and the fundamentals of partnering. Observing, critiquing, and researching ballroom dance are also included within the course.

THD 08202: Fundamentals of Tap 3 s.h.
This introductory course covers the fundamentals of tap dance, an indigenous American art form with African, Irish, and English roots. Emphasis will be placed on technique, musicality, and style. The course introduces center floor exercises, traveling patterns, and a variety of steps and combinations. Opportunities will be provided to observe and perform tap dance, as well as research history.

THD 08203: Advanced Tap Dance 3 s.h.
Prerequisites: THD 08202
This course continues the study of tap on an advanced level. May be repeated for credit up to an accumulation of 9 s.h.

THD 08210: Dance as Narrative in American 20th Century Film - WI 3 s.h.
Prerequisite: COMP 01112
This course uses an interdisciplinary approach to investigate the role dance has played in informing and acknowledging social trends in the Twentieth Century. Topics under discussion will build and illuminate connections between dance and issues of immigration, industry, politics, fashion, social change, class, gender, race, economics, nationalism, and war.

THD 08222: Dance for the Musical Theatre 3 s.h.
This course is an intermediate level experience of technical training in stylized jazz dances used in Broadway musical shows. Students have the opportunity to mount excerpts of dance routines from various eras and to perform them for the university community.

THD 08225: Dance Composition I 3 s.h.
Prerequisite: THD 08377
This course provides a working knowledge and understanding of the fundamental elements involved in the craft of composing a dance. It emphasizes space, time and dynamics. Short solo and group pieces are presented in an informal setting. This course may not be offered annually.

THD 08236: Fundamentals of Modern Dance 3 s.h.
This course is designed for the student interested in beginning to master the discipline of modern dance technique. The course draws from the repertoires of recognized modern dance artists who have established a specific movement vocabulary. Students have an opportunity to analyze various techniques for personal development and the expansion of an articulate movement vocabulary.

THD 08237: Modern Dance I 3 s.h.
Prerequisite: Permission of Instructor/BA in Dance Major Only
This course is designed for experienced students with technical skills in contemporary dance at the intermediate level. It focuses on the theory and practical application of movement practice including rhythmic structures, spatial awareness and kinetics with emphasis on aesthetic qualities that lead to performance. This course is offered annually.

THD 08246: Fundamentals of Ballet Dance 3 s.h.
Students are introduced to the vocabulary and techniques of ballet movement with emphasis on body alignment and effective methods for gaining strength and flexibility necessary for proper ballet deportment. It includes barre work, centre floor and the basic elements of classical ballet vocabulary.

THD 08247: Advanced Ballet 3 s.h.
Prerequisites: THD 08246
An advanced level of technique in ballet, this course includes barre (bar) and centre floor and continues to build on the elements of classical ballet. May be repeated for credit up to an accumulation of 9 s.h.

THD 08256: Fundamentals of Jazz Dance 3 s.h.
An introduction to a cross-section of jazz techniques derived from pioneer jazz dancers, this course emphasizes movement styles and jazz rhythms.

THD 08257: Advanced Jazz Dance 3 s.h.
Prerequisites: THD 08256
This course is designed for students interested in mastering movement skill in jazz dance. It emphasizes theoretical and practical understanding of the jazz dance form. May be repeated for credit up to an accumulation of 9 s.h.

THD 08270: Lecture/Demonstration Production 3 s.h.
Prerequisites: THD 08237
This course offers students an opportunity to experiment with improvisation and a variety of choreographic approaches using the elements of dance. It provides students with the performing experiences necessary for choreographing and producing short dance pieces. Resultant productions are performed as lecture/demonstrations throughout public and private schools of South Jersey. This course may not be offered annually.

THD 08311: African Influences in American Dance 3 s.h.
This is a movement and theory course which surveys various dance forms indigenous to African and African-American cultures. Emphasis is placed upon the evolution and contribution of African-derived dance forms within America. The richness and complexity of African aesthetics as embodied within dance in America are highlighted. No previous dance training is required.

THD 08315: Creative Dance for Children 3 s.h.
Utilizing functional movement experiences, this course emphasizes creative expression and its relationship to the aesthetic development of the young child. Students examine and analyze pertinent research materials in addition to the laboratory experiences. This provides a basis for students to relate creative inventiveness to young children. This course may not be offered annually.

THD 08330: Dance Notation 3 s.h.
Prerequisites: THD 08236 and THD 08246
This course introduces students to a study and practice of reading and recording dance movements by means of symbols. It offers an opportunity to interpret dance notation scores of simple ballet, folk, and modern dance. This course may not be offered annually.

THD 08337: Choreography 3 s.h.
Prerequisites: THD 08225
This course provides application of the principles of dance composition to choreographic projects by exploring, analyzing and experimenting with problems in dance performance and production. It emphasizes individual and group improvisation and the use of different styles. This course acts as a foundation for field experience. This course may not be offered annually.

THD 08346: Ballet III 3 s.h.
Prerequisites: THD 08247
An advanced level of ballet techniques for the further development and expansion of the ballet movement vocabulary, this course includes adagio and allegro. Partnering may be included depending upon male enrollment. This course may not be offered annually.

THD 08355: Introduction to Dance Therapy 3 s.h.
An introductory course for students who are interested in the field of dance therapy, the course demonstrates dance as a therapeutic and educational growth process that integrates the areas of cognitive, social-emotional and physical development. Part of the course is presented in a clinical setting, offering students an opportunity to apply what has been learned. This course may not be offered annually.

THD 08377: Modern Dance II 3 s.h.
Prerequisites: THD 08237
This course continues the development of technical skills in contemporary dance at the intermediate/advanced level. It focuses on the theory and practical application of movement practice including complex movement sequences, rhythmic structures, spatial awareness and kinetics with emphasis on aesthetic qualities that lead to performance. This course is offered annually.

THD 08378: Modern Dance III 3 s.h.
Prerequisites: THD 08377
This course is designed or students interested in mastering the discipline of modern dance technique. This course emphasizes alignment, somatic release and the application of movement concepts as applied to advanced level dance technique. This course is offered annually.

THD 08400: Fundamentals of the Lester Horton Technique 3 s.h.
Prerequisite: THD 08236
This codified modern dance technique course is an elective that is strongly recommended for our dance majors. This serves as an introduction to the basic core principles of the Lester Horton modern dance technique. Students will be required to immerse themselves in the verbal and physical language of the Horton technique as documented in Ana Marie Forsythe's book "The Dance Technique of Lester Horton."

THD 08410: Advanced Styles in Modern Dance 3 s.h.
Prerequisite: THD 08378
This course is designed as the most advanced technique class offered in dance program. Students will experience advanced/professional level technique class relative to a particular style of modern dance taught by recognized professional from the field. This course will be offered annually.

THD 08411: Intermediate/Advanced Horton Technique 3 s.h.
Prerequisite: THD 08400 or Permission of the Instructor
This codified modern dance technique course is an elective that is strongly recommended for all dance majors. As an advanced level modern dance course, this class is repeatable and designed to implement the knowledge attained in Intro to Horton while delving deeper into the study of the core principles of the Lester Horton modern dance technique.

THD 08436: Dance History - WI 3 s.h.
This course studies the vital role dance has in cultural development from prehistoric times to the contemporary period and the relation of dance to music and other art forms throughout history. It stresses individuals and events whose influences shaped the development of dance. This course may not be offered annually.

THD 08437: Dance Theatre Workshop 3 s.h.
Prerequisite: THD 08337 Choreography or THD 07430 Directing.
This course provides in-depth compositional theory, methods, and conceptual approaches to movement-driven theatre through collaborative project-based artistic problem solving. Dance Theatre Workshop emphasizes movement-based inquiry form, content, technique, and projection of the theatrical image. This course will be offered annually.

THD 08442: Advanced Dance Improvisation 3 s.h.
Prerequisite(s): THD 08140 and THD 08141
The course explores the creation, design, and performance of spontaneous movement composition. Course activities focus particular attention on the interplay between improvisational moving and writing, and composing and performing.

THD 08465: Dynamics of Human Movement 3 s.h.
This course offers students a working knowledge of the body from the standpoint of dynamics, spatial orientation, kinesthetic awareness, and alignment principles. It focuses on systems of movement description and analysis and introduces corrective measures to deal with movement habits and patterns that interfere with body performance. This course may not be offered annually.

AFRI 16440: Special Topics in Foreign Languages and Literatures 3 s.h.
Prerequisite: appropriate language proficiency as determined by the professor
This course brings new perspectives and themes to the established Foreign Languages and Literatures curriculum. Each semester the instruction of this course rotates among faculty members who select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

ARAB 12101: Elementary Arabic I 3 s.h.
This is a comprehensive foundation course for beginning students of Modern Standard Arabic. It offers an essential grounding for developing successful communication strategies by practicing listening comprehension and speaking skills with the sounds and characteristics of Arabic. It will also provide students with opportunities to read and write simple Arabic prose to meet their communication needs. It introduces students to the culture and history of the Arabic speaking world.

ARAB 12102: Elementary Arabic II 3 s.h.
Prerequisite: ARAB 12101 (minimum grade of C-) or waiver
This course provides an expanded overview of the syntax, structures and vocabulary of Modern Standard Arabic, including extended practice in the four skill areas of listening comprehension, speaking, reading and writing. It introduces students to the culture and history of the Arabic- speaking world.

ARAB 12201: Intermediate Arabic I 3 s.h.
Prerequisite: ARAB 12102 (minimum grade of C-) or waiver
This course continues to provide an expanded overview of the syntax, structures, and vocabulary of modern Arabic to students who have completed the Elementary Arabic course sequence and acquired the basic knowledge of Arabic language. It also provides students with enhanced opportunities to learn and experience the culture and history of the Arabic-speaking world.

ARAB 12211: Intermediate Arabic II 3 s.h.
Prerequisite: ARAB 12201 (minimum grade of C-) or waiver
This course continues to provide an expanded overview of the syntax, structures, and vocabulary of modern Arabic to students who have completed the Intermediate Arabic I and acquired the basic knowledge of Arabic language. It also provides students with enhanced opportunities to learn and experience the culture and history of the Arabic-speaking world.

ARAB 12212: Intermediate Arabic III 3 s.h.
Prerequisite: ARAB 12211 (minimum grade of C-) or waiver
This course continues to provide and expanded overview of the syntax, structures, and vocabulary of modern Arabic to students who have completed Intermediate Arabic II. It also provides students with enhanced opportunities to learn and experience the culture and history of the Arabic-speaking world.

ARAB 12301: Advanced Arabic I 3 s.h.
Prerequisite: ARAB 12212 (Minimum Grade of C-)
This course further develops students' proficiency in Modern Standard Arabic and all language skills are emphasized (reading, writing, speaking and listening). Students expand their vocabulary, sharpen their grammar skills, and gain cultural competence as they learn about the Arabic language and the Arab world through the study of authentic articles selected from news sources and scholarly journals and magazines, including such topics as politics, religion, and arts/media.

ARAB 12320: Arabic Civilization and Culture 3 s.h.
Prerequisite: ARAB 12212 (minimum grade of C-)
This course, which follows Intermediate Arabic III (ARAB 12.212), will further refine students' linguistic competencies in Arabic. Students study and discuss cultural topics in Arabic to develop their language competence and gain a more profound insight into varied aspects of contemporary Arabic as well as Arab civilization and culture.

ARAB 12440: Special Topics in World Languages 3 s.h.
Prerequisite: appropriate language proficiency as determined by the professor
This course brings new perspectives and themes to the established World Languages curriculum. Each semester the instruction of this course rotates among faculty members who select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

ASL 01101: Elementary American Sign Language I 3 s.h.
American Sign Language (ASL) is a visual-gestural language that possesses all of the properties of a natural language. It is rule-governed and has a rich history. This introductory level course is designed to provide students a way to communicate and function comfortably in a variety of situations in the Deaf community. Through visual-gestural activities, guided practice, presentations, and practical assignments, we will explore the language, education, and culture of the American Deaf Community.

ASL 01102: Elementary American Sign Language II 3 s.h.
Prerequisite: ASL 01101 (minimum grade of C-) or waiver
American Sign Language (ASL) is a visual-gestural language that possesses all of the properties of a natural language. It is rule-governed and has a rich history. This introductory level course, which builds on skills acquired in ASL 01101, is designed to provide students a way to communicate and function comfortably in a variety of situations in the Deaf community. Through visual-gestural activities, guided practice, presentations, and practical assignments, we will explore the language, education, and culture of the American Deaf Community.

ASL 01201: Intermediate American Sign Language I 3 s.h.
Prerequisite: ASL 01102 (minimum grade of C-) or waiver
The third in a sequence of courses in American Sign Language (ASL), this course focuses on further development of conversational skills in ASL. The course includes extensive work on receptive and expressive use of ASL. It emphasizes the grammatical structure of ASL, particularly its morphology, syntax, and semantics. Students will acquire and expand different conversational strategies and increase ASL vocabulary. Appropriate cultural behaviors and conversational regulators in ASL will continue to be an important part of class. Information of Deaf Culture/history will be expanded. Experience with the local Deaf community is required

ASL 01211: Intermediate American Sign Language II 3 s.h.
Prerequisite: ASL 01201 with (minimum grade of C-) or waiver
The fourth in a sequence of courses in American Sign Language (ASL), this course focuses on further development of conversational skills in ASL. This course further develops students' expressive and receptive communication skills. Students demonstrate competency and an in-depth understanding on non-manual behaviors, topic/comment structure sentence types, noun/verb pairs, use of space pronominalization, classifiers, and temporal and distributional aspects. Appropriate culture behaviors and conversational regulators in ASL will continue to be an important part of class. Information on Deaf Culture/history will be expanded. Experience with the local Deaf community is required.

ASL 01440: Special Topics in World Languages 3 s.h.
Prerequisite(s): ASL 01211 minimum of C-
This course brings new perspectives and themes to the established World Languages curriculum by expanding options for upper-level electives in American Sign Language (ASL). The particular course topic offered may vary, depending on the scholarly interests of the faculty member as well as student interest and demand.

CHIN 07101: Elementary Chinese I 3 s.h.
This is a beginning course in Chinese (Mandarin) for students who have not previously studied the language. It covers the mechanics of the Chinese language, including intensive practice in listening comprehension and speaking. It will also introduce students to basic Chinese reading and writing skills.

CHIN 07102: Elementary Chinese II 3 s.h.
Prerequisite: CHIN 07101 (minimum grade of C-) or waiver
This is a beginning course in Chinese (Mandarin) for students who have taken Elementary Chinese I. It covers the mechanics of the Chinese language including intensive practice in listening comprehension and speaking. It will also offer exercises for students to develop skills in reading and writing the language.

CHIN 07201: Intermediate Chinese I 3 s.h.
Prerequisite: CHIN 07102 or (minimum grade of C-) waiver
This intermediate level Chinese language course provides students the opportunity to develop further their listening comprehension and competence in spoken Chinese, their ability to engage in more substantial conversations in a variety of learning, work, and social settings. It will also help students build and utilize their knowledge of the Chinese way of life culture in conjunction with learning the notions and functions of the language. The course also focuses on students' ability to read and write simple Chinese prose for their communication needs.

CHIN 07211: Intermediate Chinese II 3 s.h.
Prerequisite: CHIN 07201 (minimum grade of C-) or waiver
Intermediate Chinese II continues to provide students the opportunity to develop further their competence in listening comprehension and in spoken Chinese, their ability to engage in more substantial conversations in additional learning, work and social settings. It will advance and enrich their knowledge of Chinese culture enabling them to understand how to function in a culturally appropriate manner and to develop and appreciate more subtlety in language use. The course continues to help students improve their ability to read and write simple Chinese prose for their communication needs.

CHIN 07212: Intermediate Chinese III 3 s.h.
Prerequisite: CHIN 07211
In Intermediate Chinese III, students will continue their development of communicative competence in all four language skill areas (listening, speaking, reading, and writing). Additionally, this course will allow students to increase their understanding of Chinese culture.

CHIN 07400: Independent Study 3 s.h.

CHIN 07440: Special Topics in World Languages 3 s.h.
Prerequisite: appropriate language proficiency as determined by the professor
This course brings new perspectives and themes to the established World Languages curriculum. Each semester the instruction of this course rotates among faculty members who select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

FREN 02100: Masterpieces of French Literature in English Translation 3 s.h.
This course introduces students to the reading of French literary works in English translation. Students acquire a vocabulary of basic critical terms necessary for the discussion and analysis of narrative works, poetry and theatrical texts. Through close reading of several texts per genre, students develop critical thinking skills and improve expository speaking and writing skills. This course may be offered abroad.

FREN 02101: Elementary French I 3 s.h.
This is a beginning course in French for students who have not previously studied French. This course covers the mechanics of the French language including intensive practice in listening comprehension, speaking, reading and writing.

FREN 02102: Elementary French II 3 s.h.
Prerequisite: FREN 02101 (minimum grade of C-) or waiver
(Continuation of French I) This course focuses on the students' continued development of communicative competence in French with emphasis on the four skill areas of speaking, reading, writing and listening comprehension.

FREN 02201: Intermediate French I 3 s.h.
Prerequisite: FREN 02102 (minimum grade of C-) or waiver
This course is open to students who have had some limited contact with the French language. It offers expanded practice in listening comprehension, speaking, reading and writing.

