

BIOLOGY, BACHELOR OF SCIENCE (BS) - CONCENTRATION IN PRE-HEALTH PROFESSIONS / PRE-PHYSICAL THERAPY (SRU) (TRADITIONAL)

Program Learning Outcomes

- **Competence in Laboratory and Research Skills:** To conduct, assess, and communicate research investigations using established scientific practices. (SRU UG 1, 2, 3, 4, 5, 7, 10)
- **Core Concepts for Biological Literacy:** (SRU UG 1, 2, 3, 4, 5, 7, 9)
 - Knowledge/Content
 - Evolution
 - Structure and function across all levels of biological organization
 - Diversity and interactions of life
 - Information flow, exchange and storage in biological systems
 - Critical Thinking/Problem Solving
 - Connect information from cognate science courses and liberal arts courses to biological concepts
 - Apply scientific information to current and future societal problems
- **Participation in Diverse, Enriching Scientific Activities:** Apply technical and professional skills in hands-on laboratory, clinical or field experiences. (SRU UG 1, 2, 3, 4, 5, 7, 8, 9)
- **Professional Attitude:** Graduates demonstrate professional attitude, behavior, and ability to interact with people from diverse backgrounds and cultures. (SRU UG 1, 5, 7, 8, 9)

Related Links

Biology - Pre-Health Professions/Pre-Physical Therapy, BS Program Page (<https://www.sru.edu/academics/majors-and-minors/biology-pre-physical-therapy/>)

Professional Licensure/Certification Page (<https://www.sru.edu/students/student-consumer-information/professional-licensures/>)

Curriculum Guide

GPA Requirement

Major GPA: 2.0 or higher
 Overall GPA: 3.0 or higher
 Core GPA: 2.0 or higher

Summary*

| Code | Title | Hours |
|------|-----------------------------|-------|
| | Rock Studies 2 Requirements | 45 |
| | Other Basic Requirements | 0-3 |
| | Major Requirements | 57-60 |

| | |
|--|-------|
| Natural Science and Math College-Wide Requirements | 12 |
| Electives | 15-18 |

* All undergraduate degree programs require a minimum of 120 credits. Some courses meet multiple requirements, but are only counted once toward the 120 credit total required to graduate.

Rock Studies 2 Requirements

| Code | Title | Hours |
|--|--|-------------------------------|
| The Rock | | |
| SUBJ 139 | Foundations of Academic Discovery ¹ | 3 |
| ENGL 102 | Critical Writing | 3 |
| ENGL 104 | Critical Reading | 3 |
| MATH 125 | Precalculus | 4 |
| | or MATH 225 | Calculus I |
| Select one of the following: | | 3 |
| COMM 200 | Civil Discourse: Theory & Practice | |
| PHIL 110 | Ethics and Civil Discourse | |
| POLS 235 | Civil Discourse and Democracy | |
| Subtotal | | 16 |
| Integrated Inquiry | | |
| <i>Creative and Aesthetic Inquiry</i> | | |
| Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/) | | 3 |
| <i>Humanities Inquiry</i> | | |
| Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/) | | 3 |
| <i>Social Science Inquiry</i> | | |
| Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/) | | 3 |
| <i>Natural Sciences Inquiry</i> | | |
| CHEM 107 | General Chemistry I | 3 |
| CHEM 111 | General Chemistry I Lab | 1 |
| <i>Physical Sciences Inquiry</i> | | |
| PHYS 201 | Elements of Physics I with Lab | 4 |
| | or PHYS 216 | University Physics 1 with Lab |
| Subtotal | | 17 |
| Thematic Thread | | |
| Select 12 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/) ² | | 12 |
| Total Hours | | 45 |

¹ Course offered in multiple subjects; cannot take course in first major subject

² One course from each category; six credits must be 300-level or above; no more than 4 credits from one subject area; specific courses required in first major, regardless of prefix of course, cannot be used to satisfy thread requirements; any course with same prefix as first major cannot be used to satisfy thread requirements, even if it is not a course in the first major.

