

# B.S. in Biophysics

## Academic Program Guide for New First-Year Students (Effective Fall 2020) Department of Physics & Astronomy ([physics@rowan.edu](mailto:physics@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](http://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<sup>1</sup>

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 01 111 College Composition I (3 sh)     COMP 01 112 College Composition II (3 sh)     CMS 04 205 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 01 130 (4 sh counted under non-program)
- (SCIL) Scientific Literacy                      *Recommendation from major:* CHEM 06 100 or PHYS 00220 (4 sh counted 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:*
- (RS) Rowan Seminar Attribute<sup>2</sup>            *Recommendation from major:*

### Non-Program Courses (24 sh)

Courses in this section cannot be in the major department.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
MATH 01 130	Calculus I				4
MATH 01 131	Calculus II				4
CHEM 06 100	Chemistry I				4
CHEM 06 101	Chemistry II				4
MCB 01 101	Foundations in Biology for Biomedical Sciences I				4
MCB 01 102	Foundations in Biology for Biomedical Sciences II				4
					Subtotal: 24 sh

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

<sup>2</sup> 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 (66 sh)

### SUMMARY OF MAJOR REQUIREMENTS

- 25 sh of Foundational Courses
  - 15 sh of Mid-Level Courses
  - 15 sh of Upper-Level Courses
  - 11 sh of Approved Restricted Electives
- 
- 66 sh total

### FOUNDATIONAL COURSES

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
PHYS 00 130	Building Momentum as a Physics Student at Rowan and Beyond	Satisfies Rowan Seminar			1
PHYS 00 220	Introductory Mechanics	Satisfies Scientific Literacy			4
PHYS 00 221	Introductory Thermodynamics, Fluids, Waves, & Optics				4
PHYS 00 222	Introductory Electricity & Magnetism				4
MATH 01 230	Calculus III				4
CHEM 07 200	Organic Chemistry I				4
CHEM 07 203	Organic Chemistry II for BMS				4
Subtotal:					25 sh

### MID-LEVEL COURSES

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
BMS 01 315	Biomedical Technologies I				4
PHYS 00 330	Mathematical Methods for Physics				3
PHYS 00 300	Modern Physics				4
CHEM 07 348 or BMS 01 333	Biochemistry or Cellular Biochemistry				4
Subtotal:					15 sh

### UPPER-LEVEL COURSES

Course #	Course Name	Course Designations / Notes	Sem/Yr	Grade	Credits
PHYS 00 370	Molecular Biophysics				4
PHYS 00 375	Introduction to Radiation Physics				4
PHYS 00 371	Biophysics: Fundamentals of Biomaterials				3
PHYS 00 451	Biophysics Research I				2
PHYS 00 452	Biophysics Research II (or other approved research)				2
Subtotal:					15 sh

### APPROVED RESTRICTED ELECTIVES (CHOOSE 11 SH FROM THE FOLLOWING LIST)

- *Physics* — any 300+ course excluding Physics/Astronomy Research (PHYS 00 350, 00 450; ASTR 11 350, 11 450)
- *Biology* — any 200+ course
- *Chemical Engineering*: Bioprocess Engineering [CHE 06 462]; Principles of Biomedical Processes [CHE 06 472]; Fundamentals of Particle Technology [CHE 06 474]; or Tissue Engineering Fundamentals [CHE 06 478]
- *Chemistry* — any 300+ level course and: Introduction to Forensic Science [CHEM 05 249]; or Analytical Chemistry [CHEM 09 249]

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
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Subtotal:					11 sh

## Free Electives for this Major/Degree (21 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:					21 sh

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