FREN 02205: Oral French 3 s.h.
Prerequisite: FREN 02211 (minimum grade of C-) or waiver
An intermediate-level conversation course which develops a broad range of active vocabulary as well as verbal patterns leading to greater facility in manipulating the spoken language.

FREN 02211: Intermediate French II 3 s.h.
Prerequisite: FREN 02201 (minimum grade of C-) or waiver
This course is open to students who have had some limited contact with the French language. It offers expanded practice in listening comprehension, speaking, reading and writing.

FREN 02212: French Reading and Composition 3 s.h.
Prerequisite: FREN 02211 (minimum grade of C-) or waiver
This course offers a broad grammar review based on readings, practical use of the language, written compositions and dictations.

FREN 02300: French Phonetics 3 s.h.
Prerequisite: FREN 02211 (minimum grade of C-) or waiver
This course provides a scientific study of French based upon the international phonetic system. It emphasizes diction and phonetic transcription and the correction of individual problems in pronunciation.

FREN 02311: Advanced French Conversation 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-)
This course provides practice in speaking French at conversational speed. It emphasizes clarity and fluency of expression. Classes include discussions in French on topics of contemporary interest. The class uses both formal and informal methods to broaden students' vocabulary and enhance their speaking skills.

FREN 02315: Introduction to French Literature 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-)
This course presents selected representative works of French literature within their social and cultural setting from the Middle Ages to the 19th century in original French texts. The course enhances listening comprehension, speaking, reading and writing proficiency through literature.

FREN 02320: French Civilization and Culture 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-)
This course provides students with a more profound insight into the varied aspects of contemporary France, its civilization and culture.

FREN 02324: Appreciation of French Literature 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-)
This course introduces students to the reading of French literary texts. Students acquire a vocabulary of basic critical terms necessary for the discussion and analysis of narrative works, poetry and theatrical texts. Through close reading of at least one text per genre, students develop critical approaches with emphasis on the *Explication de Texte* method.

FREN 02325: Readings in Contemporary French Literature 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-)
This course deals with the main currents shaping contemporary French literature. It selects readings which best bring into focus the characteristics of the time. It emphasizes reading as communication, with analysis and practice of the techniques of effective reading in French.

FREN 02326: The French Novel 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-)
This course consists of an analysis of the French novel from the beginning to the present day. Students read and discuss selected major works.

FREN 02400: History of the French Language 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-)
This course gives students an overview of the historical evolution of French from its Latin roots to present-day varieties spoken in France and the Francophone cultures. It provides an introduction to the science of linguistics.

FREN 02410: Advanced French Composition 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-)
This course provides a systematic study of the problems of translation and of the practical application of written patterns, thus encouraging greater command of writing skills. It gives considerable attention to stylistics.

FREN 02420: Evolution of French Civilization 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-)
This course surveys French history, art and social institutions as well as the contributions of France to Western Civilization.

FREN 02421: The French Short Story 3 s.h.
Prerequisite: FREN 02212 (minimum grade of C-
This course analyzes the French short story in its various aspects. It studies in detail selected works of major authors in the genre.

FREN 02435: Individual Study (French) 3 to 6 s.h.
Prerequisite: FREN 02212
Students may contract with an instructor to be examined on assigned readings in various areas of French literature. Non-minors may do the readings in translation; French minors must do the readings in French. No more than 3 semester hours may be taken in any one semester.

FREN 02440: Special Topics in World Languages 3 s.h.
Prerequisite: appropriate language proficiency as determined by the professor
This course brings new perspectives and themes to the established World Languages curriculum. Each semester the instruction of this course rotates among faculty members who select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

GERM 03100: Masterpieces of German Literature in English Translation 3 s.h.
This course introduces students to German literature in English translation. Using readings from a range of literary genres, students acquire knowledge of the basic critical terms necessary for the discussion and analysis of narrative works, poetry and theatrical texts. Through close reading of such works, students develop an appreciation of the cultural and sociopolitical forces that inform German-speaking civilization. This course may be offered abroad.

GERM 03101: Elementary German I 3 s.h.
This beginning course is open to students who have not previously studied German. This course covers mechanics of the language, including intensive practice in listening comprehension, speaking, reading and writing.

GERM 03102: Elementary German II 3 s.h.
Prerequisite: GERM 03101 (minimum grade of C-) or waiver
(Continuation of Elementary German I) This course focuses on the students' continued development of communicative competence in German with emphasis on the four skill areas of speaking, reading, writing and listening comprehension.

GERM 03201: Intermediate German I 3 s.h.
Prerequisite: GERM 03102 (minimum grade of C-) or waiver
This course is open to students who have had some limited contact with the German language. It offers expanded practice in listening comprehension, speaking, reading and writing.

GERM 03211: Intermediate German II 3 s.h.
Prerequisite: GERM 03201 (minimum grade of C-) or waiver
This course is open to students who have had some limited contact with the German language. It offers expanded practice in listening comprehension, speaking, reading and writing.

GERM 03212: German Reading and Composition 3 s.h.
Prerequisite: GERM 03211 (minimum grade of C-) or waiver
This course offers a broad grammar review based on readings, practical use of the language, written compositions and dictations.

GERM 03320: German Civilization and Culture 3 s.h.
Prerequisite: GERM 03212 (minimum grade of C-)
This course surveys German history, arts and social institutions as well as Germany's contributions to Western civilization.

GERM 03411: Advanced German Conversation 3 s.h.
Prerequisite: GERM 03212 (minimum grade of C-)
This advanced conversation course uses topics from the contemporary German press. It emphasizes clarity and fluency of expression and includes discussions in German on topics of contemporary interest which lead to the active expansion of vocabulary.

GERM 03435: Independent Study German 3 s.h.

GERM 03440: Special Topics in World Languages 3 s.h.
Prerequisite: appropriate language proficiency as determined by the professor
This course brings new perspectives and themes to the established World Languages curriculum. Each semester the instruction of this course rotates among faculty members who select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

ITAL 04100: Masterpieces of Italian Literature in English Translation 3 s.h.
This course introduces students to Italian literature in English translation. Using readings from a range of literary genres and authors, (from Dante to Machiavelli, from Calvino to current bestsellers), students acquire knowledge of the basic critical terms necessary for the discussion and analysis of narrative works, poetry and theatrical texts. Through close reading of such works, students develop an appreciation of the cultural and sociopolitical forces that inform Italian civilization. The course is taught in English and has no prerequisite.

ITAL 04101: Elementary Italian I 3 s.h.
This introductory course is open to students who have not previously studied Italian. This course studies Italian language structures and patterns and offers practice in articulating these patterns. It also gives some attention to other language skills, such as listening comprehension, speaking, reading and writing.

ITAL 04102: Elementary Italian II 3 s.h.
Prerequisite: ITAL 04101 (minimum grade of C-) or waiver
(Continuation of Elementary Italian I) This course focuses on the students' continued development of communicative competence in Italian with emphasis on the four skill areas of speaking, reading, writing and listening comprehension.

ITAL 04140: Italian Topics in English 3 s.h.
This course, taught in English, brings new perspectives and themes to the established World Languages curriculum, pertaining to the Italian language, aspects of Italian culture, and Italian literature in English translation. The particular course topic offered may vary, depending on the scholarly interests of the faculty member as well as student interest and demand.

ITAL 04201: Intermediate Italian I 3 s.h.
Prerequisite: ITAL 04102 (minimum grade of C-) or waiver
This course is open to students who have had some limited contact with the Italian language. It surveys grammar and language patterns and offers expanded practice particularly in speaking and reading in the language.

ITAL 04211: Intermediate Italian II 3 s.h.
Prerequisite: ITAL 04201 (minimum grade of C-) or waiver
This course is open to students who have had some limited contact with the Italian language. It surveys grammar and language patterns and offers expanded practice particularly in speaking and reading in the language.

ITAL 04212: Italian Reading and Composition 3 s.h.
Prerequisite: ITAL 04211 (minimum grade of C-) or waiver
In this course, students will enhance their competencies in Italian language, with particular emphases on reading and writing skills. Students will be exposed to a wide variety of texts from different genres, (informative, journalistic, literary, and academic), and will engage in both formal and informal, creative and academic writing.

ITAL 04320: Italian Civilization and Culture 3 s.h.
Prerequisite: ITAL 04212 (minimum grade of C-)
This course aims to provide students with a more profound insight into the varied aspects of contemporary Italy, its civilization and culture. Students will also gain a better understanding of the current dynamics in Italian society and will be able to identify the main contributions of Italian culture to Western civilization. Moreover, students will further refine their linguistic competencies, as they study and discuss cultural topics in Italian.

ITAL 04440: Special Topics in World Languages 3 s.h.
Prerequisite: appropriate language proficiency as determined by the professor
This course brings new perspectives and themes to the established Foreign Languages and Literatures curriculum. Eash semester the instruction of this course rotates among faculty members who select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

JAPA 08101: Elementary Japanese I 3 s.h.
This is a comprehensive foundation course for beginning students of modern Japanese. It offers an essential grounding for developing successful communication strategies by practicing listening comprehension and speaking skills, emphasizing the sounds and speech patterns of Japanese. It will also provide students with opportunities to read and write simple Japanese prose to meet their communication needs. It introduces students to the culture and history of the Japanese-speaking world.

JAPA 08102: Elementary Japanese II 3 s.h.
Prerequisite: JAPA 08101 (minimum grade of C-) or waiver
This course provides an expanded overview of the syntax, structures and vocabulary of modern Japanese, including extended practices in the four skill areas of listening comprehension, speaking, reading and writing. It introduces students to and amplifies their knowledge of the culture and history of Japan.

JAPA 08201: Intermediate Japanese I 3 s.h.
Prerequisite: JAPA 08102 (minimum grade of C-) or waiver
This course continues to provide an expanded overview of the syntax, strucdtures, and vocabulary of modern Japanese to students who have completed the Elementary Japanese course sequence and acquired basic knowlege of the Japanese language. It also provides students with enhanced opportunities to learn and experience the culture and history of Japan.

JAPA 08211: Intermediate Japanese II 3 s.h.
Prerequisite: JAPA 08201 (minimum grade of C-) or waiver
This course is a contiunation of Intermediate Japanese I (JAPA 08.201) and focuses on learning modern Japanese with equal emphasis on speaking, listening comprehension, reading and writing. It also provides students further opportunities to learn and experience in depth the culture and history of Japan.

JAPA 08212: Intermediate Japanese III 3 s.h.
Prerequisite: JAPA 08211 (minimum grade of C-) or waiver
This course focuses on the students' continued development of communicative competence in Japanese, with practice in the four skill areas of speaking, reading, writing, and listening comprehension. The course also targets preparation and practice for the Japanese Language Proficiency Tect (JLPT). In addition, it provides further opportunities for in-depth studey of the culture and history of Japan.

JAPA 08305: Oral Japanese 3 s.h.
Prerequisite: JAPA 08212 Minimum grade of C-
This course focuses on the students' continued development of spoken Japanese skills. The course aims to improve their communicative competence within a broader range of contexts through exercising grammatical accuracy and facility in the production of sentences and oral paragraphs.

JAPA 08440: Special Topics in World Languages 3 s.h.
Prerequisite(s): JAPA 08212 Minimum of C-
This course brings new perspectives and themes to the established World Languages curriculum by expanding options for upper-level electives in Japanese language. The particular course topic offered may vary, depending on the scholarly interests of the faculty member as well as student interest and demand.

LAT 09101: Elementary Latin I 3 s.h.
This is a beginning course in Latin. It emphasizes Latin grammar and vocabulary. Students will also read representative Latin prose selections, including the writings of Caesar.

LAT 09102: Elementary Latin II 3 s.h.
Prerequisite: LAT 09101 (minimum grade of C-) or waiver
This is a beginning course in Latin continuing from Elementary Latin I. It emphasizes Latin grammar and vocabulary. Students will also read representative Latin prose selections, including the writings of Caesar.

LAT 09201: INTERMED LATIN I 3 s.h.
Prerequisite: LAT 09102

LAT 09202: INTERMED LATIN II 3 s.h.
Prerequisite: LAT 09201

LAT 09440: Special Topics in World Languages 3 s.h.
Prerequisite: appropriate language proficiency as determined by the professor
This course brings new perspectives and themes to the established World Languages curriculum. Each semester the instruction of this course rotates among faculty members who select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

QUEC 10100: Modern Descendants of the Incas: Quechua Language, Culture, and History 3 s.h.
Pre-requisite: SPAN 05101 or Waiver
This course explores the language, culture, and history of the Quechua people, the modern descendants of the Incas. Students will gain a basic knowledge and command of the Quechua language, the most widely used Native American language today, which is still spoken by an estimated eight million people living throughout southern Colombia, Peru, Ecuador, Bolivia, northern Chile and northern Argentina.

RUSS 06101: Elementary Russian I 3 s.h.
This beginning course is open to students who have not previously studied Russian. It covers mechanics of the language, practice in articulating Russian speech patterns and reading and writing in Russian.

RUSS 06102: Elementary Russian II 3 s.h.
Prerequisite: RUSS 06101 (minimum grade of C-) or waiver
(Continuation of Elementary Russian I) This course focuses on the emphasis on the students' continued development of communicative competence in Russian with emphasis on the four skill areas of speaking, reading, writing and listening comprehension.

RUSS 06201: Intermediate Russian I 3 s.h.
Prerequisite: RUSS 06102 (minimum grade of C-) or waiver
This course is open to students who have had some limited contact with the Russian language. It surveys grammar and offers expanded practice, particularly in speaking and reading.

RUSS 06211: Intermediate Russian II 3 s.h.
Prerequisite: RUSS 06201 (minimum grade of C-) or waiver
This course is open to students who have had some limited contact with the Russian language. It surveys grammar and offers expanded practice, particularly in speaking and reading.

RUSS 06345: Russian Literature in Translation I 3 s.h.
This course studies the major works of Russian prose, poetry and drama of the 18th and 19th centuries in the context of political, cultural and intellectual history.

RUSS 06347: Women in Russian Literature (In Translation) 3 s.h.
This course presents the image and role of Russian women from the 18th to the 20th centuries as reflected in Russian literature. The language of instruction is English.

RUSS 06440: Special Topics in World Languages 3 s.h.
Prerequisite: appropriate language proficiency as determined by the professor
This course brings new perspectives and themes to the established World Languages curriculum. Each semester the instruction of this course rotates among faculty members who select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

SPAN 05100: Masterpieces of Hispanic Literature in English Translation 3 s.h.
This course introduces students to the reading of Hispanic literary works in English translation. Students acquire a vocabulary of basic critical terms necessary for the discussion and analysis of narrative works, poetry and theatrical texts. Through close reading of several texts per genre, students develop critical thinking skills and improve expository writing and speaking skills. This course may be offered abroad.

SPAN 05101: Spanish I 3 s.h.
(No prerequisite) This course introduces the Spanish language and focuses on the students' development of communicative competence in Spanish with emphasis on the four skill areas of listening, comprehension, speaking, reading and writing.

SPAN 05102: Spanish II 3 s.h.
Prerequisite: SPAN 05101 (minimum grade of C-) or waiver
(Continuation of Spanish I) This course focuses on the students' continued development of communicative competence in Spanish with emphasis on the four skill areas of speaking, reading, writing and listening comprehension.

SPAN 05104: Accelerated Business Spanish I 3 s.h.
This course introduces the Spanish language and focuses on the students' development of communicative competence in Spanish with emphasis on the four skill areas of listening comprehension, speaking, reading and writing. It is also designed to introduce students to the Spanish-speaking business world through practical activities and business-related vocabulary and concepts. The course is designed to complement the business student's curriculum in a practical, accelerated method of delivery.

SPAN 05106: Accelerated Business Spanish II 3 s.h.
Prerequisites: SPAN 05104 and/or SPAN 05101
(Continuation of Accelerated Business Spanish I) This course focuses on the students' continued development of communicative competence in Spanish with emphasis on the four skill areas of listening comprehension, speaking, reading and writing. It is also designed to continue introducing students to the Spanish-speaking business world through practical activities and business-related vocabulary and concepts. The course is designed to complement the business student's curriculum in a practical, accelerated method of delivery.

SPAN 05140: Spanish Topics in English 3 s.h.
This course, taught in English, brings new perspectives and themes to the established World Languages curriculum, pertaining to the Spanish language, aspects of Spanish (Peninsular) and Latin American culture, and Hispanic literature in English translation. The particular course topic offered may vary, depending on the scholarly interests of the faculty member as well as student interest and demand.

SPAN 05201: Spanish III 3 s.h.
Prerequisite: SPAN 05102 (minimum grade of C-) or waiver
(Continuation of Spanish I and II) This course focuses on the students' continued development of communicative competence in Spanish with emphasis on the four skill areas of speaking, reading, writing and listening comprehension.

SPAN 05203: Accelerated Business Spanish III 3 s.h.
Prerequisites: SPAN 05106 and/or SPAN 05102
(Continuation of Accelerated Business Spanish I and II) This course focuses on the students' continued development of communicative competence in Spanish with emphasis on the four skill areas of listening comprehension, speaking, reading and writing. It is also designed to increase students' understanding of the Spanish-speaking business world through practical activities and business-related vocabulary and concepts. The course is designed to complement the business student's curriculum in a practical, accelerated method of delivery.

