

B.S. in Molecular & Cellular Biology

Academic Program Guide for **New First-Year Students** (Effective Fall 2021) 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 & 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 or PHIL 09376 (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 Requirements)

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
PHYS 00220 or PHYS 00210	Intro Mechanics or Physics I	PHYS 00220 satisfies Scientific Literacy			4
PHYS 00222 or PHYS 00211	Intro Electricity / Magnetism or Physics II				4
CHEM 06100	Chemistry I	Satisfies Scientific Literacy			4
MATH 01130	Calculus I	Satisfies Quantitative Literacy			4
PHIL 09369 or PHIL 09376 or PHIL 09341	Philosophy of Science-WI or Philosophy of Medicine-WI or Biomedical Ethics	PHIL 09369 satisfies Humanistic Literacy; PHIL 09369 & PHIL 09376 satisfy WI requirement			3
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.

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Major Requirements (65-66 sh)

SUMMARY OF MAJOR REQUIREMENTS

- 16 sh of Foundational Courses
 - 18-19 sh of Mid-Level Courses
 - 17 sh of Upper-Level Courses
 - 14 sh of MCB Restricted Electives
-
- 65-66 sh total

FOUNDATIONAL COURSES

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
MCB 01101	Foundations in Biology for Biomedical Sciences I				4
MCB 01102	Foundations in Biology for Biomedical Sciences II				4
CHEM 06101	Chemistry II				4
MATH 01131	Calculus 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 BMS				4
MCB 10345 or BINF 07310	Human Physiology or Intro to Bioinformatics				4 or 3
MCB 01201	Molecular Biology Methods				4
STAT 02284	Statistics for Biomed Sciences				3
Subtotal: 18-19 sh					

UPPER-LEVEL COURSES

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
MCB 01333 or CHEM 07348	Cellular Biochemistry or Biochemistry				4
MCB 01306	Translational Cell Biology (Lecture)				3
MCB 01307	Translational Cell Biology Lab				2
TBS 01220 or BIOL 01475 or CHEM 05440	Translational Biomedical Research I or Biology Lab/Field Research or Chemistry Research I				3
MCB 22450	Molecular Genetics				4
TBS 01450	Biomedical Frontiers Seminar I				1
Subtotal: 17 sh					

MCB RESTRICTED ELECTIVES

Choose at least four courses in consultation with advisor. At least 2 courses must be from Bank 1, at least 2 lecture+lab courses (4 sh) overall, a minimum of 14 sh total.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
Course Options – Bank 1					
<input type="radio"/>	BINF 05355	Bioinformatics – Biological Applications			3
<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 11330	Microbiology			4
<input type="radio"/>	BIOL 22335	Advanced Genetics			3
<input type="radio"/>	BIOL 01445	Special Topics in Biological Sciences-WI		Special permission via advising based on topic	3
<input type="radio"/>	CHEM 07357	Chemical Biology			3
<input type="radio"/>	CHEM 07407	Advanced Biochemistry (Lecture)			3
<input type="radio"/>	CHEM 07464	Advanced Organic Chemistry I (Lecture) - WI		Satisfies WI requirement	3

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<input type="radio"/>	CHEM 07431	Advanced Topics in Biochemistry	Special permission via advising based on topic			3
<input type="radio"/>	CHEM 08410	Survey of Molecular Modeling Methods				3
<input type="radio"/>	CHEM 09420	Supramolecular Chemistry				3
<input type="radio"/>	MCB 01308	Special Topics in Mol Cell Biosciences-WI	Satisfies WI requirement			3
<input type="radio"/>	MCB 01320	Introduction to Virology				4
<input type="radio"/>	MCB 01360	Biophysics I				4
<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 10345	Human Physiology	<i>Cannot double-count with required courses</i>			4
<input type="radio"/>	MCB 11338	Immunology				4
<input type="radio"/>	MCB 22410	Concepts in Human Genetics				3
<input type="radio"/>	TBS 01230	Translational Biomedical Research II				3
<input type="radio"/>	TBS 01315	Biomedical Technologies I				3
<input type="radio"/>	TBS 01451	Biomedical Frontiers Seminar II				1
Course Options – Bank 2						
<input type="radio"/>	BINF 07310	Intro to Bioinformatics	<i>Cannot double-count with required courses</i>			3
<input type="radio"/>	BIOL 07310	Comparative Vertebrate Anatomy				4
<input type="radio"/>	CHEM 07410	Medicinal Chemistry				3
<input type="radio"/>	CHEM 07490	General Aspects of Pharmacology				3
<input type="radio"/>	CHEM 07492	Pharmaceutical Chemistry				3
<input type="radio"/>	MCB 01334	Medical Biochemistry				3
<input type="radio"/>	MCB 10481	Cellular & Molecular Neuroscience				3
<input type="radio"/>	PSY 10315	Physiological Psychology				3
						Subtotal: 14 sh

Free Electives for this Major/Degree (26-27 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: 28-29 sh

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