Basic Math Requirement

Check with your adviser or a current degree audit report to see if you have been exempted from this course. The credit earned in this course will not be counted toward the 120 credit hour minimum needed to earn a degree.

| Code | Title | Hours |
|--|-------------------|------------|
| Complete one of the following: | | 0-3 |
| Meet required minimum SAT or ACT math score OR | | |
| ESAP 110 | Beginning Algebra | |
| Total Hours | | 0-3 |

DIVERSITY, EQUITY, AND INCLUSION REQUIREMENT

Students must take and pass a course with the Diversity, Equity, and Inclusion (DEI) designation prior to graduation. Students can meet this requirement by taking any DEI - designated course in any program at any time during their undergraduate career.

Major Requirements

- 30 major credits must be taken at SRU or PASSHE
- 30 credits must be taken at the 300 level or above
- Students desiring a Biology Major must maintain at least a 2.000 average in Biology.
- Students must earn a "C" or better in both Biology I with Lab (BIOL 113) and Biology II with Lab (BIOL 114) before proceeding to their next biology course.
- Students must earn a "C" or better in both Genetics with Lab (BIOL 250) and Biometry and Lab (BIOL 325) prior to graduating.

| Code | Title | Hours |
|----------------------------------|--|-------|
| Biology Core Requirements | | |
| BIOL 113 | Biology I: Foundations of Ecology, Evolution and Diversity with Lab ¹ | 4 |
| BIOL 114 | Biology II: Foundations of Molecules, Genes and Cells with Lab ¹ | 4 |
| BIOL 250 | Genetics with Lab ¹ | 4 |
| BIOL 325 | Biostatistics and Experimental Design with Lab ¹ | 3 |
| Subtotal | | 15 |

Required Biology Courses

| | | |
|---|---|----|
| BIOL 209 & BIOL 309 | Human Anatomy and Physiology I and Human Anatomy and Physiology II ¹ | 8 |
| BIOL 330 | Microbiology/Lab ¹ | 3 |
| BIOL 335 or BIOL 370 | Cell Biology ¹ Molecular Biology | 3 |
| BIOL 401 or BIOL 305 or BIOL 306 or BIOL 350 | Ecology with Lab ¹ Wetlands and Aquatic Plants/Lab Freshwater Biomonitoring/Lab Evolution | 3 |
| Subtotal | | 17 |

Additional Upper-Level Biology Electives

| | |
|--|---|
| Select 6 credits which can come from courses not chosen above, or any 300/400 level course listed below. Additional electives may be selected from the Marine Science offerings listed below. PLE courses are only offered during the summer months through our affiliation with Pymatuning Laboratory of Ecology. | 6 |
| Upper-Level Biology Electives (p. 2) ¹ | |
| Subtotal: | 6 |

Related Sciences – Chemistry

| | | |
|----------|---------------------------------------|---|
| CHEM 108 | General Chemistry II ² | 3 |
| CHEM 112 | General Chemistry II Lab ² | 1 |

| | | |
|----------|---|---|
| CHEM 201 | Organic Chemistry I ² | 3 |
| CHEM 211 | Organic Chemistry Laboratory I ² | 1 |
| Subtotal | | 8 |

Related Sciences – Chemistry Advanced Elective

| | | |
|---|---|--|
| Select one of the following: | 3-4 | |
| CHEM 202 & CHEM 212 | Organic Chemistry II and Organic Chemistry Laboratory II ¹ | |
| Upper-Level Biology Electives (p. 2) ¹ | | |
| Select one of the following: | 3 | |
| CHEM 335 | Biochemistry I ¹ | |
| Upper-Level Biology Electives (p. 2) ¹ | | |
| Subtotal: | 6-7 | |

Related Sciences – Physics

| | | |
|-------------------------|---|---|
| PHYS 202 or PHYS 217 | Elements of Physics II/ Lab ² University Physics 2 with Lab | 4 |
|-------------------------|---|---|

Independent Study Option

| | | |
|--|--------------------------------|--|
| Select one of the following options: | 3 | |
| <i>Independent Study Option</i> | | |
| BIOL 490 | Independent Study ¹ | |
| <i>Non-Independent Study Option</i> | | |
| Select 3 credits in BIOL or MARS course from Additional Upper-Level Biology Electives below. | | |
| Upper-Level Biology Electives (p. 2) ¹ | | |

Total Hours **59-60**

¹ Course counts for 50% of Major requirements and Major GPA

² Course counts for 50% of Major requirements but not for Major GPA

⁵ It is recommended students take PSYC 105 and the additional PSYC class in their thread courses.