SPAN 05211: Spanish Reading and Conversation 3 s.h.
Prerequisite: SPAN 05201 (minimum grade of C-) or waiver
This course focuses on the students' continued development of communicative competence in Spanish with practice in the four skill areas of speaking, reading, writing and listening comprehension, in addition to greater emphasis on reading skills and oral production.

SPAN 05212: Spanish Reading and Composition 3 s.h.
Prerequisite: SPAN 05211 (minimum grade of C-) or waiver
This course focuses on the students' continued development of communicative competence in Spanish with special emphasis on written communication. Students will produce descriptive, narrative and expository texts.

SPAN 05221: Accelerated Business Spanish Reading & Conversation 3 s.h.
Prerequisites: SPAN 05203 and/or SPAN 05201
This course focuses on the students' continued development of communicative competence in Spanish with practice in the four skill areas of listening comprehension, speaking, reading and writing. It places greater emphasis on reading skills centered on business-related texts and also on oral production concerning business-related situations. In addition, it is designed to increase students' understanding of the Spanish-speaking business culture through practical activities and business-related vocabulary and concepts. It complements the business student's curriculum through a practical, accelerated method of delivery.

SPAN 05250: Introduction to Anthropological Linguistics 3 s.h.
Students in this interdisciplinary course will engage in the scientific study of language with particular reference to the relationships among the languages, thoughts, and cultures of speech communities living all over the world, including within the United States, France, India, Canada, Spain, Japan and Peru, among others. Additional course topics include the process of human language acquisition, structures of human language, bilingualism and the ways in which race, class, gender, and other social characteristics may be displayed through the use of language.

SPAN 05300: Spanish Phonetics 3 s.h.
Prerequisite: SPAN 05211 or SPAN 05212 (minimum grade of C-) or waiver
This course provides a scientific study of Spanish pronunciation based upon the international phonetic system. It emphasizes exercises in diction and phonetic transcription and the correction of individual problems in pronunciation.

SPAN 05301: Appreciation of Hispanic Literature 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course introduces students to the reading of Hispanic literary texts. Students acquire a vocabulary of basic critical terms necessary for the discussion and analysis of narrative works, poetry, and theatrical texts. Through close reading of at least one text per genre, students develop critical approaches with emphasis on the "comentario de textos" method.

SPAN 05302: Introduction to Hispanic Linguistics 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course will introduce students to the major subfields of Hispanic linguistics, including phonology (sound structure), morphology (word structure), syntax (sentence structure), semantics (structure of meaning), pragmatics (language use), language change and sociolinguistics (language use among speakers with different social and geographical backgrounds).

SPAN 05305: Oral Spanish 3 s.h.
Prerequisite: SPAN 05211 or SPAN 05212 (minimum grade of C-) or waiver
This course is open to students who wish to improve their spoken Spanish skills. Its design reflects the objectives of current national trends in encouraging oral Spanish production as outlined and measured by the ACTFL standards. Students will develop greater grammatical accuracy and control, the ability to describe and narrate, and greater facility in the production of sentences and oral paragraphs.

SPAN 05312: Spanish for Business A 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course is designed to help students interact with Hispanic communities on a business level, by improving their verbal and written skills, and exposing them to authentic print and visual media from the world of banking, advertising, and commerce. It stresses the development of functional language skills for real-life purposes within an accurate cultural context that reflects the variety of the Hispanic world.

SPAN 05313: Spanish for Medical Personnel 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course is designed to give students and practicing medical personnel the conversational and cultural tools they need to interact with Hispanic communities in a clinical setting. It stresses the development of functional language skills while addressing the special concerns of medical personnel with Spanish-speaking patients and their families in hospitals, emergency rooms, doctors' offices and clinics.

SPAN 05314: Spanish for Business B 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course is designed to help students interact with Hispanic communities on a business level, by improving their verbal and written skills, and exposing them to authentic print and visual media. Areas of study include the various hispanic business cultures concerning human resources, labor relations, marketing, finance, goods and services, imports and exports.

SPAN 05315: Spanish for Law 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course provides an overview of legal terminology, legal systems in Spain and Latin America, and legal disparities in Spanish-speaking communities. Students will develop reading, writing, and speaking skills for legal purposes. Students will also develop intercultural competency skills in legal contexts through participation in service-learning in the community.

SPAN 05316: Spanish for Medical Emergencies and Disaster Response 3 s.h.
Prerequisite: SPAN 05211 minimum grade of C-
This course is designed to give students and practicing medical personnel the Spanish language skills they need to address common emergencies in the home, school, and workplace and their management in the wider community. It stresses the development of oral and written Spanish language skills applicable to the five phases of the emergency planning cycle: preparedness, prevention, response, recovery and mitigation.

SPAN 05320: Spanish Civilization and Culture 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course provides an overview of the religious, political, artistic and social history of Spain.

SPAN 05321: Survey Of Spanish Literature I 3 s.h.
Prerequisites: SPAN 05301
This course studies texts, beginning with the Middle Ages and continuing to the mid-eighteenth century, examining their relevance in the historical and literary movements of their time.

SPAN 05322: Survey Of Spanish Literature II 3 s.h.
Prerequisites: SPAN 05301
This course is a continuation of SPAN 05.321 covering works from the mid-eighteenth century to the present.

SPAN 05323: Survey Of Spanish American Literature I 3 s.h.
Prerequisites: SPAN 05301
This course is a historical overview of Spanish American literature in its cultural, sociological, biographical and formal make-up across many different genres from the Conquest to the precursors of Spanish American Modernism.

SPAN 05324: Spanish American Civilization and Culture 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course is an overview of cultural, social, political and economic history of the different major periods that have shaped Spanish America through tradition, process and crisis.

SPAN 05325: Readings in Contemporary Spanish Literature 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course examines Peninsular works of various genres from contemporary Spanish writers.

SPAN 05326: Spanish Novel 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course studies the novel in Spain and its most outstanding characteristics, with reading and discussion of some of the best known writers from the Golden Age to the 19th century.

SPAN 05327: Spanish American Poetry 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
Students are introduced to the various movements and philosophies of Spanish American poetry which begin to take shape in Spanish American Modernism and continue through the twentieth and twenty-first centuries. Students will examine its genesis and evolution as it adapts and reacts to socio-cultural, geographic and political issues.

SPAN 05328: Spanish-American Theater 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course examines Spanish American drama in both its textual and performance aspects, tracing its relationships to ethics, society, history, culture and contemporary public issues. Representative works from the European tradition as well as non-traditional, regional and vanguard theater will be examined.

SPAN 05329: Survey Of Spanish American Literature II 3 s.h.
Prerequisites: SPAN 05301
This course is a historical overview of Spanish American literature in its cultural, sociological, bibliographical and formal make-up across many different genres from the consolidation of Spanish American Modernism to Contemporary literature.

SPAN 05340: Introduction to Spanish Translation 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
Beyond acquiring the basic skills necessary for professional Spanish-to-English and English-to-Spanish translation, students of this course will improve their Spanish and English reading comprehension skills, sharpen their insight into the linguistic nature of both Spanish and English, gain knowledge regarding the ways in which both languages communicate cultural values and become acquainted with social and geographical variations of both languages. In addition, students will acquire experience in translating general material, such as from magazines, newspapers, and letters, and specialized material from the fields of literature, business, medicine, law, and the social sciences.

SPAN 05350: Introduction to Spanish Interpretation 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course provides an introduction to the strategies, theories, and techniques in interpretation with a primary focus on consecutive interpreting, intercultural competence, and Spanish/English contrasts (e.g., phonology, morphology, syntax, semantics, etc.). Simulations and service-learning are integrated in the course to develop students' interpretation skills in both the classroom and community contexts.

SPAN 05381: Contemporary Spanish Theater 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course introduces students to recent trends in Peninsular drama beginning with the initial manifestations of formal renovation towards the beginning of the twentieth century and continuing through to present-day Spain.

SPAN 05383: Spanish-American Short Story 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course analyzes a selection of Spanish American short stories and their relation to culture, aesthetics and modernity, covering a wide variety of authors, both canonical and vanguard.

SPAN 05400: History of The Spanish Language 3 s.h.
Prerequisite: SPAN 05212 (minimum grade of C-)
This course gives students an overview of the historical evolution of Spanish from its Latin roots to present-day varieties spoken in Spain and Latin America. It provides an introduction to the science of linguistics.

SPAN 05409: Advanced Spanish Grammar and Composition (WI) 3 s.h.
Prerequisite(s): COMP 01112 and two 300 level courses in Spanish (minimum grade of C-)
This course focuses on the continued improvement of writing Spanish with emphasis on narration and description situated in time. It provides an advanced grammar review and practice in the process of writing and in the expression of nuances and idioms in Spanish.

SPAN 05410: Advanced Spanish Grammar and Composition 3 s.h.
Prerequisites: SPAN 05301 (minimum grade of C-)
This course helps perfect students' skills in writing Spanish and in the knowledge of its grammatical structures. It provides exercises in translating modern authors and in composition.

SPAN 05411: Advanced Spanish Conversation 3 s.h.
Prerequisite: Any 300-level course in Spanish (minimum grade of C-)
This course is open to students who wish to improve their spoken Spanish skills. Students will develop enhanced grammatical precision, the ability to produce connected and cohesive discourse and communicative strategies in a variety of conversational situations.

SPAN 05426: Spanish-American Novel 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course deals primarily but not exclusively with contemporary Spanish American novels, analyzing their political, historical, social and cultural importance. Also examined are critical aspects such as voice, narratology, discourse and gender.

SPAN 05435: Spanish Individual Study 3 to 9 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course gives students an opportunity to study independently in order to strengthen their background in a particular area of Hispanic studies.

SPAN 05440: Special Topics in World Languages 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course brings new perspectives and themes to the established World Languages curriculum. Each semester the instruction of the course rotates among faculty members with select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

SPAN 05441: Advanced Spanish Translation 3 s.h.
Prerequisite: SPAN 05340 (minimum grade of C-)
As a continuation of Introduction to Spanish Translation, this course examines translation theories, strategies, and Spanish-to-English and English-to-Spanish and practices in classroom and community contexts through service-learning. Students in this course will further develop their translation, critical thinking, intercultural, linguistic, and analytical skills to examine Spanish/English contrasts via practical application in diverse fields and contexts. This course encompasses ethical translation practices in a variety of disciplines including (but not limited to) medical, legal, scientific, literary, and commercial.

SPAN 05452: Internship in Spanish 3 s.h.
Prerequisite(s): SPAN 05212 with minimum grade of C-and Instructor Approval
The faculty-supervised Internship in Spanish requires 120 hours of internship experience in a professional context. Students maintain a supervisor-signed log of working hours, write weekly diary entries, and prepare a final reflective paper. The Internship in Spanish enables students to apply their extensive coursework in Spanish to practice. Students will be assigned an internship by the faculty member or may obtain instructor approval for internships.

SPAN 05481: The Generation of 1898 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course studies the origin, development and influence of the so-called "Generation of `98," its philosophy and outstanding characteristics. Students read and discuss works of some of the major authors.

SPAN 05482: Contemporary Spanish Novel 3 s.h.
Prerequisite: SPAN 05301 (minimum grade of C-)
This course studies the contemporary novel of twentieth and twenty-first century Spain, examining its most outstanding characteristics. Texts from several important periods, such as Posguerra, Transición and present-day Spain among others will be studied. Areas of emphasis include voice, narratology, discourse and gender.

SPAN 05499: Study Abroad 1 to 6 s.h.
The Department encourages students to study abroad. This course is designed to give firsthand knowledge of the social, cultural and historical life of Spain and Spanish American countries. The University offers a study abroad program. For further information contact the director of The International Center or the department chairperson.

SPAN 05540: Special Topics in World Languages 3 s.h.
This course brings new perspectives and themes to the established Foreign Languages and Literatures curriculum. Eash semester the instruction of this course rotates among faculty memebers who select topics according to their current scholarly interests. In this way, the course expands options for upper-level electives.

SWHL 17101: Elementary Swahili I 3 s.h.
This beginning course is open to students who have not previously studied Swahili. It covers the mechanics of the language, including intensive practice in listening, comprehension, speaking, reading and writing. Students will also be introduced to East African life and culture.

SWHL 17102: Elementary Swahili II 3 s.h.
Prerequisites: SWHL 17101
This beginning course is open to students who have some limited study of Swahili. It offers expanded coverage of the mechanics of the language, including intensive practice in listening, comprehension, speaking, reading and writing. Students will develop additional knowledge of East African life and culture.

ZULU 16101: Elementary Zulu I 3 s.h.
This beginning course is open to students who have not previously studied Zulu. It covers the mechanics of the language, including intensive practice in listening, comprehension, speaking, reading and writing.

ZULU 16102: Elementary Zulu II 3 s.h.
Prerequisites: ZULU 16101
This beginning course is open to students who have had some limited contact with the Zulu language. It offers expanded practice in listening, comprehension, speaking, reading and writing.

COMP 01100: Improving Personal Writing Skills 3 s.h.
This developmental writing course helps students eliminate major writing problems with essay organization, support, and mechanics. The course improves students' writing prior to enrollment in College Composition I. Students' progress is evaluated on the basis of a portfolio of their semester's work. A writing test determines student placement.

COMP 01101: Writing Lab Experience 3 s.h.
Students who have failed College Composition I or Integrated College Composition I may be referred to a 3-credit course called Writing Lab Experience. These students receive an Incomplete grade for Freshman Composition on their transcript. Students who successfully complete Writing Lab Experience are awarded a Pass for WLE, and the incomplete in the CCI or Integrated course is replaced with a grade. Writing Lab Experience credits do not count towards graduation or General Education requirements. The course is restricted to students in the First-Year Writing Program.

COMP 01102: Pre-College Writing 3 s.h.
This is a preparatory, non-credit, five-week writing course that introduces students to college level writing practices. it provides a non-graded environment where students practice writing as multi-stage processes of generating, developing, and refining ideas clearly, and it focuses on instruction of grammar and mechanics within the context of students' writing. Students are placed in this course through the Educational Opportunity Fund program based on Department of Writing Arts placement criteria. Students who are successful in this course will move on to either Foundations for College Writing (COMP 01103) or Intensive College Composition I (COMP 01105).

COMP 01103: Foundations for College Writing 3 s.h.
This free elective writing course is portfolio-based and introduces students to college-level writing and to composing practices that emphasize multi-stage writing through multiple modes of composition and reflection. It guides students to produce focused and coherent writing, and it addresses grammar and mechanics within the context of students' writing. Students are placed in this course based on department placement criteria. Upon successful completion of this course, students move to Intensive College Composition I (COMP 01105).

COMP 01105: Intensive College Composition I 4 s.h.
Prerequisites: Appropriate placement score or COMP 01103
This course is the four-credit equivalent of College Composition I (COMP 01111) that allows students additional time to develop the same writing competency required of College Composition I. This course introduces students to a variety of writing forms and emphasizes writing as a recursive process of exploring, researching, drafting and revising. Students produce purposeful, literate, well-developed, and informed writing that requires critical reading, thinking and writing activities. The course also emphasizes responsible evaluation and use of information. Course requirements include a portfolio comprised of works created during the semester. Students are placed in the course based on the Writing Arts Department placement criteria. Passing this course fulfills the College Composition I (COMP 01111) General Education requirement.

COMP 01111: College Composition I 3 s.h.
Prerequisites: Appropriate placement score
This course introduces students to a variety of writing forms and emphasizes writing as a recursive process of exploring, researching, drafting and revising. Students produce purposeful, literate, well-developed, and informed writing that requires critical reading, thinking and writing activities. The course also emphasizes responsible evaluation and use of information. Course requirements include a portfolio comprised of works created during the semester. Students are placed in the course based on the Writing Arts placement criteria.

COMP 01112: College Composition II 3 s.h.
Prerequisites: COMP 01111 or COMP 01105 or HONR 01111
This course builds on the concepts and approaches in College Composition I (COMP 01111) and/or Intensive College Composition I (COMP 01105). The course emphasizes argumentation and information literacy. It introduces students to argumentative strategies, asks them to identify and analyze forms of argumentation, and requires them to write a variety of well-researched and ethically responsible arguments. Students will work to become independent researchers who can find relevant information from a variety of sources (both academic and non-academic, traditional text and digital) and evaluate and present that information to an academic audience. Course requirements include a portfolio comprised of works created during the semester.

ESL 08110: English as a Second Language I 3 s.h.
Developed for students whose native language is not English, this course places emphasis on listening and speaking while developing skills through practice of reading and writing in English. The course includes cultural topics to facilitate students' adaptation to the American educational environment. This course may not be offered annually.

ESL 08111: English as a Second Language II 3 s.h.
This is a mid-level course for students learning English as a second language. It helps students acquire increased skill in English usage, particularly written English. The course focuses on sentence structure and other grammatical concerns such as verb formation and pronoun reference. There is also some emphasis on spoken English. Students continue to discuss cultural topics while improving their ability to read and write in the target language of English.

