

B.S. in Chemistry

Academic Program Guide for New First-Year Students (Effective Fall 2019) Department of Chemistry and Biochemistry

Students who entered Rowan University prior to Fall 2019 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:*
- ☐ (HURL) Humanistic Literacy *Recommendation from major:* PHIL 09369 (3 sh counts under non-program)
- ☐ (QNTL) Quantitative Literacy *Recommendation from major:* MATH 01130 (4 sh counts under non-program)
- ☐ (SCIL) Scientific Literacy *Recommendation from major:* PHYS 02200 or CHEM 06100 (4 sh counts under non-program or major)

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 (3 sh counts under non-program)
- ☐ (RS) Rowan Seminar Attribute² *Recommendation from major:* CHEM 06100 Chemistry I-RS (3 sh counts under Major Requirements)

Non-Program Courses (30 sh)

Courses in this section cannot be in the major department.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
CS 01104	Introduction to Scientific Programing				3
MATH 01130	Calculus I	Satisfies Quantitative Literacy			4
MATH 01131	Calculus II	Pre-req. for Calc III			4
MATH 01230	Calculus III	Pre-req. for PChem			4
MCB 01102	Foundations in Biology for Biomedical Sciences II	Pre-req. for Biochemistry			4
PHIL 09369	Philosophy of Science - WI	Satisfies Humanistic Literacy and WI			3
PHYS 00220	Introductory Mechanics	Satisfies Scientific Literacy			4
PHYS 00221	Intro to Electricity and Magnetism	Pre-req. for PChem			4

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.

Subtotal: 30 sh

Major Requirements (63 sh)

SUMMARY OF MAJOR REQUIREMENTS

- 20 sh of Foundational Courses
 - 16 sh of Mid-Level Courses
 - 14 sh of Upper-Level Courses
 - 12 sh of Chemistry and Biochemistry Restricted Electives
-
- 63 sh total

FOUNDATIONAL COURSES

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
CHEM 06100	Chemistry I-RS	Satisfies Scientific Literacy & Rowan Seminar			4
CHEM 06101	Chemistry II				4
CHEM 07200	Organic Chemistry I				4
CHEM 07201	Organic Chemistry II				4
CHEM 09250	Quantitative Analysis				4
					Subtotal: 20 sh

MID-LEVEL COURSES

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
CHEM 05440	Research I				3
CHEM 06301	Inorganic Chemistry				3
CHEM 07348	Biochemistry				4
CHEM 08400	Physical Chemistry I				3
CHEM 08401	Physical Chemistry II				3
					Subtotal: 16 sh

UPPER-LEVEL COURSES

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
CHEM 08402	Physical Chemistry I Lab				2
CHEM 08403	Physical Chemistry II Lab				2
CHEM 09410	Instrumental Methods				4
CHEM 06400	Advanced Inorganic Chemistry Lecture				3
CHEM 06401	Advanced Inorganic Chemistry Lab				2
CHEM 05450	Senior Seminar				1
					Subtotal: 14 sh

CHEMISTRY AND BIOCHEMISTRY RESTRICTED ELECTIVES

Choose 12 sh of courses from the following bank of electives (at least 8 sh must be CHEM).

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
<input type="radio"/>	BINF 07399	Bioinformatics – Biochemical Applications				3
<input type="radio"/>	CHEM 05430	Advanced Topics in Chemistry				3
<input type="radio"/>	CHEM 05441	Research II	Approval of Research Advisor needed			3
<input type="radio"/>	CHEM 07357	Chemical Biology				3
<input type="radio"/>	CHEM 07405	Introduction to Polymer Chemistry				3
<input type="radio"/>	CHEM 07407	Advanced Biochemistry Lecture				3
<input type="radio"/>	CHEM 07409	Advanced Biochemistry Lab				2
<input type="radio"/>	CHEM 07410	Medicinal Chemistry				3
<input type="radio"/>	CHEM 07412	Intro to Antibiotics				3
<input type="radio"/>	CHEM 07464	Advanced Organic Chemistry I (WI)				3
<input type="radio"/>	CHEM 07465	Physical Organic Chemistry				3
<input type="radio"/>	CHEM 07466	Advanced Organic Chemistry II				3
<input type="radio"/>	CHEM 07467	Organic Preparations				3
<input type="radio"/>	CHEM 07470	Organic Spectroscopic Analysis				3

