

B.S. in Translational Biomedical Sciences

Academic Program Guide for **New First-Year Students** (Effective Fall 2019) Department of Molecular & Cellular Biosciences (mcb@rowan.edu)

Students who entered Rowan University prior to Fall 2018 should follow the guide for their program and start year in consultation with their advisor.

Rowan University Graduation Requirements for all Majors / Degrees

- Students must complete at least 120 semester hours (sh) of coursework that apply to their Rowan University degree.
- Students must have a cumulative GPA of at least 2.0 in Rowan University coursework. (Transfer courses/credit do not count toward the RU 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.)
- Students must meet the Rowan Core and Rowan Experience Requirements.
 - An individual course can potentially satisfy one Rowan Core literacy and/or multiple Rowan Experience attributes.
 - Rowan Core and Rowan Experience designations are listed in course details in Section Tally (www.rowan.edu/registrar) and may also be searched on that site under “Attributes.” A list of Rowan Core courses is here: <https://confluence.rowan.edu/display/AS/Rowan+Core+Course+List>.
- Students must apply for graduation and should do so for the term in which they will complete all program requirements.

Program-Specific Graduation Requirements for this Major / Degree

- Students must receive a grade of C or better in all courses satisfying Major requirements.

Rowan Core Requirements¹

*Students must satisfy all **six** Rowan Core Literacies. A minimum total of 3 sh of coursework is required to satisfy each Literacy.*

With the exception of the 9 sh counted here for Communicative Literacy, credits attached to the courses in this section will apply elsewhere.

- (COML) Communicative Literacy: *Must be met by the following three courses or their official equivalents:*
 - COMP 01111 College Composition I (3 sh) ○ COMP 01112 College Composition II (3 sh) ○ CMS 04205 Public Speaking (3 sh)
- (ARTL) Artistic Literacy *Recommendation from major:*
- (GLBL) Global Literacy *Recommendation from major:*
- (HUML) Humanistic Literacy *Recommendation from major:*
- (QNTL) Quantitative Literacy *Recommendation from major:* MATH 01130 (3 sh counted under non-program)
- (SCIL) Scientific Literacy *Recommendation from major:* CHEM 06100 (3 sh counted under non-program)

Subtotal of credits counted in this section: 9 sh

Rowan Experience Requirements

Students must satisfy all three Rowan Experience attributes. Credits attached to the courses in this section will apply elsewhere.

- (LIT) Broad-Based Literature Attribute *Recommendation from major:*
- (WI) Writing Intensive Attribute *Recommendation from major:* PHIL 09369-WI, PHIL 09341-WI, or PHIL 09376-WI (3 sh counted under non-program)
- (RS) Rowan Seminar Attribute² *Recommendation from major:* COMP 01111 College Composition I-RS (3 sh counted under Rowan Core)

Non-Program Courses (19 sh)

Courses in this section cannot be in the major department.

| Course # | Course Name | Course Attributes / Notes | Sem/Yr | Grade | Credits |
|---|--|--|--------|-------|-----------------|
| PHIL 09369, PHIL 09341, or PHIL 09376 | Philosophy of Science, Biomedical Ethics or Philosophy of Medicine | PHL 09369 satisfies Humanistic Literacy; all 3 courses satisfy WI requirement | | | 3 |
| PHYS 00220 | Intro Mechanics | | | | 4 |
| PHYS 00222 or PHYS 00221 | Intro Electricity/Magnetism or Intro Thermodyn/Flu/WVS/Optics | | | | 4 |
| CHEM 06100 | Chemistry I | Satisfies Scientific Literacy & RS requirement | | | 4 |
| MATH 01130 | Calculus I | Satisfies Quantitative Literacy | | | 4 |
| | | | | | Subtotal: 19 sh |

¹ The Rowan Core requirements are waived for transfer students with an earned A.A. or A.S. degree from a NJ community/county college.

² The Rowan Seminar requirement is waived for all students transferring 24 or more approved credits into Rowan University at the time of initial entry.