ESL 08112: English as a Second Language III 3 s.h.
This course helps non-native students succeed in college by developing increased competence in the use of English. Students read and write in English, discussing differences between native languages and English. They also discuss writing formats generally encountered in college. The course offers further examination of English syntax and stresses building an English vocabulary.

ESL 08115: Basics of Academic English for Non-Native Speakers of English 9 s.h.
This developmental course will introduce English language learners to the academic English skills needed to succeed in college. Using an integrated skills language approach, students will improve in all language skills as students learn to write various genres of essays while also offering further examination of English syntax and vocabulary building.

ESL 08120: Advanced Academic English for Non-Native Speakers of English 9 s.h.
This course is designed to further develop academic English Skills for English language learners so that they are prepared to suceed in college. While exploring cross-cultural topics of interest, students will focus on developing a more complex understanding and use of academic writing. With the emphasis on writing skills, students will hone their library and information literacy skills needed for college.

MAWR 01554: Core I: Theories and Techniques of Writing 3 s.h.
Core I offers an indepth examination of theories of composing, focusing on the interdisciplinary nature of writing through inquiry into rhetorical elements common to all writers, for example, genre, tone, audience, point of view, and voice. It also considers basic principles and techniques of writing, including narration, dialogue, exposition and style. Students will examine many genres of writing and compare and contrast the application of techniques to the differing genres.

MAWR 01555: Writing for Electronic Communities 3 s.h.
This course presents the rhetorical, social, and practical dimensions of writing in electronic (cyber) contexts. Students focus both on the various roles an individual creates and maintains when writing for different cybermedia formats and the kinds of conventions, concerns and grammars that exist in discrete electronic systems like the World Wide Web, listservs, distribution lists, the Intranet, e-mail, and hypertext. Seminar presentations and a semester-long project in a concentrated area of writing for a particular electronic community demonstrate students' ability to communicate on-line.

MAWR 01558: Fiction Workshop 3 s.h.
Students will complete, through the composition of a first draft and revision, works of literary fiction with emphasis upon the short story. In addition, students will read a body of published stories that illustrates such elements of fiction as setting, point of view, characterization and dialogue. Students will develop an analytical vocabulary that enables them to read, interpret, and evaluate the work of other fiction writers. A major portion of this class will be given over to workshop sessions during which students share and evaluate each other's work. As a workshop, this course can be taken twice for credit.

MAWR 01559: Core II: Research Methods for Writers 3 s.h.
Prerequisite: MAWR 01554
Core II surveys non-quantitative research methods writers use. This class examines techniques of print and on-line research, interviewing, and case studies to develop the ability to weigh and assess the reliability and relevance of information. Students will learn to identify and present problems in writing using different perspectives and learn how these research styles guide a writer's interpretation of information. The course prepares students to develop their own descriptive research projects.

MAWR 01560: Managerial Communication 3 s.h.
Managerial Communication introduces students to the theoretical and practical insights of corporate communication. The course helps students develop leadership communication skills and is designed to improve communication skills for managers, information workers, and other professional writers. Students will learn about rhetorical theories and rhetorical strategies for responding to communication situations, current forms of corporate communication, effects of technology and globalization on corporate communication, and guidelines for ethical communication. Students will prepare a variety of professional quality documents in response to real world, case-based assignments.

MAWR 01564: Information Architecture 3 s.h.
Information Architecture explores the connections among web site usability, interactivity, design, and navigation principles as each relate to the written content. Students investigate how written content influences the look and user-friendliness of web sites. Specific issues addressed in the course include presenting content for audiences with disabilities or for non-English speakers; privacy and security concerns; and the rise of information anxiety in the general public.

MAWR 01565: Technical Writing 3 s.h.
Technical Writing introduces students to the rhetorical, ethical, and professional issues associated with technical communication. It focuses on the rhetorical principles behind standard formats and styles of technical documents. It explores topics such as, document design; ethics (including issues of product liability); editing, style, and mechanical correctness; the role of technology; and the impact of the global marketplace.

MAWR 01566: Editing the Literary Journal 3 s.h.
This course provides hands-on experience with the editorial and managerial processes involved in publishing Glassworks, a literary journal in print and electronic formats. Students will study both successful and struggling journals and basic reference guides to determine criteria for success. Working with the instructor and various section editors, students will solicit, evaluate, and select submissions, communicate with contributors about editorial decisions, determine the layout and design of the journal, and distribute the journal. They will also evaluate and produce editorial content in various genres, including book reviews, author interviews, and opinion editorials, for potential publication in the magazine.

MAWR 01567: Professions in Publishing 3 s.h.
In this Master's level course, students will be introduced to the vast and complicated world of publishing, and will acquire a basic understanding of the different roles, terms, and current issues within the industry, especially as it pertains to trade industry publishing. Students will explore the variety of publishing structures in the industry today, emphasizing developmental editing and the role of the acquisitions editor. Students will also learn about marketing, production, sales, agenting, contract negotiation, and the process of developmentally editing manuscripts. Through working hands-on with materials and speaking with industry professionals, students will leave the course empowered to engage in the publishing industry and what such work will entail.

MAWR 01615: Independent Study 3 s.h.

MAWR 01620: Internet and Writing Studies 3 s.h.
This is a theory driven seminar course with a practical component wherein students will learn HTML, CSS, and how to compose web sites according to the latest theories on web design. Students will read scholarly texts that introduce them to the evolution of written communication and writing technologies, Internet studies, and hypertext theory. Students will use these texts and theories to both analyze and compose various web sites, including an online portfolio of work they would like to showcase for future employers or graduate schools.

MAWR 01621: Visual Rhetoric and Multimodal Composition 3 s.h.
This is a theory driven seminar course with a pracitcal component. Students will read scholarly texts that introduce them to theories on multimodality, semiotics, visual rhetoric, copyright, and remix. Students will use these theories to both analyze and compose visual texts using multiple modes of communication.

MAWR 01622: Publishing for Creative Writers 3 s.h.
In this course, students aspiring to become published authors will explore many facets of literary publishing, from submitting work to agents and editors to editing a manuscript in production and marketing a completed book. Students will examine the many complex processes by which a literary manuscript (novel, story collection, memoir, etc.) becomes a book. Students will learn how to submit creative work to literary magazines, to agents, and to publishers. They will submit at least one completed work (an essay, a story, or a poem) to an appropriate journal or magazine. They will write a query letter and a synopsis for one of their own book-length projects and develop a marketing plan for the projected work. They will learn the most common reasons that writing is rejected and how to avoid them. They will learn about the varied roles of agents and editors from the editorial process through the design, production and promotion of the book. They will learn about the importance of applying for grants and fellowships, of submitting to literary competitions, and of "networking" in the development of a writing career. Students with completed or nearly completed books may use their own manuscripts for all of the above assignments.

MAWR 02505: Poetry Workshop 3 s.h.
This class will provide a forum for students to explore the strategies poets use in creative expression. The students will develop an analytical vocabulary that allows them to read, interpret, and evaluate the work of other poets. A major portion of the class will be given over to workshop sessions, where students can share and evaluate each other's work. Students will also become familiar with a body of published poetry that illustrates techniques of expression, especially those that can be applied, not only to poetry, but to other genres of creative writing. As a workshop, this course can be taken twice for credit.

MAWR 02515: Creative Nonfiction Workshop 3 s.h.
Teaching students the form, structure and techniques of creative nonfiction, this workshop-style course addresses the issues of style, point of view, narrative and dramatic coherence as it applies to personal essay, the treatment of memory data, the use of detail in scene-setting and the connection between fictional and poetic strategies in nonfiction writing. In addition to their own work, students read and analyze contemporary creative nonfiction and classics in the genre; these texts serve as models for students to help them locate themselves within the large framework of creative nonfiction. Students will write several major pieces of varying lengths and types. As a workshop, this course can be taken twice for credit.

MAWR 02520: Writing the Novel 3 s.h.
Writing the Novel teaches students the structure, technique, and apparatus of the literary novel, and provides feedback and guidance through extensive instructor critique and workshop-style evaluation. It is recommended that students enrolling in this course have some prior practice in literary novel-writing or at least a strong background in reading the literary novel. Students are required to submit four consecutive novel chapters with synopsis by the end of the course.

MAWR 02523: Writing the Memoir 3 s.h.
Students receive in-depth instruction in writing the memoir, one of the most engaging and popular literary forms today. Students will read widely from selected memoirs, write three short memoirs that may stand alone or be interrelated, and experience the workshop method of critiquing manuscripts. Students will focus on characterization, conflict, point-of-view, and other literary elements traditionally associated with the narrative form as they develop their memoirs.

MAWR 02524: Writing the Graphic Novel: Theory and Practice 3 s.h.
This course explores the graphic novel genre and its incarnations through readings, writings, and discussion. An original script for a graphic short story or beginning of a novel will be developed in a series of assignments, and discussed and critiqued in a workshop environment. This course may not be offered annually.

MAWR 02525: Writing Genre Fiction 3 s.h.
Whether it involves walking through the woods speaking Elvish, visiting a distant planet, solving a crime, or staying the night in a haunted house, genre writing captures audiences and transports them into the land of "what if." In this class, students will write long or short fiction in the genres of mystery, horror, fantasy, and sci-fi, exploring the conventions and tropes each genre employs. Students will also study the ways in which published authors have used these genres to dig into the human experience, and they will learn about the thriving publishing industry business that promotes these genres.

WA 01100: Writing Arts Learning Community 1 s.h.
This course orients incoming Writing Arts students to the major, the field, department faculty, publication options and future careers. It provides information and advising for the major; introduces students to Writing Arts faculty and alumni, as well as campus student clubs and publications; and establishes a cohort that can sustain community throughout students' University careers.

WA 01200: Introduction to Writing Arts 3 s.h.
Prerequisites: COMP 01111 and COMP 01112
Introduction to Writing Arts familiarizes students with the disciplinary underpinnings of Writing Arts, providing a background in the history of writing, current writing theories, writing as technology, and the writing professions. The course covers these issues within the context of the Writing Arts major, enabling students to situate themselves in a community of writers and language professionals and preparing them for upper-level cousework.

WA 01201: How Writers Read 3 s.h.
Prerequisites: COMP 01112
This sophomore-level course introduces students to theoretical methods of reading complex and sophisticated texts. Students will study theories of reading and writing that concern structure, register, genre, intertextuality, and rhetorical concerns. The course presents these theories and correlative methods through readings, and students then practice applying these methods during class discussions and in writing using a series of self-selected texts as the objects of study.

WA 01250: Tutoring Writing 3 s.h.
Prerequisite: COMP 01112
This sophomore-level course introduces students to current theories and methods of tutoring writing. Students will study theories concerning the writing process, the teaching of writing, the tutorial relationship, and issues related to working with writers from a variety of backgrounds and abilities. The course presents these theories and methods through readings, and students apply these methods through class discussions, tutoring observations, and tutoring in a variety of settings. Throughout the course, students reflect on how methods of tutoring writing impact their development as writers.

WA 01300: The Writer's Mind - WI 3 s.h.
Prerequisite(s): COMP 01112 and 45 credits earned
The Writer's Mind increases students' understanding of themselves as writers by learning craft-specific approaches to writing, and by developing critical awareness of their own and others' writing. Working in different genres of writing, students will gain experience in effective revision strategies, in analyzing audience, and in visual aspects of the printed or electronic page.

WA 01301: Writing, Research & Technology 3 s.h.
Prerequisite(s): WA 01200 with concurrent enrollment allowed, COMP 01112, and 60 credits earned
This course presents the rhetorical, social, and practical dimensions of writing and researching in networked contexts. Students analyze and compose with audio, video, image and text, using a variety of digital writing practices. Students blend research methods informed by current literacy theories and modalities, allowing them to explore meaning-making, circulation, and the ethical ramifications of writing within digital communities.

WA 01302: Introduction to Technical Writing - WI 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201 and 45 credits earned
This course introduces students to both the field of technical writing and the uses of technical writing within a variety of professions. Students will learn how technical writers use document design strategies based on rhetorical principles to respond to communication challenges. Through practice with a variety of genres, students will gain experience with audience analysis, communication ethics, research, collaboration, professional style, and editing. The course culminates in a writing project based on a professional, academic, or community issue of the student's choosing. Students are encouraged, and will be assisted, in designing projects that reflect their professional interests.

WA 01304: Writing Creative Nonfiction-WI 3 s.h.
Prerequisite(s): COMP 01112 and WA 07290
Addressing craft and ethical concerns, this course introduces students to creative nonfiction. In the study of this "fourth genre" of creative writing, focus is on those elements, e.g., imagery, characterization, diction, that make nonfiction creative. Students will write in a number of subgenres, such as memoir, literacy journalism, and the personal essay, and will be exposed to a variety of narrative structures. They will also read and analyze representative professional writing to provide contexts for their own work, which will be critiqued by both the instructor and their peers. Special attention will be paid to the evolution of the student writer's personal voice.

WA 01305: Writing Comedy 3 s.h.
Prerequisite: COMP 01112
This course introduces students to the strategies and tools writers of comedy use to educate, entertain, and move audiences. Students will study a basic repertoire of rhetorical strategies, analyze how comedy writers employ these strategies within a variety of forms of comedy, and then employ those same strategies to write their own comedic writing.

WA 01311: Research Practicum in Writing Arts I 1 s.h.
Prerequisite(s): 75 credits earned, approval of Writing Arts Dept., minimum 2.5 GPA
Students apply the theories and methodology learned in Writing Arts courses to a research mentorship with a member of the department faculty. Students keep a detailed log of working hours, prepare a portfolio representative of their practicum experience, write an analytical critique of the practicum, and are evaluated by their faculty mentor as well as the practicum supervisor. May be taken concurrently with WA 01312 and/or WA 01313.

WA 01312: Research Practicum in Writing Arts II 1 to 3 s.h.
Prerequisite(s): 75 credits earned, approval of Writing Arts Dept., and minimum 2.5 GPA
Students apply the theories and methodology learned in Writing Arts courses to a research mentorship with a member of the department faculty. Students keep a detailed log of working hours, prepare a portfolio representative of their practicum experience, write an analytical critique of the practicum, and are evaluated by their faculty mentor as well as the practicum supervisor. May be taken concurrently with WA 01311 and/or WA 01313.

WA 01313: Research Practicum in Writing Arts III 1 s.h.
Prerequisite(s): 75 credits earned, approval of Writing Arts Dept., and Minimum 2.5 GPA
Students apply the theories and methodology learned in Writing Arts courses to a research mentorship with a member of the department faculty. Students keep a detailed log of working hours, prepare a portfolio representative of their practicum experience, write an analytical critique of the practicum, and are evaluated by their faculty mentor as well as the practicum supervisor. May be taken concurrently with WA 01311 and/or WA 01312.

WA 01315: Writing with Technologies 3 s.h.
Prerequisite(s): COMP 01112 and 60 earned credits
Writing with Technologies provides students with a theoretical basis for understanding the ways technologies - past, present, and future - shape the collaborative construction of meaning inside and outside the classroom. Students are encouraged to expand their repertoire of technologies and conduct research on contemporary writing practices to increase critical awareness of the affordances and constraints writing technologies make available to them as future educators.

WA 01320: Internship I in Writing Arts 3 to 6 s.h.
Prerequisite(s): 75 credits earned and Writing Arts major with 2.5 Major GPA
Under professional supervision in the field, students practice theories and skills learned in the classroom. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their faculty supervisor.

WA 01321: Internship II in Writing Arts 3 s.h.
Prerequisite(s): 75 credits earned and Writing Arts major with 2.5 Major GPA
Under professional supervision in the field, students practice theories and skills learned in the classroom. Students keep a detailed log of working hours, prepare an extensive portfolio, write an analytical critique of the practicum, and are evaluated by their faculty supervisor.

WA 01322: Writing for the Workplace-WI 3 s.h.
Prerequisite(s): COMP 01112 and 45 credits earned
This course introduces students to writing activities common to most careers. Assignments may include resumes and cover letters, field and progress reports, and proposals. Students can also expect to deliver brief oral presentations.

WA 01325: Scientific Writing and Rhetoric 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112 or ENGR 01201 and 60 credits earned
Scientific Writing and Rhetoric provides students with the tools to understand and critically analyze, evaluate, and communicate scientific information. Students will gain familiarity with various genres of scientific writing and will practice communicating scientific knowledge to specialized and non-specialized audiences, using a range of genres and mediums. Students will also gain an understanding of the rhetorical nature of scientific knowledge and the role of scientific writing in shaping public opinion, policy, and law.

WA 01326: Writing for Nonprofits-WI 3 s.h.
Prerequisite(s): COMP 01112 and 60 credits
This course is a junior level course that addresses the special technical and professional writing skills required for work in the nonprofit sector. Students will develop a broad understanding of the unique communication challenges faced by nonprofit organizations as they research and analyze the writing of various nonprofits and as they write in authentic situations. This course explores how nonprofits communicate with their many audiences, and students will compose writing typical of nonprofit organizations, including press releases and other public relations material, fundraising communications, reports, and grant proposals. Students may also have the opportunity to engage in service learning by working with and for a local area nonprofit.