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
<input type="radio"/>	CHEM 07472	Organometallic Chemistry				3
<input type="radio"/>	CHEM 07475	Polymer Synthesis				3
<input type="radio"/>	CHEM 07478	Polymer Characterization				3
<input type="radio"/>	CHEM 07490	General Aspects of Pharmacology				3
<input type="radio"/>	CHEM 07492	Pharmaceutical Chemistry				3
<input type="radio"/>	CHEM 07493	Intro to Regulatory Affairs				3
<input type="radio"/>	CHEM 07494	Good Laboratory Practice (GLP) Techniques				3
<input type="radio"/>	CHEM 08410	Survey of Molecular Modeling Methods				3
<input type="radio"/>	CHEM 09300	Environmental Chemistry				3
<input type="radio"/>	CHEM 09322	Bioanalytical Chemistry				3
<input type="radio"/>	CHEM 09411	Electrochemistry				3
<input type="radio"/>	CHEM 09420	Supramolecular Chemistry				3
<input type="radio"/>	MATH 01210	Linear Algebra				3
<input type="radio"/>	MATH 01231	Ordinary Differential Equations				3
<input type="radio"/>	MATH 01235	Mathematics For Engineering Analysis				3
<input type="radio"/>	PHYS 00300	Modern Physics				4
<input type="radio"/>	PHYS 00310	Analytical Mechanics				4
<input type="radio"/>	PHYS 00320	Electricity and Magnetism I				4
<input type="radio"/>	PHYS 00325	Electric Circuits				4
<input type="radio"/>	PHYS 00330	Mathematical Physics				4
<input type="radio"/>	PHYS 00340	Optics and Light				4
<input type="radio"/>	INTR 01486	Interdisciplinary Materials Science				3
						Subtotal: 12 sh

Free Electives for this Major/Degree (18 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.

Students should check off the courses that satisfy any nonmajor core or nonmajor experience requirements that are not judged by a major or minor program director.					
Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
				Subtotal: 18 sh	

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

A POSSIBLE BS CHEMISTRY MAJOR PROGRAM

First Semester		Second Semester	
Chemistry I	4	Chemistry II	4
Calculus I	4	Calculus II	4
Intro to Scientific Programming	3	Introductory Mechanics	4
College Composition I	3	College Composition II	3
Term Total	14	Term Total	15
Third Semester		Fourth Semester	
Organic Chemistry I	4	Organic Chemistry II	4
Calculus III	4	Quantitative Anal	4
Intro Electricity & Magnetism	4	Foundations in Biology for Biomedical Sciences II	4
Public Speaking	3	General Education Elective	3
Term Total	15	Term Total	15
Fifth Semester		Sixth Semester	
Physical Chemistry I	3	Physical Chemistry II	3
Physical Chemistry Lab I	2	Physical Chemistry Lab II	2
Biochemistry	4	Advanced Inorganic Lecture	3
Inorganic Chemistry	3	Advanced Inorganic Lab	2
Research I	3	Restricted Elective	3
		Philosophy of Science	3
Term Total	15	Term Total	16
Seventh Semester		Eighth Semester	
Seminar I	1	Restricted Elective	3 or 4
Instrumental Methods	4	General Education Elective	3
General Education Elective	3	Free Elective	3
Restricted Elective	3 or 4	Free Elective	3
Restricted Elective	3	Free Elective	3
Term Total	14 or 15	Term Total	15 or 16