B.S. in Translational Biomedical Sciences

Major Requirements (83 sh)

SUMMARY OF MAJOR REQUIREMENTS

- 16 sh of Foundational Courses
 - 18 sh of Mid-Level Courses
 - 32 sh of Upper-Level Courses
 - 17 sh of TBS Restricted Electives
-
- 83 sh total

FOUNDATIONAL COURSES

| Course # | Course Name | Course Attributes / Notes | Sem/Yr | Grade | Credits |
|------------|---|---------------------------|--------|-------|-----------------|
| CHEM 06101 | Chemistry II | | | | 4 |
| MATH 01131 | Calculus II | | | | 4 |
| MCB 01101 | Foundations in Biology for Biomedical Sciences I | | | | 4 |
| MCB 01102 | Foundations in Biology for Biomedical Sciences II | | | | 4 |
| | | | | | Subtotal: 16 sh |

MID-LEVEL COURSES

| Course # | Course Name | Course Attributes / Notes | Sem/Yr | Grade | Credits |
|------------|--|---------------------------|--------|-------|-----------------|
| CHEM 07200 | Organic Chemistry I | | | | 4 |
| CHEM 07203 | Organic Chemistry II for Biomedical Sciences | | | | 4 |
| TBS 01105 | Intro Biomed Science I | | | | 2 |
| TBS 01110 | Intro Biomed Science II | | | | 2 |
| STAT 02284 | Statistics for Biomed Sciences | | | | 3 |
| TBS 01220 | Translational Biomedical Research I | | | | 3 |
| | | | | | Subtotal: 18 sh |

UPPER-LEVEL COURSES

| Course # | Course Name | Course Attributes / Notes | Sem/Yr | Grade | Credits |
|------------|---|---------------------------|--------|-------|-----------------|
| CHEM 07348 | Biochemistry | | | | 4 |
| TBS 01315 | Instrumentation for Biomedical Sciences | | | | 3 |
| MCB 01306 | Translational Cell Biology (Lecture) | | | | 3 |
| TBS 01230 | Translational Biomedical Research II | | | | 3 |
| TBS 01320 | Translational Biomedical Research III | | | | 3 |
| TBS 01330 | Translational Biomedical Research IV | | | | 3 |
| MCB 01334 | Medical Biochemistry | | | | 3 |
| MCB 01360 | Biophysics I | | | | 4 |
| TBS 01450 | Biomedical Frontiers Seminar I | | | | 1 |
| TBS 01451 | Biomedical Frontiers Seminar II | | | | 1 |
| MCB 10345 | Human Physiology | | | | 4 |
| | | | | | Subtotal: 32 sh |

TBS RESTRICTED ELECTIVES

Choose five courses in consultation with advisor. At least two TBS Restricted Electives must be 4 sh (laboratory) courses.

| | Course # | Course Name | Course Attributes / Notes | Sem/Yr | Grade | Credits |
|-----------------------|------------|---|--|--------|-------|---------|
| <input type="radio"/> | BINF 05360 | Programming for Molecular Biology | | | | 3 |
| <input type="radio"/> | BINF 07399 | Bioinformatics – Biochemical Applications | | | | 3 |
| <input type="radio"/> | BIOL 01428 | Developmental Biology | | | | 4 |
| <input type="radio"/> | BIOL 01430 | Advanced Cell Biology | | | | 4 |
| <input type="radio"/> | BIOL 11330 | Microbiology | | | | 4 |
| <input type="radio"/> | BIOL 22335 | Genetics | | | | 4 |
| <input type="radio"/> | BIOL 01445 | Special Topics in Biological Sciences -WI | Satisfies WI requirement | | | 3 |
| <input type="radio"/> | CHEM 05430 | Advanced Topics in Chemistry | Special permission via advising based on topic | | | 3 |
| <input type="radio"/> | CHEM 06301 | Inorganic Chemistry | | | | 3 |
| <input type="radio"/> | CHEM 07357 | Chemical Biology | | | | 3 |
| <input type="radio"/> | CHEM 07405 | Introduction to Polymer Chemistry | | | | 3 |