WA 01330: Medical Writing and Rhetoric-WI 3 s.h.
Prerequisite: COMP 01112
This course introduces students to a variety of genres of medical writing that exist in public and professional arenas. Students will analyze the rhetorical and social elements of medical discourse in order to better understand medicine as a discipline and culture and learn to produce texts that meet the needs of medical discourse communities. Topics might include narrative medicine, medical rhetoric, health literacy, disability and health, and health provider-patient communication. Students will practice writing in a number of genres such as pathographies, patient education materials, medical reviews, public health campaigns, medical reports and proposals, and graduate school personal statements.

WA 01335: Environmental Writing and Rhetoric-WI 3 s.h.
Prerequisite: COMP 01112
Environmental Writing and Rhetoric introduces students to the history and practice of environmental writing and explores the challenges inherent in communicating about the natural world through text. Students will identify, critique, and compose in a variety of genres ranging from nature writing to contemporary science reporting and develop skills like conveying complex scientific information in clear prose and intervening in pressing environmental issues.

WA 01350: Rhetorics of Style-WI 3 s.h.
Prerequisite: COMP 01112
This course introduces students to the theory and practice of writing with stylistic devices and strategies. Through studying, analyzing, experimenting, and writing with a range of stylistic devices, students will develop a practical understanding of how to put figural language to use for persuasive, expository, and aesthetic ends, as well as develop an appreciation for the ethical implications of stylistic choices.

WA 01355: Editing for Publication 3 s.h.
Prerequisite: COMP 01112
This course introduces students to the practice and profession of editing. Students will study a range of topics in editing, including grammatical, stylistic, and ethical concerns, as well as reading for organization, flow, and accuracy. Through hands-on practice with editing, students will gain greater sensitivity to language and knowledge of the work of professional editors. Students will improve their ability to approach a range of texts with a growing competency in editing.

WA 01356: Self Publishing 3 s.h.
Prerequisite: COMP 01112
This course considers the histories, technologies, and practices of self-publishing. Students will examine how writers have historically made and circulated texts on their own for different rhetorical purposes — artistic, civic, academic, or entrepreneurial — and have innovated using a variety of technologies in the process. They will then use these disparate contexts and technologies to articulate professional trajectories that make use of emerging and self-made networks and intermediaries as a pathway toward or alternative to traditional sponsorship. Rather than imagine themselves as writers who inevitably must work with large publishing companies or major organizations in order to be heard, students will learn how localized communities (such as those who produce zines, small presses, and e-books), production services (such as print on demand and web hosts), and practices (such as niche marketing and crowdfunding) can support and sustain their writing in the short- and long-term.

WA 01358: Teaching the Writer's Workshop-WI 3 s.h.
Prerequisite(s): COMP 01112 or HONR 01112
In this course, students will explore current theories of the Writer's Workshop, and will develop the skills and knowledge necessary to facilitate a successful Writer's Workshop within early childhood, elementary, and middle school settings.

WA 01370: Professions in Writing Arts: Post-Graduate Options 1 s.h.
Prerequisite(s): WA 01200 and 30 credits earned
Professions in Writing Arts: Post-Graduate Options introduces students to the various and wide-ranging opportunities available to writing arts students by exploring career, graduate school and other professional options in the field of writing. Class topics may include statements of purpose and letters of application; internships, field experience, and volunteerism; and publishing opportunities. Professionalism and entrepreneurial approaches to job seeking are also emphasized. Discussions and workshops are supplemented by guest speakers and readings.

WA 01375: Writing about Popular Culture 3 s.h.
Pre-requisites: COMP 01112 or HONR 01112 or ENGR 01201
Whether we are ranking the greatest gangster films of all time, arguing for the political importance of hip hop, or sharing memes about the lifestyles of celebrities, the various forms of popular culture serve as important public spaces for making meaning. This course considers the different ways writers respond to these forms as they analyze and situate pop culture through reviews, interviews, rankings, features, and digital media. Students will read from a variety of critics and genres, write and publish in these genres, and consider the ethical questions and rhetorical functions such texts present for pop culture.

WA 01404: Special Topics Writing Arts 1 to 6 s.h.
This course has a changing focus that permits faculty to offer specialized seminars focusing on current trends in the field, areas of faculty creative work and scholarship, or student requests. Students may take this course for credit more than once, provided the subtitle is different. This course may not be offered annually.

WA 01406: Professional Practices and Partnerships I 3 s.h.
Prerequisite: First Semester Senior Year in 3+1 Applied Professional Communication program
Professional Practices and Partnerships I is a project-based practicum that prepares students for a variety of professional communication careers. Students will synthesize their learning across the curriculum and learn best practices in their specialty areas. They will construct portfolios and resumes that reflect their development toward their career goals. Students also develop professional networks through interaction with guest speakers and industry experts in communication-related regional business, startup, and non-profit organizations.

WA 01408: Writing as Managers 3 s.h.
Prerequisite: COMP 01112 or HONR 01112 or ENGR 01102
This course provides Management students with extensive practice in preparing the written materials required by common management activities. Assignments include preparing the written materials required for OSHA compliance, in disciplinary situations, in alleged sexual harassment situations, and customer service. Other specific topical assignments will be developed to respond to changes in the education needed by Management students.

WA 01410: Independent Study in Writing Arts Program 3 to 6 s.h.
This course provides students with an opportunity to work independently on specialized topics under the guidance of a faculty member. Generally, this course cannot be substituted for any course offered by a department in the College of Communication. Permissions are needed from the Department Chair and the Dean.

WA 01415: Situating Writing 3 s.h.
Prerequisite(s): COMP 01112 and 75 credits earned
Situating Writing provides students with the theoretical and practical tools they will need to work with young writers by introducing methods of teaching and evaluating writing that are explicitly writer-centered. Students will develop their own understandings of the process while learning how to respond to writing in ways that are situation-specific. Students will also improve their own writing by collaborating with other writers, giving and receiving feedback on work in progress, and using a range of technologies that facilitate feedback and revision.

WA 01445: Senior Seminar: Methods of Analysis and Evaluation of Writing 3 s.h.
Prerequisite(s): COMP 01112 and WA 01200 and 90 credits earned
In this senior capstone course, students will expand their understanding of theories of reading and writing and apply these theories to the analysis of various rhetorical artifacts. Students will complete the course having demonstrated rhetorical adaptability in their analysis and evaluation of artifacts from multiple genres.

WA 01450: Writing Arts Portfolio Seminar 1 s.h.
Prerequisite(s): WA 01300 and WA 01301 and WA 01445
Seniors majoring in Writing Arts will have an opportunity to reflect on the work undertaken as part of the writing arts major. The course asks students to construct and submit a portfolio consisting of work products both from those courses included in the core and from a selection of courses in the required elective clusters. A written reflection on the intellectual and learning experience derived from these courses as evidenced by the items included comprises the written requirement for this course.

WA 07290: Creative Writing I 3 s.h.
Prerequisite: COMP 01111 or COMP 01105
This course concentrates on developing students' skills in writing various kinds of poems and in developing fiction techniques. In addition to exploring different poetic forms, students learn how to create characters, establish conflict, and develop a plot while writing a short story. Students examine the work of professional poets and fiction writers.

WA 07291: Creative Writing II 3 s.h.
Prerequisite: WA 07290 or CRWR 07290
Building upon the foundations learned in Creative Writing I, students in Creative Writing II will engage in more specific practice in the conventions of short story writing, creative nonfiction and poetry. Students will have directed assignments encouraging experimentation in multiple genres but will prepare a final portfolio that may give more emphasis to a genre of their choice. Special emphasis will be placed on reading examples of these conventions and learning how writers graft or borrow techniques (dialogue, dramatic monologue, voice, description) from one genre to apply it in another.

WA 07309: Writing Children's Stories 3 s.h.
Prerequisite: 30 credits earned
This course focuses on fiction written for juveniles and young adults. Students examine the rich variety of literature published for young people. They do exercises, write complete stories, critique each other's writing in workshops and meet with the teacher for individual conferences on their work. They also learn how to submit manuscripts to magazine and book publishers.

WA 07391: Writing Fiction 3 s.h.
Prerequisite(s): WA 07290 or WA 07291 or CRWR 07290 or CRWR 07291
This class will provide a forum for students to explore the strategies fiction writers use in creative expression, especially in writing the short story. Students will develop an analytical vocabulary that allows them to read, interpret, and evaluate the work of other fiction writers. A major portion of the class will be given over to workshop sessions, where students can share and evaluate each other's work. Students will also become familiar with a body of published short stories that illustrate techniques of expression such as setting, point of view, characterization, dialogue, and other elements of fiction.

WA 07392: Fundamentals of Playwriting 3 s.h.
This course covers the methods of developing and writing a play. During the course, students analyze plays, and outline and work on the draft of a full-length play. This course may not be offered annually.

WA 07395: Writing Poetry 3 s.h.
Prerequisite: WA 07290 or CRWR 07290
This class will provide a forum for students to explore the strategies poets use in creative expression. The students will develop an analytical vocabulary that allows them to read, interpret, and evaluate the work of other poets. A major portion of the class will be given over to workshop sessions, where students can share and evaluate each other's work. Students will also become familiar with a body of published poetry that illustrates techniques of expression such as imagery, metaphor, voice, tone, the music and strategy of the line, and other elements of poetry.

WA 07415: Writing the Young Adult Novel-WI 3 s.h.
Prerequisite(s): WA 07290 or WA 07309 and 45 credits
This course provides in-depth exploration and practice of writing the Young Adult Novel by reading and writing literature intended for a young adult audience. It emphasizes student's own writing and examines the craft of fiction and the elements of Young Adult literature, including voice, characterization, theme, and plot, and the role these elements play in the Young Adult genre.

Organization of the University

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Lee Talley	Dean, Honors College
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Annette Reboli	Dean, Cooper Medical School of Rowan University
Thomas A. Cavalieri	Dean, Rowan University School of Osteopathic Medicine
Carl E. Hock	Senior Associate Dean, Graduate School of Biomedical Sciences

Executive Administration

Abruzzo-Klumpp, Dorothy — Associate Director, University Advising Services
B.A., M.A. Rowan University

Accardo, Amy — Director, Center for Neurodiversity
M.S. Drexel University, EdD Arcadia University

Ali, Aymen — Manager of CREATE's

Alkanat, Gokhan — Associate Provost for International Education
Ph.D., Auburn University; M.Ed., Troy University

Alverio, Melanie — Assistant Director of Marketing, Member Services and Business Operations
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Conners, Deanne Managing Administrative Assistant, Dean's Office (CMSRU)
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Conte, Patricia Administrative Financial Assistant for Academic Affairs
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BA Rowan University

DiGennaro, Linda — Director of University Events
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Diaz, Marta — Managing Physician
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General Information

Campus Buildings

113 Laurel Road - Stratford Campus

Located across Laurel Road from the main part of campus, 113 Laurel Road houses the Admissions and Student Financial Aid offices

301 High Street

The three story building is home to the Rowan University Art Gallery and is home to several academic offices and classrooms.

6 High Street

The former bank building is now home to the administrative offices of the College of Communication and Creative Arts.

Academic Center - Stratford Campus

Ground floor includes Top Docs Café, University Library, Auditorium and Multi-Purpose Room. Student Lounge, classrooms, conference rooms and Academic Affairs offices. The third floor includes the Dean's offices, classrooms and Anatomy Lab

Barnes & Nobles at Rowan University

Located on Rowan Boulevard, this now serves as the University Bookstore.

Bole Annex

Opened in the spring of 1970, Bole Annex houses the Department of Public Safety.

Bole Hall

Robert D. Bole Hall is the administrative center of the University. It contains the offices of the President, Provost, University finances, and The Office of General Counsel. It is named after former Dean Robert Bole.

Bozorth Hall

Named for a former registrar, Loriot Bozorth, the building was originally opened in 1954 as the campus demonstration elementary school. Today, Bozorth houses the College of Communication offices, Rowan Radio, Rowan TV, a distance learning classroom, film-editing facilities, a computer-equipped journalism newsroom, an advertising/PR client suite, a layout room and a computer-equipped writing laboratory.

Bunce Hall

The first building on campus, Edgar J. Bunce Hall was opened in 1923 and is named for a former president of the University. It is home to the departments of English, Foreign Languages and Literatures, Philosophy and Religion, and Theatre and Dance. This building also features classroom space and Tohill Auditorium.

Business Hall

Opened in 2017, Business Hall is on Rt. 322 and is home to nearly 2,000 business majors.

CREATEs

Opened in 2017, the Center for Research and Education in Advanced Transportation Engineering Systems is located at the South Jersey Technology Park.

Camden Academic Building

The Camden campus is located in the historic First National Bank and Trust Company building and annex, on the corner of Cooper and Broadway, and serves as the heart of Rowan University's Camden campus. The Camden campus provides an array of services for students, faculty, and staff.

Campbell Library

Opened in 1995, the Keith and Shirley Campbell Library features 118,000-square feet of research, study, archive and office space. It provides connectivity to the campus network, enabling access to many databases and online resources. The Library was named the Keith and Shirley Campbell Library in recognition of the Campbells' generous gift of an endowment for the facility in 2000. The Departments of Sociology and Anthropology and the Department of Law and Justice are housed on the 5th floor.

Carriage House
Built in 1849 to service the Hollybush Mansion, this building now houses University Publications.

Cassady Maintenance Building
Opened in 1971, the Otto P. Cassady Maintenance Building, named for a former engineer in charge of maintenance, is the main office complex for maintenance operations.

Chamberlain Student Center
The Student Center opened in 1974 and serves as a campus focal point where students, faculty, staff and community members congregate for a wide range of events, services and functions. It houses offices for student organizations and publications as well as several administrative offices. The following facilities are located in the three-level center: the information desk, I.D. room, mailroom, an ATM machine, Eynon Ballroom, meeting and conference rooms and eating areas, including the dining hall, a food court, snack bar, outdoor dining terrace, Profs Place and the Owl's Nest Restaurant.

Cooper Medical School of Rowan University
The six story building, located in Camden, is home to Rowan's M.D. granting medical School.

Discovery Hall
Open 2021, Home to Earth and the Environment and university labs

Edgewood Park Apartments
This four-building complex houses 24 apartments. Four students live in each apartment, which contains two bedrooms, a living room, dining room, kitchen and bathroom.

Engineering Hall
Opened in 2017, it sits next to the Henry M. Rowan Hall, home of the College of Engineering.

Enterprise Center
Located on Rowan Boulevard, the Enterprise Center opened in 2013 and is home to the College of Graduate and Continuing Education.

Esby Gym
The Roland A. Esbjornsen Hall houses the gymnasium, swimming pool, classrooms and the Health and Exercise Science faculty offices. The building is named after a former chairman of the Health and Exercise Science Department.

Evergreen Hall
Evergreen houses 204 students. The building is three stories tall and is separated into two wings. Rooms are arranged in suites. Each suite contains two double bedrooms and a bath.

Girard Ave. Facilities & Operations Facility
Houses Facilities & Operations

Hawthorn Hall
Formerly a student residence facility, Hawthorn Hall is one of the homes of the College of Communication.

Hering Central Heating and Cooling Plant
The J. Leonard Hering Heating Plant, named for a former superintendent of maintenance, houses the centralized heating and cogeneration equipment.

Herman D. James Hall
Herman D. James Hall, opened January 2006, is home to the College of Education. The three-story, 135,000-sq. foot building features academic distance-learning facilities, an early childhood development center and an assortment of labs and outreach centers as well as classroom space.

Holly Pointe Commons
Opened in 2017, HPC is a 1,400 bed residence hall built with private funds.

Hollybush Mansion
Built in 1849, the building was the site of the historic summit meeting between President Lyndon B. Johnson and Soviet Premier Alexei B. Kosygin in 1967. The building now serves as a museum and meeting center.

Laurel and Oak Halls
Laurel and Oak were the University's first residence halls. They have had multiple uses throughout the years. They are now home to a variety of administrative offices.

Memorial Hall
Opened in 1956, the building serves as the center for information (computer) resources, housing the campus help desk, Web Services and the Duplicating Center. A dance studio is also in the building.

Mimosa Hall
Mimosa accommodates 305 students. Rooms are arranged by suites, and each suite contains two to three double bedrooms and a bath.

Mullica Hall
Mullica accommodates 103 students. Rooms are arranged by suites, and each suite contains two double bedrooms and a bath.

Robinson Hall
Named after Thomas E. Robinson, a former Rowan University president, this is one of the largest classroom buildings on campus. It is home to several departments of the College of Liberal Arts & Sciences. The core of the building consists of classrooms and seminar rooms.

Rowan Boulevard Apartments
Rowan Boulevard Apartments, is made up of two, four-story buildings that house 884 students in 28 one-bedroom efficiency units and 214 four-bedroom suites. The suites include two bathrooms, a kitchen, breakfast nook and living room area. The complex also contains exercise and weight rooms, meeting rooms, laundry facilities and a Public Safety satellite office.

Rowan Hall
Opened in January 1998, Henry M. Rowan Hall is the home of the College of Engineering. The 95,000-sq. foot building features three floors of offices, classrooms, labs and the 115-seat Betty Rowan Auditorium.

Rowan Medicine Building (Sewell)
Open 2021

Rowan Medicine Building - Stratford Campus
Primarily a clinical office building, the RMB includes CARES Institute, NJISA, NMI, Family Medicine, Pediatrics, Internal Medicine and Ob/Gyn clinical offices. Lab Corp and a retail pharmacy are on the first floor. The second floor includes the Simulation Lab and the GSBS administrative offices. The third floor includes Employee/Student Wellness and Masterson OMM lab.

