B.S. in Biochemistry

Academic Program Guide for **New First-Year Students** (Effective Fall 2022)

Department of Chemistry and Biochemistry

Students who entered Rowan University prior to Fall 2022 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.

Rowan Core Requirements[1]

*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 (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:* INTR 06202 Introduction to Nature of Science (Non-Program courses)
◯ (RS) Rowan Seminar Attribute[2] *Recommendation from major:* CHEM 06100 Chemistry I-RS (3 sh counts under Major Requirements)

Non-Program Courses (33 or 34 sh)

Courses in this section cannot be in the major department.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
BIOL 01106 or MCB 01101	Intro to Genetics or Foundations in Biology for Biomedical Sciences I				4
BIOL 01203 or MCB 01102	Intro to Cell Biology or Foundations in Biology for Biomedical Sciences II	Pre-req. for Biochemistry			4
CS 01104	Introduction to Scientific Programing				3
MATH 01130	Calculus I	Satisfies Quantitative Literacy			4
MATH 01131	Calculus II	Pre-req. for Calc III & Statistics			4
MATH 01230 or STAT 02284	Calculus III or Statistics for the Biomedical Sciences				4 or 3
PHYS 02200	Introductory Mechanics	Satisfies Scientific Literacy			4
PHYS 02201	Intro to Electricity and Magnetism	Pre-req. for Biophysical Chemistry			4
INTR 06202 OR PHIL 09261	Introduction to Nature of Science - WI OR Philosophical Perspectives on Science – WI	Satisfies WI			3
				Subtotal: 33-34 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.

Major Requirements (54 sh)

Summary of Major Requirements

- 23 sh of Foundational Courses
- 8 sh of Mid-Level Courses
- 6 sh of Upper-Level Courses
- 17 sh of Chemistry and Biochemistry Electives
- 54 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
CHEM 05440	Research I				3
				Subtotal: 23 sh	

Mid-Level Courses

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
CHEM 08305	Biophysical Chemistry				4
CHEM 07348	Biochemistry				4
				Subtotal: 8 sh	

Upper-Level Courses

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
CHEM 05450	Senior Seminar				1
CHEM 07407	Advanced Biochemistry Lecture				3
CHEM 07409	Advanced Biochemistry Lab				2
				Subtotal: 6 sh	

Chemistry and Biochemistry Restricted Electives

Choose five courses (totaling at least 17 s.h.) from the following bank of Chemistry and Biochemistry electives (2 or 3 courses must be from CHEM).

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
◯	CHEM 05430	Advanced Topics in Chemistry				3
◯	CHEM 05441	Research II	Approval of the research advisor needed.			3
◯	CHEM 06300	Inorganic Chemistry				3
◯	CHEM 06400	Advanced Inorganic Chemistry Lecture				3
◯	CHEM 06401	Advanced Inorganic Chemistry Lab				2
◯	CHEM 07357	Chemical Biology				3
◯	CHEM 07405	Introduction to Polymer Chemistry				3
◯	CHEM 07410	Medicinal Chemistry				3
◯	CHEM 07412	Intro to Antibiotics				3
◯	CHEM 07431	Advanced Topics in Biochemistry				3
◯	CHEM 07442	Biochemical Research Methods				3
◯	CHEM 07464	Advanced Organic Chemistry I				3
◯	CHEM 07465	Physical Organic Chemistry				3
◯	CHEM 07466	Advanced Organic Chemistry II				3
◯	CHEM 07467	Organic Preparations				3
◯	CHEM 07470	Organic Spectroscopic Analysis				3
◯	CHEM 07472	Organometallic Chemistry				3
◯	CHEM 07475	Polymer Synthesis				3
◯	CHEM 07478	Polymer Characterization				3
◯	CHEM 07490	General Aspects of Pharmacology				3
◯	CHEM 07492	Pharmaceutical Chemistry				3
◯	CHEM 07493	Intro to Regulatory Affairs				3
◯	CHEM 07494	Good Laboratory Practice (GLP) Techniques				3
◯	CHEM 08410	Survey of Molecular Modeling Methods				3
◯	CHEM 09300	Environmental Chemistry				3

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
◯	CHEM 09322	Bioanalytical Chemistry				3
◯	CHEM 09410	Instrumental Methods				3
◯	CHEM 09411	Electrochemistry				3
◯	CHEM 09420	Supramolecular Chemistry				3
◯	BIOL 01428	Developmental Biology				4
◯	BIOL 01430	Advanced Cell Biology				4
◯	BIOL 11330	Microbiology				4
◯	BIOL 22335	Advanced Genetics				4
◯	BINF 07399	Bioinformatics – Biochemical Applications				3
◯	MCB 01306	Translational Cell Biology				3
◯	MCB 01334	Medical Biochemistry				3
◯	MCB 10345	Human Physiology				4
◯	MCB 11338	Immunology				4
◯	MCB 10481	Cellular and Molecular Neuroscience				3
◯	MCB 22410	Concepts in Human Genetics				4
◯	MCB 22450	Molecular Genetics				4
◯	PHYS 00371	Biophysics II: Fundamentals of Biomaterials				3
◯	TBS 01315	Instrumentation for Biomedical Sciences				3
					Subtotal: 17 sh	

Free Electives for this Major/Degree (23-24 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: 23-24 sh	

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