B.S. in Translational Biomedical Sciences

| | | | | | | |
|-----------------------|------------|--|--|--|--|---|
| <input type="radio"/> | CHEM 07410 | Medicinal Chemistry | | | | 3 |
| <input type="radio"/> | CHEM 07431 | Advanced Topics in Biochemistry | Special permission via advising based on topic | | | 3 |
| <input type="radio"/> | CHEM 07464 | Advanced Organic Chemistry I WI | | | | 3 |
| <input type="radio"/> | CHEM 07470 | Organic Spectroscopic Analysis | | | | 3 |
| <input type="radio"/> | CHEM 07490 | General Aspects of Pharmacology | | | | 3 |
| <input type="radio"/> | CHEM 07492 | Pharmaceutical Chemistry | | | | 3 |
| <input type="radio"/> | CHEM 09411 | Electrochemistry | | | | 3 |
| <input type="radio"/> | CHEM 09420 | Supramolecular Chemistry | | | | 3 |
| <input type="radio"/> | MCB 01407 | Molecular Microbiology | | | | 4 |
| <input type="radio"/> | MCB 01414 | General Aspects of Infectious Agents | | | | 3 |
| <input type="radio"/> | MCB 01421 | Fundamentals in Cell Culture Techniques | | | | 4 |
| <input type="radio"/> | MCB 10481 | Cellular & Molecular Neuroscience | | | | 3 |
| <input type="radio"/> | MCB 01307 | Translational Cell Biology Lab | | | | 2 |
| <input type="radio"/> | MCB 11338 | Immunology | | | | 4 |
| <input type="radio"/> | MCB 22410 | Concepts in Human Genetics | | | | 4 |
| <input type="radio"/> | MCB 22450 | Molecular Genetics | | | | 4 |
| <input type="radio"/> | MCB 01308 | Special Topics in Mol Cell Biosciences- WI | Satisfies WI requirement | | | 3 |
| <input type="radio"/> | PHYS 00300 | Modern Physics | | | | 4 |
| <input type="radio"/> | PHYS 00320 | Electricity & Magnetism I | | | | 4 |
| <input type="radio"/> | PHYS 00321 | Electricity & Magnetism II | | | | 3 |
| <input type="radio"/> | PHYS 00325 | Electric Circuits | | | | 4 |
| <input type="radio"/> | PHYS 00340 | Optics and Light | | | | 4 |
| <input type="radio"/> | PHYS 00371 | Biophysics II: Biomaterials | | | | 3 |
| <input type="radio"/> | PHYS 00410 | Quantum Mechanics I | | | | 4 |
| <input type="radio"/> | PHYS 00411 | Quantum Mechanics II | | | | 3 |
| <input type="radio"/> | PHYS 00430 | Statistical Physics | | | | 3 |
| <input type="radio"/> | PHYS 00470 | Selected Topics in Advanced Physics | Special permission via advising based on topic | | | 3 |
| <input type="radio"/> | PHYS 00475 | Radiation Physics | | | | 3 |
| <input type="radio"/> | PSY 10315 | Physiological Psychology | | | | 3 |
| <input type="radio"/> | PSY 10380 | Cognitive Neuroscience | | | | 3 |
| <input type="radio"/> | TBS 01370 | Advanced Biomedical Instrumentation | | | | 4 |
| <input type="radio"/> | TBS 01420 | Translational Biomedical Research V | | | | 3 |
| <input type="radio"/> | TBS 01430 | Translational Biomedical Research VI | | | | 3 |

Subtotal: 17 sh

Free Electives for this Major/Degree (9 sh)

Students should choose Free Electives that satisfy any Rowan Core or Rowan Experience requirements that are not fulfilled by Major or Non-Program courses.

| Course # | Course Name | Course Attributes / Notes | Sem/Yr | Grade | Credits |
|----------|-------------|---------------------------|--------|-------|---------|
| | | | | | |
| | | | | | |
| | | | | | |

Subtotal: 12 sh

Total Program Credits Required for this Major / Degree: 120 SH