Sangree Greenhouse
Built in 1923, the John Sangree Greenhouse is one of the oldest structures on campus. A preservation and renovation project was completed on this facility in 1998.

Savitz Hall
Originally the University library, this building was completely renovated to house all of the student service functions, including the offices of the vice president for Student Affairs, Dean of Students, Career and Academic Planning, Developmental Education, Tutoring, Basic Skills/Testing, Admissions, Counseling, EOF/MAP, Registrar, Financial Aid, Revenue and Collections, Residential Learning & University Housing, Multicultural/International Affairs, Specialized Services, the Center for Service Learning and Volunteerism, the Honors Program and Women's Studies. The building is named after Jerohn Savitz, the University's first president.

Science Center - Stratford Campus
Three story building that houses research laboratories, GSBS classroom and meeting rooms, and the vivarium

Science Hall
Dedicated in 2003, the facility features the 102-seat Edelman Planetarium, a rooftop observatory with 16-inch telescope, a rooftop greenhouse, 27 teaching laboratories and 22 research labs. Its 150,000 square feet of space is spread over three floors. Housed here are offices for the departments of Biology, Chemistry and Biochemistry, and Physics and Astronomy.

Sewell Street Facilities & Operations Facility
Houses Facilities and Operations

Shpeen Hall

Alvin Shpeen Hall is located one block off of the east corner of campus, on Academy Street. The University purchased the former elementary school building from Glassboro and refurbished it to house offices. Today, Shpeen Hall is home to the R. Grace Bagg Alumni Center and the Rowan Foundation. Alvin Shpeen was a mayor of Glassboro. It is home to University Advancement, including Alumni Relations.

South Jersey Technology Park at Rowan University

The Samuel H. Jones Innovation Center is a 45,000 square-foot facility located at the South Jersey Technology Park on Rowan's West campus that provides engineering laboratory, web-laboratory and technology company incubation all within a single facility. In partnership with Rowan's College of Business, the Technology Park offers collaboration and consulting services, product feasibility, development and commercialization services, training seminars and continuing education courses in entrepreneurship for new and established businesses.

Stratford Campus

Home to Rowan's D.O. granting medical school.

Student Recreation Center

"Opened in 1993, the Student Recreation Center is a comprehensive recreation sports facility. The three-story, 76,000-square-foot building houses an eight-lane swimming pool, a three-lane indoor running track, a three-court multi-sport gym, five racquetball courts, an aerobics room, fitness and free-weight rooms, a conference room and complete locker/shower room facilities. Administrative offices coordinate various programs, including informal sports, intramural sports and fitness activities for students, faculty and staff. "

Team House

Opened in 1971, the Team House contains locker rooms; training facilities; and intercollegiate athletics, coaching and staff offices. It was renovated and expanded in 2013.

The North Halls: Chestnut, Magnolia and Willow Halls

These buildings house 750 students. Students live in suites and share restroom facilities.

Townhouses

Opened in 2004, the on-campus, 113-unit townhouse complex along Route 322 features four- and six-bedroom configurations convenient to classes and other activities. The complex was built adjacent to a new parking garage and 5,000-square-foot community center with laundry facilities, a game room and meeting space.

Triad Apartments

Triad features 81 apartments which are carpeted, air-cooled and furnished. A variety of apartment types are available to accommodate 288 students in a co-ed living environment.

University Educational Center - Stratford Campus

One of the original campus buildings, it includes Public Safety, Human Resources and Facilities on the first floor. The second floor includes Student Affairs offices and Problem Based Learning rooms

Victoria Hall

Located near Rowan Boulevard, Victoria Hall is home to College of Communication and Creative Arts programs.

Wellness Center

Seymour Winans Hall is named for a former faculty member. It is now home to Counseling & Psychological Services and the Wellness Center, formerly the Student Health Center.

Westby Hall

Completed in 1967, the Cleve O. Westby Hall Arts Building, named in honor of the former director of county and state college construction, contains art studios for ceramics, sculpture, jewelry/metals, painting, printmaking and photography, computer labs, classrooms, a lecture hall for 110 students, exhibition galleries, and faculty offices.

Whitney Center

Located on Rowan Boulevard, the Whitney Center (opened 2012) features stores on the 1st floor and student housing on top. It is also home to the Thomas Bantivoglia Honors Program and student apartments.

Wilson Hall

Harold Wilson Hall, named after a former faculty member, opened in 1972 and is primarily home to the performing arts. The building contains two large rehearsal rooms, Boyd Recital Hall, practice rooms, classrooms, two student lounges, a music library, faculty offices, the concert box office and W. Clarke Pfleeger Hall—a 1,000 seat auditorium. The dean of the College of Fine & Performing Arts, and Music Department are also located in the building.

General Information

Administrative Offices Telephone Numbers

Academic Success Center	856.256.4259
Admissions (Undergraduate)	856.256.4200
Admissions - Graduate (Rowan Global)	856.256.4747
Alumni Engagement	856.256.5400
ASCEND (formerly EOF/MAP)	856.256.4080
Bursar	856.256.4150
Camden Campus	856.361.2900
Campbell Library	856.256.4800
Campus Activities	856.256.4696
Community Standards	856.256.4242
Conference and Event Services	856.256.5446
Counseling Center	856.256.4222
Dean, Business	856.256.4025
Dean, Communication & Creative Arts	856.256.4340
Dean, Education	856.256.4750
Dean, Engineering	856.256.5300
Dean, Humanities & Social Sciences	856.256.5840
Dean, Performing Arts	856.256.4552
Dean, Science & Mathematics	856.256.4850
Disability Resources	856.256.4234
Financial Aid	856.256.4250
Information Resources & Technology	856.256.4401
Main Switchboard	856.256.4000
Military Services	856.256.4233
Multicultural & Inclusion Programs	856.256.4448
Office of Academic Affairs	856.256.4011
Office of Career Advancement (OCA)	856.256.4456
Office of Health Professions	856.256.5813
Office of Social Justice, Inclusion and Conflict Resolution	856.256.5495
Office of Student Life & Leadership Programs	856.256.4283
Owl's Nest	856.256.4932
President	856.256.4100
Provost	856.256.4108
Public Safety (emergency)	856.256.4911
Public Safety (non-emergency)	856.256.4922
Recreation Center (Main Office)	856.256.4900
Registrar	856.256.4350
Residential Learning & University Housing	856.256.4266
Rowan Global Student Services	856.256.5435
Student Center	856.256.4601
SVP Finance & CFO	856.256.4125
Testing Services	856.256.4263
Tutoring Center	856.256.4460
Volunteerism, Community Engagement & Commuter Services	856.256.4595
VP University Advancement	856.256.4159
VP University Relations	856.256.4129
Wellness Center **Main Number** (formerly Student Health Center)	856.256.4333

Directions to Campus

Directions to Campuses

For GPS, use the street address for each of our campuses as indicated below

Main Campus - Glassboro
201 Mullica Hill Road, Glassboro, NJ 08028

Cooper Medical School of Rowan University (CMSRU)
401 South Broadway, Camden, NJ 08103

Rowan University @ Camden - Bank Building
129 North Broadway, Camden, NJ 08102

Rowan University School of Osteopathic Medicine (SOM)
One Medical Center Drive, Stratford, NJ 08084

West Campus - Tech Park
107 Gilbreth Parkway, Mullica Hill, NJ 08062

The Emeriti

Adams, Ethel M. (1968-1984) Professor
Psychology
B.A., Eastern Michigan University; M.A., University of Michigan; Ed.D., University of Pennsylvania

Addison, Carolyn (1967-1991) Professor
Health and Physical Education
B.S., James Madison University; M.A. New York University; Ed.D., Temple University

Adelson, Fred 1974-2022 Professor
Department of Art
B.A., Univ. of Massachusetts; M.A., M.Phil., Ph.D., Columbia University

Albone, Kenneth 1982-2022 Associate Professor
Department of Communication Studies
B.S., Lake Superior State College; M.A., Miami University; Ph.D., Bowling Green State

Alvino, Esther (1966-1987) Assistant Professor
Elementary Education
B.A., M.A., Glassboro State College

Ambacher, Jr., Richard J. (1967-2000) Professor
Communication Studies
B.A., Glassboro State College; M.F.A., Yale University

Amer, Khaled 1983-2014 Assistant Professor
Math and Computer Science
B.S., Cairo Univ.; M.S C., Concordia Univ.; M.S., Ph.D., University of Waterloo

Amme, Linda (1968-1990) Assistant Professor
Special Education Services and Instuction
B.A., M.A., Glassboro State College

Andersen, Donald (1970-1998) Assistant Professor
Special Education Services and Instruction
B.A., M.Ed., Rutgers University

Applebaum, David 1973-2011 Professor
Department of History
B.A., Brooklyn College; M.A., Ph.D., University of Wisconsin-Madison

Avril, Edwin (1959-1982) Professor
Music
B.A., San Francisco State College; M.A., Ed.D., Teachers College, Columbia University

Bao, Da-Hsien 1995-2015 Professor
Department of Accounting and Finance
B.S., Fu Jen Catholic University, M.B.A., PhD University of Southern California

Bartelt, Pearl W. (1972-1999) Professor
Department of Sociology and Anthropology and Dean
B.S., M.A., Ph.D., Ohio State University

Behm, Edward 1971-2002 Assistant Professor
Department of Geography, Planning & Sustainability
B.A., M.A., Bowling Green State University

Benevento, Jacqueline D. (1993-2010) Assistant Professor
Department of Teacher Education
B.A., Montclair State; M.A., Middlebury College; Ed.D., Temple University

Beverly, Leah (1958-1984) Professor
Health and Physical Education
B.S., Southwestern Louisiana College; M.A., N.Y.U.; Ed.D., University of So. Mississippi

Bianchi, John (1967-1990) Coordinator of Research
Education
B.S., Villanova Univ.; M.Ed., Rutgers Univ.; Ed.D., Temple University

Bisazza, Gaetano R. (1966-2000) Assistant Professor
Biological Sciences
B.S., LaSalle College; M.S. Villanova University

Blough, Robert (1963-1995) Professor
Elementary Education
B.S., Juniata College; M.Ed., Temple University; Ed.D., University of Pennsylvania

Bolay, Brenda (1968-1997) Associate Professor
Health and Exercise Science
B.A., University of Michigan; M.Ed., State University of New York, Buffalo; Ph.D., University of Maryland

Borgen, Evelyn (1965-1991) Professor
Elementary and Early Childhood Education
B.S., Monmouth College; M.A., Glassboro State College; Ed.D., Fairleigh Dickinson Univ.

Borowec, Alexander (1956-1988) Professor
Physical Sciences
B.S., Trenton State College; M.S., University of Pennsylvania; Ed.D., Temple University

Brent, George (1971-2003) Professor
Elementary/Early Childhood Education
B.A., Ed.M., Boston University; Ed.D., University of Massachusetts

Breslin, Frederick (1960-1991) Professor
Psychology
B.A., Queens College; M.A., Ph.D., New York University

Brooks, Ellain (1965-1983) Assistant Professor
Math and Computer Science
B.S., North Carolina State; M.A., Columbia University

Brown, Estelle (1962-1992) Professor
Reading and Speech Correction
B.S., M.A., Glassboro State College; Ed.D., Temple University

Bruce E. Caswell 1989 Associate Professor
Department of Political Science and Economics
B.A., University of Chicago; M.C.P., University of Pennsylvania; Ph.D., Rutgers University

Butcher, Ronald (1991-2009) Executive Director
Education Institute
B.S., Western Michigan University; M.A., Eastern Michigan University; Ph.D., University of Michigan

Buzash, Gabriel (1964-1981) Professor
Elementary Education
B.S., Slipper Rock State College; M.S., Westminster College; Ed.D. Penn State University

Byrd, Kimble (1984-2018) Professor
Department of Management and Entrepreneurship
A.B., Villanova University; J.D., University of Pennsylvania

Byrer, Josep (1968-1995) Assistant Professor
Technology
B.S., M.S., Indiana State University

Cahill, Janet (1979-2013) Professor
Psychology
B.S., State University of New York at Oneonta; Ph.D., Temple University

Caldwell, Janet (1983-2016) Professor
Department of Mathematics
B.A., Rice University; M.A., University of Pennsylvania; Ph.D., University of Pennsylvania

Calliari, Carl (1968-2004) Professor
Education
B.A., M.A., Glassboro State College; Ed.D., Temple University

Cammarota, Marie (1988-2008) Associate Professor
Special Education Services/Instruction
B.A., M.A., Glassboro State College; Ed.D., Nova Southeastern University

Capasso, Ronald (1996-2002) Associate Professor
B.A., M.A., Montclair State College; Ed.D., Columbia University

Cell, Howard R. (1967-2000) Professor
Department of Philosophy and World Religions
B.S., University of Wisconsin; M.A., San Jose University; Ph.D., Temple University

Chalpoupka, Edward 1972-2019 Professor
Health and Exercise Science
B.S. Queens College, MS Queens College, PhD, Ohio State University

Chandrupatla, Tirupathi 1995-2020 Professor
Department of Mechanical Engineering
B.E., Mechanical Engineerng, Osmania University, India, 1965; M. Tech. Design and Production, Indian Institute of Technology, Bombay, India, 1967; Ph.D., Engineeing Mechanics, University of Texas at Austin, 1997

Chang, Julia 1996 Associate Professor
Department of Writing Arts
B.A., Stonehill College; M.S.J., Columbia University; M.A., Temple University

Chard, Daniel 1968-2016 Professor
Department of Art
B.F.A., Univ. of South Dakota; M.A., Northern State College; Ed.D., Columbia University

Chaskes, Jay 1969 Professor
Department of Sociology and Anthropology
B.A., University of Toledo; M.A., Ph.D., Temple University

Chung, Shifei (1997-2019) Professor
Department of Accounting and Finance
B.S., National Taiwan University; M.S., University of Wisconsin-Madison; Ph.D., University of Memphis; CPA

Cimprich, Jack R. (1973-1998) Associate Professor
Computer Science
B.A., Boston College; M.S., University of Pennsylvania

Cinaglia, Marianne B. (1994-2007) Assistant Professor
Secondary Education
B.S., Drexel University; M.A., Ph.D., University of Delaware

Clapp, Robert A. (1969-2000) Assistant Professor
Theatre and Dance
B.A., Pennsylvania State University; M.A., Syracuse University

Clark, Carol (1977-2010) Librarian
Library
B.A., Regis College; M.S.L.S., Syracuse University; M.Ed., University of Lowell

Clowney, David (1988-2018) Professor
Department of Philosophy and World Religions
B.A., Calvin College; M.A., Wayne State University; M.Div., Westminster Theological Seminary; Ph.D., Temple University

Cohen, Stanley (1961-1984) Professor
Educational Administration
B.S., Rutgers University; M.Ed., Ed.D., Temple University

Collins, John (1963-1994) Professor
Communications
B.S., West Chester State College; M.A., Penn State University; Ed.D., Temple University

Collins, John J. (1969-1999) Professor
Educational Leadership
B.A., M.A., Glassboro State College; J.D., Rutgers University

Combs, Ethel (1967-1995) Associate Professor
Reading and Speech Correction
B.A., Douglass College; M.A., Glassboro State College; Ph.D., Temple University

Cone, Stephen L. (1999-2017) Professor
Health and Exercise Science
B.A., Jacksonville University; M.A., Appalachian State University; Ph.D., Texas A & M University

Conradi, Janet 2009-2022 Professor
Department of Art
B.A., M.A., Iowa State University

Covi, Adelyne (1964-1984) Assistant Professor
Elementary Education
B.S., Washington University; M.A., Glassboro State College

Craver, Rhys (1963-1994) Associate Professor
Chemistry and Physics
B.S., Millersville State College; M.S., University of Delaware; Ph.D., Walden University

Creamer, Marvin C. (1948-1977) Professor
Department of Geography, Planning & Sustainability
B.S., L.H.D., Glassboro State College; M.S., University of Pennsylvania; M.S., University of Wisconsin

Crichlow, Joel 2001-2014 Associate Professor
Computer Science
B.A., University of Guyana; M.Sc., Ph.D. University of the West Indies

Cuddy, Claudia 1998-2015 Assistant Professor
Department of Journalism
B.A., M.A., M.A., Glassboro State College

Czochor, Ronald 1983-2021 Professor
Department of Mathematics
B.S., Union College; M. of B.Ma., Ph.D., North Carolina State University

Darrah, Gladys L. (1967-1979) Assistant Professor
Health and Physical Education
B.S., M.S., University of Wisconsin

Dear, Edward C. (1969-2000) Associate Professor
Health and Exercise Science
B.S., Temple University; M.A., East Stroudsburg State College; D.A., Middle Tennessee State University

Delaney, Lawrence (1964-1988) Professor
Physical Sciences
B.S., Trenton State College; M.S., Ed.D., University of Pennsylvania

Detrick, Fred (1964-1987) Associate Professor
Foundations of Education
B.A., M.S., Rutgers University

DiObilda, Nicholas 1972-2012 Professor
Reading
B.S., West Chester University; M.Ed., Univ. of Delaware; Ph.D., Ohio State University

Donaghay, Robert (1963-1992) Assistant Professor and Coordinator
Academic Advising
B.S., University of Minnesota; Ph.D., University of Texas

Donahue, Charles T. (1960-2000) Professor
Department of English
B.A., Texas A & M University; M.A., University of Texas; Ph.D., Temple University

Donald Stoll 1992-2011 — Associate Professor
Department of Writing Arts
P.A. Valpariso Univ.; M.F.A., U of Texas at Austin, Ph.D. Indiania University.

Doskow, Minna (1986-2002) — Professor
Department of English and Dean
B.S., M.S., City College of N.Y.; M.A., University of Connecticut; Ph.D., University of Maryland

Douglas, Herbert (1980-2002) — Professor
Department of Law & Justice Studies
B.S., Duquesne; M.S., Glassboro State College; Ph.D., University of Toledo

Duff, Elizabeth R. (1959-1984) — Professor
Psychology
B.S., Kent State Univ.; M.A., New York Univ.; Ed.D., University of Maryland

Dugan, Ruth (1964-1981) — Professor
Psychology
B.A., Washington Square College; M.A., Ph.D., New York University

Dusseau, Ralph A. 1995-2021 — Professor
Department of Civil and Environmental Engineering
B.S., M.S., Ph.D., Michigan State University

Eckhardt, Edgar 1979-2015 — Professor
Radio, Television, and Film
B.A., Colgate University, M.A., Case Western Reserve University

Elliott, Gene V. (1963-1998) — Professor
Psychology
B.S., M.A., Michigan State University; Ph.D., University of Maryland

Emerson, Robert (1966-1992) — Assistant Professor and Assistant Director
Professional Lab Exper.
B.R.E., United Wesleyan College; M.A., Glassboro State College

Engebretson, Herschel (1969-1988) — Assistant Professor
Communications
B.A., Taylor University; M.A., University of Pennsylvania

Enslin, William L. (1974-2000) — Associate Professor
Management and Entrepreneurship
B.E., University of Pennsylvania; Ed.D., Rutgers University

Fanslau, Martha C. (1971-1980) — Librarian and Instructor
Library
B.A., University of Pennsylvania; M.A., Glassboro State College

Farnelli, Donald 1968-2016 — Professor
Department of Physics & Astronomy
B.S., Glassboro State College; M.Ed., Temple University; Ph.D., Union Graduate School

Fopeano, Richard (1992-2018) — Associate Professor
Health and Exercise Science
B.S., SUNY College at Cortland; M.A., Ball State University; Ph.D., Temple University

Foster, Bruce (1970-2005) — Professor
Reading
B.A., Trenton State College; M.S.Ed., Bucknell Univ.; Ed.D., Florida State University

Frankl, Razelle (1983-2000) — Professor
Management and Entrepreneurship
B.A., Temple University; M.B.A., Drexel University; M.A., Ph.D., Bryn Mawr College

Friebis, George (1969-1993) — Director
Educational Media
B.S., M.Ed., Temple University; M.A., Glassboro State College; Ed.D., Nova University

Frisone, John (1973-2002) Associate Professor
Psychology
B.A., Queens College; Ph.D., City University of New York

Fulginiti, Anthony (1976-2009) Professor
Department of Public Relations and Advertising
B.A., Laurel Hill College; M.A., Villanova University; M.A., Glassboro State College; APR Fellow PRSA

Gaer, Eleanor (1972-2014) Associate Professor
Psychology
B.S., University of Wisconsin at Milwaukee; M.S., University of Wisconsin at Madison; Ph.D., University of Illinois; J.D., Rutgers-Camden

Gallant, Mary J. (1992-2019) Associate Professor
Department of Sociology and Anthropology
B.A., M.A., University of Missouri; Ph.D., University of Minnesota

Gallinelli, John (1969-2009) Professor
Department of Art
B.Ed., Keene State College; Ph.D., University of Maryland

Gardiner, Dickinson (1967-1991) Professor
Secondary Education and Educational Foundations
B.A., Western Maryland College; M.Ed., Ed.D., Temple University

Garrabrant, William (1973-2003) Head of Circulation
Interlibrary Loan and Science Librarian
B.A., Hamilton College; M.S.Ed.,M.S.L.S., Syracuse University

Garrahan, John (1965-1982) Associate Professor
Special Education
B.A., City College of New York; M.S., Ed.D., University of Pennsylvania

Gaynor, William (1965-1987) Assistant Professor and Librarian
Library
B.A., Georgetown University; M.A., Fairfield University; M.S., Villanova University

Gillespie, John (1972-1992) Associate Professor
Communications
B.S., M.A., Glassboro State College

Glassberg, Rose (1964-1991) Professor
Secondary Education and Educational Foundations
B.S., West Chester State College; M.A., Middlebury College; Ph.D., Temple University

Goldberg, Leon (1968-1988) Associate Professor
Physical Science
B.S., City College of New York; M.S., New York University

Graneto, Philllip (1970-2011) Professor
Theatre and Dance
B.A Catholic University; MFA Carnegie Mellon

Granite, Bonita (1972-2017) Associate Professor
Department of Music
B.M.E., M.M.E., Indiana University

Greco, Monica A. 1990-2016 Associate Professor
Psychology
B.S., Albright College; M.A., Ph.D., Temple University

Green, Charles H. (1962-1993) Professor
Life Sciences
B.S., Penn State University; M.S., University of Delaware; Ph.D., Purdue University

Greenspan, Bertram 1961-2012 Professor
Music
B.M., American Conservatory of Music; M.M., D.M., Indiana University

Grupenhoff, Richard (1981-2009) Professor
Radio, Television, and Film
B.A., Xavier University; M.A., Purdue University; Ph.D., Ohio State University

Guerard, Michael P. (1971-1995) Associate Professor
Technology
B.S., M.Ed., Ph.D., Texas A & M University

Gundaker, Isabelle (1983-2003) Instructor
Composition and Rhetoric
B.A., Chestnut Hill College; M.A., Rutgers

Gurst, Lawrence (1966-1993) Assistant Professor
Elementary Education
MA.A., M.Ed., Temple University

Haba, James (1972-2003) Associate Professor
Department of English
B.A., Reed College; Ph.D., Cornell University

Habte-Georgis, Berhe 1988-2013 Professor
Department of Marketing and Business Information Systems
B.B.A., Haile Selassie University; M.S., Loyola University; D.B.A., Louisiana Tech University

Hamlet, Carolyn (1984-2012) Assistant Professor
Special Education Services and Instruction
B.S., University of Tennessee; M.Ed., Memphis State University; Ph.D., Temple University

Harold, Lucius 1986-2018 Professor
Department of Marketing and Business Information Systems
B.A., M.B.A., Inter-American University; Ph.D., University of Washington

Hartley, Stephen (2000-2015) Associate Professor
Computer Science
B.A., Washington College, M.S., Ph.D. University of Virginia

Hartman, Harriett (1996-2021) Professor
Department of Sociology and Anthropology
B.A University of California at Los Angeles; M.A University of Michigan at Ann Arbor; Ph.D Hebrew University of Jerusalem

Healy, Bartholomew (1985-2013) Professor
Theatre and Dance
B.A. College of the Holy Cross; M.F.A New York University

Hecht, Gregory 1995-2021 Associate Professor
Biological Sciences
B.S., University of Rochester; M.A., Princeton University; Ph.D., Princeton University

Hewsen, Robert H. (1967-1999) Professor
Department of History
B.A., University of Maryland; M.S., Catholic University; Ph.D., Georgetown University

Hitchner, Benjamin G. (1964-1998) Assistant Professor
Department of Political Science and Economics
B.S., Temple University; M.S., University of Pennsylvania

Humbert, John J. (1969-1995) Professor
Technology
B.S., University of Maryland; M.Ed., Pennsylvania State University; Ed.D. Texas A&M University

Husain, Syed (1960-1994) Professor
Biological Sciences
I.Sc., City Science College, Hyderabad; B.Sc., College of Agriculture, Osmania University,Hyderabad, India; M.S., Oklahoma State University; Ph.D., Cornell University

Itzkowitz, Martin 1989-2016 Associate Professor
Department of Writing Arts
B.A., Brooklyn College; M.A., Ph.D., New York University

Jaeger, Peter (1966-1981) Associate Professor
Communications
B.A., Mexico City College; M.Ed., University of Houston

Jam, Habib O. E. (1979-2013) Associate Professor
Department of Political Science and Economics
B.A. 1965 Texas Tech. University Economics;M.A. 1967 Texas Tech. University, Economics;Ph.D. 1975 Southern Illinois University, Economics

Janice Rowan 1976-2011 Professor
Department of Writing Arts
P.A Rutgers Univ. M.A. University of Michigan

Jeffrey, Linda (1973-2002) Professor
Psychology
B.A., University of Nebraska; M.A., Teacher's College Columbia University; M.A., University of Chicago; Ph.D., Rutgers University

Jensen, Ivar I. (1959-1981) Professor
Foundations of Education
B.Ed., Univ. of Connecticut; M.A., Middlebury College; Ed.D., Columbia University

Johnson, Richard J. (1971-2000) Associate Professor
Department of Political Science and Economics
B.A., M.A., Cert. of Russian Institute; Ph.D., Columbia University

Johnson, Theodore B. (1990-1999) Associate Professor
Educational Leadership
B.S., M.A., Temple University; Ed.D., Rutgers University

Johnson, Christine (1989-2002) Professor
Education Leadership
B.A., M.A., University of Wisconsin; Ed.D., Rutgers University

Jorgensen, Donna W. (2000-2014) Associate Dean
Education
B.S., West Chester State College; M.A., Villanova University; Ed.D., Widener University

Kaleta, Kenneth 1989-2016 Professor
Radio, Television, and Film
B.A., M.A., Villanova University; Ph.D., New York University

Kapel, David (1988-2002) Professor
Secondary Education and Foundations
B.S., M.Ed., Ed.D., Temple University

Kaplis-Hohwald, Laurie A. 1994-2021 Associate Professor
Department of World Languages
B.A., Queens College; M.A., Ph.D., University of Pennsylvania

Kardas, William (1968-2000) Head Reference Librarian
Library
B.S., M.L.S., Villanova University

Kasserman, David 1973-2019 Associate Professor
Department of Sociology and Anthropology
B.A., Indiana University; M.A., Ph.D., University of Pennsylvania

Keller, Horace (1960-1986) Professor
Psychology
B.S., West Chester University; M.Ed., Ed.D., Temple University

Kelly, Michael F. (1961-1998) Professor
Theatre and Dance
B.A., Elmhurst College; M.A., Ph.D., State University of Iowa

Kershner, E. Theodore (1968-1998) Assistant Professor
Health and Exercise Science
B.S., Ursinus College, M.Ed., Temple University

Kerwin, Mary Louise E. 1996-2022 — Professor
Department of Psychology
B.A., M.A., Ph.D., University of Notre Dame

Kirner, Clara (1971-1994) — Librarian
Library
B.A., Rutgers University; M.A., Drexel University

Krchnavek, Robert R. 1998-2022 — Professor
Department of Electrical & Computer Engineering
B.S., Marquette University; M.S., California Institute of Technology; Ph.D., Columbia University

Kress, Lee 1973-2011 — Associate Professor
Department of History
B.A., Johns Hopkins University; M.A., Ph.D., Columbia University

Kuder, S. Jay 1984-2022 — Professor
Department of Interdisciplinary and Inclusive Education
B.A. Trinity College; M.Ed., Temple University; Ed.D., Boston University

Kushner, William (1970-1999) — Professor
Communication Studies
B.A., Montclair State College; M.A., Temple University; Ph.D., Indiana University

Kyj, Larissa (1992-2018) — Professor
Department of Accounting and Finance
B.A., Fordham; M.A., Ph.D., Columbia University; CPA; CMA

Lancioni, Judith 1977-2014 — Associate Professor
Radio, Television, and Film
M.A. Ohio Univeristy

Lee, Elaine (1967-1994) — Associate Professor
Elementary/Early Childhood Education
B.S., M.A., Trenton State College; Ed.D., Temple University

Lemaire, Denyse 1998-2014 — Professor
Department of Geography, Planning & Sustainability
M.A., Ph.D., Universite Libre de Bruxelles

Leshay, Steven V. (1978-1999) — Associate Professor
Marketing
B.A., Lenoir Rhyne College; M.A., Glassboro State College; Ph.D., Temple University

Levinowitz, Lili (1989-2017) — Professor
Department of Science, Technology, Engineering, Art and Mathematics (STEAM)
B.M., Westminister Choir College; M.M., Ph.D., Temple University

Li, Yuhui (1992-2021) — Professor
Department of Sociology and Anthropology
B.A., Sichuan Foreign Languages Institute, China; M.A., Ohio University; Ph.D., Ohio State University

Libro, Antoinette (1968-2002) — Dean and Professor
Communication
B.A., Glassboro State College; Ph.D., New York University

Lint, Jerry N. (1964-1998) — Assistant Professor
Department of Geography, Planning & Sustainability
B.S., Clarion State College; M.Ed., Pennsylvania State University

Loigman, Barry M. (1970-1999) — Associate Professor
Psychology
B.A., M.A.,Temple University; Ph.D., Rutgers University

Longacre, David (1961-1989) — Assistant Registrar
Education
B.A., Gettysburg College; M.S., University of Pennsylvania

Lynch, Robert D. (1973-1999) Professor
Management and Entrepreneurship
B.S., M.S., Ph.D., Carnegie-Mellon University; SPHR

Magee-Sauer, Karen P. 1989-2021 Professor
Department of Physics and Astronomy
B.S., University of Virginia; M.S., Ph.D., University of Wisconsin-Madison

Mandayam, Shreekanth 1997-2022 Professor
Department of Electrical & Computer Engineering
B.S. Bangolore University, M.S., Ph.D. Iowa State University

Markowitz, Diane 1993-2011 Associate Professor
Department of Sociology and Anthropology
B.A., Tufts University; D.M.D., Tufts University School of Dental Medicine; Ph.D., University of Pennsylvania

Martin, Doris (1976-1987) Assistant Professor
Home Economics
B.S., Penn State University; M.S., Cornell University; Ed.D., Temple University

Martin, Marilyn (1995-2004) Dean
Library Services
B.A., M.L.S., University of Washington; M.A., University of Arkansas; Ph.D., Texas Woman's University

Martin, Deb 2003-2022 Professor
Department of Writing Arts
B.S., Western Michigan University; M.A., Ph.D., Texas Woman's University

Martínez-Yanes, Francisco (1966-2008) Professor
Department of World Languages
M.A., University of Rome, Italy; Diplôme, Alliance Française, Paris, France; Ph.D., University of Pennsylvania

Maxson, Jeffrey (1994-2019) Associate Professor
Department of Writing Arts
B.A., Yale University; M.A., Ph.D., University of California at Berkeley

Mayes, Joseph 1993-2021 Professor
Department of Music
B.A., Edison College; M.M., Shenandoah University

McConnell, Helen (1965-1995) Professor
Home Economics
B.S., State University College, Oneconta, NY; M.A., Columbia University; Ph.D., Michigan State University

McCrann, Virginia E. (1968-1985) Assistant Professor
Home Economics
B.A., M.Ed., Rutgers University

McHenry, Sandra L. 1993-2000 Associate Professor
Education-School Nursing
R.N., Helene Fuld School of Nursing; B.A., Rowan College of NJ; M.S., University of Delaware; D.N.Sc., Widener University

McKenzie, James J. (1954-1980) Professor
Department of English
B.A., Canisius College; M.A., Ph.D., Harvard University

McMeniman, Linda 1986-2000 Associate Professor
B.A., New York University; M.A., Ph.D., University of Berkeley

Mercier, J. Denis (1967-2002) Professor
Communication
B.A., Marian College; M.A., Niagara University; Ph.D., University of Pennsylvania

Meric, Gulser (1987-2019) Professor
Department of Accounting and Finance
B.A., Ankara University; M.S., Ph.D., Lehigh University

Meyers, Dorothy (1967-1985) Assistant Professor and Librarian
Library
B.A., State University of Iowa; M.L.S., Rutgers University

Mical, Agnes (1968-1996) Assistant Professor
Health and Exercise Science
B.S., M.S., West Chester University

Michaelson, James (1967-1991) Assistant Professor
Secondary Education and Education Foundations
B.S., M.A., Temple University

Micklus, Samuel C. (1968-1991) Professor
Technology
B.S., Philadelphia College of Art; M.A., Trenton State College; Ed.D., New York University

Miller, Allen 1976-2000 Chief Engineer, WGLS, College of Communication
College of Communication
B.S., M.S., SUNY-Oswego

Mitchell, Robert D. (1965-1997) Associate Professor
Department of Mathematics
B.S., M.A., University of Texas

Monahan, Thomas (1984-2009) Professor
Educational Leadership
B.A., LeMoyne College; Ed.M., Ed.D., Rutgers University

Monroe, Gerald (1968-1986) Associate Professor
Department of Art
B.S., M.A., Ed.D., New York University

Moore, Elizabeth (1972-2002) Professor
Biological Sciences
B.Sc., Rollins College; M.S., Ph.D., Cornell University

Moore, Oscar (1971-2003) Assistant Professor
Health and Exercise Science
B.S., M.S., Southern Illinois University

Moore, Edward 2007-2017 Professor
Department of Public Relations and Advertising
B.A., M.A., Glassboro State College (Rowan University); APR

Morford, Ida B (1956-1981) Professor
Psychology
B.S., Geneseo State College; M.A., Ph.D., Ohio State University

Moss, Janet 1192-2014 Associate Professor
Education
B.S.,Northwestern University; Ed.M. Harvard University; Ed.D., University of California at Los Angeles

Mosto, Patricia (1993-2009) Professor
Biological Sciences
National Teacher Certification, Teachers College N6; Licenciada in Biology (M.S.), University of Buenos Aires; M.A. equivalent, University of Texas at Austin; M.S., Drexel University; Ph.D., University of Buenos Aires

Moyer, Mel (1967-2000) Associate Professor
Psychology
B.A., Glassboro State College; M.Ed., Temple University; Ed.D., Rutgers University

Murashima, Kumiko (1971-2007) Associate Professor
Department of Art
B.F.A., Women's College of Fine Arts, Japan; M.F.A., Indiana University

Myers, John (1973-2011) Professor
Department of Sociology
B.S., Drexel University; M.A., Ph.D., Fordham University

Neff, George (1962-2000) Professor
Department of Art
B.S., Kutztown University; M.A., Columbia University; Ed.D., Pennsylvania State University

Newland, Robert 1983-2012 Professor Emerti
Chemistry & Biochemistry
B.A., Kalamazoo College; Ph.D., Wayne State University

Nichols, Lola (1960-1986) Assistant Professor
Elementary Education
B.S., Trenton State College; M.A., Columbia University; M.A., Glassboro State College

Ognibene, Gerald (1972-2008) Professor
Special Education
B.A., Niagara University; M.S., Canisius College; Ph.D., Ohio State University

Okorodudu, Corann (1968-2011) Professor
Psychology
B.A., Cuttington College, Liberia,; M.Ed., Ph.D., Harvard University

Oliver, Harold 1979-2011 Professor
Music
B.M., Peabody Conservatory; M.M., Yale Univ.; Ph.D., Princeton University

Orlando, Frank J. (1972-2008) Associate Professor
Foundations of Education
B.S., M.S., SUNY-Buffalo; Ed.D., West Virginia University

Pagell, Francesca Louise (1998-2012) Assistant Professor
Health and Exercise Science
B.A., M.Ed., Ed.D., Temple University

Palladino, Mary Anne (1964-1994) Professor
Communications
B.A., Immaculata College; M.A., Villanova University

Parker, Richard 1990-2013 Professor
Department of Marketing and Business Information Systems
B.A., Queens College; M.B.A., Rutgers University; Ph.D., City University of New York

Pastin, John R. (1998-2017) Professor
Department of Music
B.S., University of the State of New York; M.M., Northwestern University

Pickett, Ethel (1968-1987) Assistant Professor
Home Economics
B.S., University of Delaware; M.Ed., University of Maryland

Pike, Frank (1964-1987) Assistant Professor
Department of English
B.A., Suffolk University; M.A., Boston College; M.Ed., State College at Boston

Pizzillo, Joseph 1971-2018 Professor
Department of Interdisciplinary and Inclusive Education
B.A., M.A., SUNY-Albany; L.A.S.M.A., Universidad Nacional Autonoma de Mexico; M.S., M.A., Ph.D., University of Wisconsin-Madison

Porterfield, Richard (1961-1998) Associate Professor
Department of History
B.A., Johns Hopkins University; M.A., University of Pennsylvania; Ph.D., Temple University

Prieto, Andrew (1971-2008) Professor
Biological Sciences
B.A., Rutgers University; M.S., New Mexico State University; Ph.D., University of Missouri

Pritchard, Robert 1971-2011 Professor
Department of Accounting and Finance
B.S., M.B.A., Drexel University, M.A., Ed.D., University of Pennsylvani

Pujals, Enrique J. (1969-2000) Professor
Department of World Languages
B.A., M.A., Indiana State University; Ph.D., Rutgers University

Putman, Mary Lee 1971-2011 Associate Professor
Health and Exercise Science
B.S., SUNY College at Cortland; M.A., University of Maryland; Ph.D., Temple University

Rashiduzzaman, Mohammad (1973-2013) Associate Professor
Department of Political Science and Economics
M.A. and B.A. (Hons) University of Dhaka, (Bangladesh);Post-doctoral (senior)fellowship, Columbia University, New York ; Ph.D, University of Durham, England

Reeves, Edwin C. (1968-1996) Assistant Professor
Reading
B.A., M.A., Glassboro State College

Resnik, Benjamin (1965-1991) Assistant Professor
Communications
B.A., M.A., Glassboro State College

Richardson, Herbert A. (1966-1998) Assistant Professor
Department of History
B.M., M.M., Yale University; M.A., Ph.D., University of Pennsylvania.

Rios, Hector 1994-2019 Associate Professor
Department of Educational Services and Leadership
B.A., University of Puerto Rico; M.S., State University of New York; Ph.D., Temple University

Robinette, Joseph (1981-2005) Professor
Theatre and Dance
B.A., Carson-Newman College; M.A., Ph.D., Southern Illinois University

Robinson, Randall 1965-2000 Associate Professor
Education- Elementary
B.S., Ohio State University; M.S., University of Pennsylvania; Ed.D., Temple University

Romeo, George 1979-2021 Professor
Department of Accounting and Finance
B.S., Rider College; M.S., Loyola College; Ph.D., Drexel University; CPA

Rosenberg, Jerome J. (1973-2008) Associate Professor
Special Education
B.A., Oswego State Teachers College; M.A., Columbia University; Ed.D., Temple University; Ph.D., Heed University, West

Ross, Linda Wabschall (1974-2017) Professor
Department of Management and Entrepreneurship
A.B., Lycoming College; M.A., University of Toledo; Ph.D., Wayne State University

Rowand, Edith T. (1966-2000) Assistant Professor
Health and Exercise Science
B.S., The King's College; M.S., West Chester State College

Sakiey, Elizabeth (1974-2000) Professor
Reading
B.S., Eastern Michigan University; M.Ed., Ed.D., Rutgers University

Schreiber, Elliott (1967-1995) Associate Professor
Psychology
B.A., Upsala College; M.A., Bradley University; Ed.D., West Virginia University

Schultz, Charles 1972-2000 Professor
Chemistry & Biochemistry
B.S., University of Michigan; M.S., Ohio State University; Ph.D., University of Michigan

Schwarz, Charles (1967-1999) Assistant Professor
Department of Mathematics
B.A., St. John's University; M.S., Fordham University; M.S., Adelphi University; Ed.D., Rutgers University

Scott, Joanne (1989-2009) Associate Professor
Biological Sciences
B.S., M.S., Bucknell University; M.A., Lehigh University; Ph.D., University of Texas, Medical Branch at Galveston

Scott, Richard 1972 Professor
Department of Geography, Planning & Sustainability
B.A., University of Cincinnati; M.A., Ph.D., Syracuse University

Serfustini, Leonard 1971-1986 Professor
Department of Health and Physical Education
B.Ed., M.Ed., University of Buffalo; Ed.D., State University of New York

Shawver, Murl C. (1958-1974) Professor
Life Sciences
B.S., Central Missouri State College; M.Ed., University of Missouri; Ed.D., Columbia University

Shontz, Marilyn L. (1999-2009) Associate Professor
Special Education Services and Instruction
A.B., Heidelberg College (Ohio); M.S. in L.S., Case Western Reserve University; Ph.D., Florida State University

Shrader, Edith (1959-1968) Demonstration Teacher
Early Childhood Education
B.S., M.S., Glassboro State College

Sisco, Burton 1998-2018 Professor
Department of Educational Services and Leadership
B.A., M.Ed., University of Vermont; Ed.D., Syracuse University

Sizemore, Warner (1966-1987) Assistant Professor
Department of Philosophy and World Religions
B.A., East Tennessee State; M.A., Bob Jones University; M.A., Temple University; B.D., Lincoln University Theological Seminary

Slater, C. Stewart 1995-2020 Professor
Department of Chemical Engineering
B.S., M.S., M. Ph., Ph.D., Rutgers University

Smith, Steward (1968-1983) Assistant Professor
Elementary Education
B.A., Rutgers University; M.Ed., Temple University

Sorrentino, Carmela 1965-2009 Assistant Professor
Teacher Education (Early Childhood, Elementary Education, Subject Matter)
B.S., West Chester State College; M.Ed., Temple University

Spear, Miriam (1967-1983) Assistant Professor
Secondary Education
B.A., M.S., Glassboro State College

Spencer, Sonia B. (1990-2016) Associate Professor
Department of World Languages
B.A., Hunter College; M.A., Pennsylvania State University; Ph.D., Duke University

Stansfield, Charles 1966-2007 Professor
Department of Geography, Planning & Sustainability
B.S., West Chester University; M.S., Pennsylvania State University; Ph.D., University of Pittsburgh

Stevens, Kathleen (1972-1998) Associate Professor
Communication
B.A., Georgian Court College; M.A., Glassboro State College (Rowan)

Stoeckig, Keiko (1988-2017) Assistant Professor
Psychology
B.A., Bemidji University, Ph.D., Dartmouth University

Stone, Don C. (1968-2000) Associate Professor
Computer Science
E. Eng. Phys., Cornell University; M.S.E., Ph.D., University of Pennsylvania

Streb, Edward (1979-2017) Professor
Department of Communication Studies
B.S., M.A., Ph.D., Northwestern University

Sullivan, Jane E. (1972-1999) Professor
Reading
B.S., Seton Hall University; M.S., Ed.D., State University of New York, Albany

Tahamont, Maria 1993-2020 Professor
Department of Biological Sciences
B.A., Rowan University; M.S.Ed., Ph.D., Southern Illinois University

Taney, Mary C. (1967-1991) Professor
Department of History
B.A., College of Saint Teresa; M.A., Ph.D., Catholic University; Litt.D., Universita Cattolica del Sacro Cuore, Milan, Italy

Tannenbaum, Margaret D. (1971-2000) Professor
Secondary Education
B.A., Bryan College; M.Ed., Ed.D., Temple University

Tannenbaum, Theodore (1973-1998) Professor
Department of Sociology and Anthropology
B.A., M.A., Brooklyn College; Ph.D., Purdue University

Taylor, Albert (1964-1987) Professor
Foundations of Education
B.S., Trenton State College; M.Ed., Ed.D., Rutgers University

Tener, Morton (1968-2008) Professor
Secondary Education
B.S., Rider College; M.S., University of Pennsylvania; M.S., Ed.D., Temple University

Thomas J. Gallia 1970-2013 Vice President Emeritus/Senior Advisor to the President
Secondary Education
B.A., M.A., M.A., Glassboro State College; Ed.D., Rutgers University

Thyhsen, John (1969-2000) Professor
Music
B.M., M.M., Eastman School of Music

Tishler, Joseph (1964-2000) Professor
Department of Art
Cresson Scholar, Pennsylvania Academy of Fine Arts; B.F.A., M.F.A., University of Pennsylvania; D.A., Carnegie-Mellon University

Tomei, Mario (1964-1995) Professor
Educational Administration
B.A., Montclair State College; M.S., University of Pennsylvania; Ed.D., Temple University

Tracey, James H. (1994-2000) Dean/Professor
College of Engineering
B.S.E.E., M.S., Ph.D., Iowa State University

Tsuji, Thomas (1969-1995) Professor
Technology
B.S., M.S., Stoudt State College; Ph.D., Michigan State University

Viator, Martha 2006-2019 Associate Professor
Language, Literacy & Sociocultural Education
B.A., University of Louisiana-Lafayette; M.A., Ph.D., Auburn University

Viator, Timothy 1994-2019 Professor
Department of English
B.A., M.A., University of Louisiana; Ph.D., Auburn University

Vitto, Cindy L. 1989 – 2021 Professor
Department of English
B.A., Susquehanna University; M.A., Duke University; Ph.D., Rice University

Vogel, Hal (1984-2005) Professor
Department of Public Relations and Advertising
B.A., Temple University; M.A., William Paterson College; Ph.D., Antioch University; APR

Wade, Thomas 1976-2009 Assistant Professor
Music
B.M., Oberlin College; M.M., University of Connecticut

Washington, Judy (1971-2009) Associate Professor
Teacher Education (Early Childhood, Elementary Education, Subject Matter)
B.A., Brooklyn College; M.Ed., Ed.D., Temple University

Weatherford, Bernadyne (1987-2012) Associate Professor
Department of Political Science and Economics
B.A., M.A., Texas Tech University; Ph.D., University of New Mexico

Welsh, Charles (1973-1992) Professor
Marketing
B.S., Villanova University; M.B.A., Ph.D., University of Pennsylvania

Welsh, Carol (1983-2018) Associate Professor
Department of Accounting and Finance
B.S., M.B.A., Drexel University; Ed.D., University of Delaware; CPA, CIA

Westcott, Patrick (2003-2013) Associate Professor
Department of Teacher Education (Early Childhood, Elementary Education, Subject Matter)
B.A. University of Minnesota; M.A., University of Connecticut; M.A., Fairleigh Dickinson University; Ed.D., Teachers College Columiba University

Whitcraft, John (1963-1987) Professor
Department of Philosophy and World Religions
B.A., Asbury College; M.A., Temple University; B.D., Asbury Seminary; S.T.M., Boston University

White, Edward H. (1973-2000) Professor
Educational Leadership
B.A., Keene State College; M.S., Indiana State University; Ph.D., University of Maryland

Whittinghill, Dexter C. 1996-2021 Associate Professor and Department Head
Department of Mathematics
B.A., Middlebury College; M.S., University of Wisconsin-Milwaukee; M.S., Ph.D., Purdue University

Williams, Leonard J. (1990-2009) Associate Professor
Psychology
B.A., University of Delaware; M.A., McMaster University, Hamilton, Ont.; Ph.D., University of South Carolina

Wiltenburg, Joy Deborah (1991-2021) Professor
Department of History
B.A., M.A., University of Rochester; Ph.D., University of Virginia

Winand, Lois (1971-1991) Assistant Professor
Home Economics
B.S., M.S., Drexel University; Ed.D., Pennsylvania State University

Wolfe, Edward (1959-1994) Professor
Department of English
B.A., M.A., Ph.D., University of Pennsylvania

Woods, Wellington (1967-1998) Associate Professor
Chemistry and Physics
B.S., Glassboro State College; M.Ed., Rutgers University; Ph.D., Walden University

Wriggins, Thomas (1967-1992) Assistant Professor and Director of Support Services
Education
B.A., Glassboro State College; M.Ed., Temple University

Xin, Joy F. 1994-2020 Professor
Department of Interdisciplinary and Inclusive Education
B.A., Tsitsihar Teachers College, China; M.Ed., Ed.D., Peabody College of Vanderbilt University

Xu, Jianning 1988-2021 Professor
Department of Computer Science
B.S., Harbin Institute. of Technology, China; M.S., Ph.D., Stevens Institute. of Technology

Yang, Catherine 1995-2018 Professor Emeriti
Chemistry & Biochemistry
B.S., Zhejiang University; M.S., Ph.D., Tufts University

Young, Walter Byron (1972-1997) Professor
Department of Art
B.A., M.A., Glassboro State College; Ed.D., Pennsylvania State University

Young, Flora D. 1968
Department of Sociology and Anthropology
B.A., M.A., Howard University, Ed.D. University of Pennsylvania

Zahn, Richard (1960-1987) Professor
Foundations of Education
B.S., West Chester State College; M.Ed., Ed.D., Temple University

Zalusky, Donald (1966-1991) Associate Professor
Physical Sciences
B.S., M.A., University of Missouri; Ph.D., University of Delaware

Zeng, Xiaoming 1985-2021 Professor
Department of Mathematics
B.M., Northeast Ind. College, China; M.M., Academy of Science, China; Doctor of Science, Washington University

Zimmerman, Donald (1961-1992) Professor
Elementary and Early Childhood Education
B.S., M.A., State University of New York, Buffalo; Ed.D., Temple University

Accreditations and Memberships

Accreditations

Middle States Commission on Higher Education
AACSB International
ABET - Computing Accreditation Commission
ABET - Engineering Accreditation Commission
Accreditation Council for Education in Nutrition and Dietetics
American Chemical Society
American Osteopathic Association – Commission on Osteopathic College Accreditation
American Psychological Association – Commission on Accreditation
Certification in Education for Public Relations - Public Relations Society of America
Commission on Accreditation of Athletic Training Education
Commission on Collegiate Nursing Education
Council for Accreditation of Counseling and Related Educational Programs
Council for the Accreditation of Educator Preparation
Liaison Committee on Medical Education
National Association of Schools of Art and Design
National Association of Schools of Music
National Association of Schools of Theatre
National Association of School Psychologists
National Wellness Institute

Memberships

American Council on Education
American Association of State Colleges and Universities
Association of American Colleges & Universities
Association of Governing Boards of Universities & Colleges
AACSB International - The Association to Advance Collegiate Schools of Business
BioNJ
Council of Graduate Schools
National Association of Schools
Middle States Association of Colleges & Schools Inc.