* Some courses may require pre-requisites. Please see course descriptions to determine if there are any pre-requisites for that specific course.

Natural Science and Math College-Wide Requirements

| Code | Title | Hours |
|-------------------------|---|-------|
| CHEM 107 | General Chemistry I | 3 |
| CHEM 111 | General Chemistry I Lab | 1 |
| MATH 125 or MATH 225 | Precalculus Calculus I | 4 |
| PHYS 201 or PHYS 216 | Elements of Physics I with Lab University Physics 1 with Lab | 4 |

Additional Physical Therapy Prerequisite Courses

| Code | Title | Hours |
|----------|-------------------------------|-------|
| PSYC 105 | Introduction to Psychology | 3 |
| PSYC XXX | See My Rock Audit for options | 3 |

Additional Upper-Level Biology Electives

| Code | Title | Hours |
|----------|---|-------|
| BIOL 301 | Forest Ecology ¹ | 3 |
| BIOL 302 | Ecology of Amphibians & Reptiles/Lab ¹ | 3 |
| BIOL 303 | Behavioral Ecology/Lab ¹ | 3 |
| BIOL 305 | Wetlands and Aquatic Plants/Lab ¹ | 3 |
| BIOL 306 | Freshwater Biomonitoring/Lab ¹ | 3 |

| | | |
|----------|--|---|
| BIOL 307 | Vertebrate Ecology/Lab ¹ | 3 |
| BIOL 308 | Aquatic Ecosystem Management / Lab ¹ | 3 |
| BIOL 310 | Plant Diversity with Lab ¹ | 3 |
| BIOL 311 | Entomology/Lab ¹ | 3 |
| BIOL 312 | Zoology with Lab | 3 |
| BIOL 313 | Herpetology/Lab ¹ | 3 |
| BIOL 314 | Parasitology with Lab ¹ | 3 |
| BIOL 316 | Immunology with Lab ¹ | 3 |
| BIOL 317 | Ecology and Fungi ¹ | 3 |
| BIOL 380 | Endocrinology | 3 |
| BIOL 320 | Ornithology/Lab ¹ | 3 |
| BIOL 321 | Wildlife Management/Lab ¹ | 3 |
| BIOL 322 | Conservation Biology/Lab ¹ | 3 |
| BIOL 323 | Stream Ecology/Lab ¹ | 3 |
| BIOL 326 | Field Methods in Biogeography/Lab ¹ | 3 |
| BIOL 327 | Limnology/Lab ¹ | 3 |
| BIOL 331 | Mammology/Lab ¹ | 3 |
| BIOL 343 | Embryology with Lab ¹ | 3 |
| BIOL 350 | Evolution ¹ | 3 |
| BIOL 356 | Field Ecology / Lab ¹ | 3 |
| BIOL 357 | Environmental Microbiology with Lab ¹ | 4 |
| BIOL 360 | Field Botany ¹ | 3 |
| BIOL 361 | Flora of Western Pennsylvania ¹ | 3 |
| BIOL 371 | Vertebrate Field Zoology ¹ | 3 |
| BIOL 373 | Ichthyology/Lab ¹ | 3 |
| BIOL 375 | Ecology of Fish / Lab ¹ | 3 |
| BIOL 380 | Endocrinology | 3 |
| BIOL 402 | Biogeography/Lab ¹ | 3 |
| BIOL 405 | Animal Physiological Ecology with Lab ¹ | 4 |
| BIOL 409 | Pathophysiology | 3 |
| BIOL 412 | Population Biology ¹ | 3 |
| BIOL 430 | Pathogenic Microbiology ¹ | 3 |
| BIOL 435 | Cellular and Molecular Analysis Laboratory | 3 |
| BIOL 450 | Biology Internship ¹ | 3 |
| BIOL 470 | Histology with Lab ¹ | 3 |
| BIOL 498 | Selected Topics ¹ | 3 |
| MARS 221 | Marine Invertebrates ¹ | 3 |
| MARS 241 | Marine Biology ¹ | 3 |
| MARS 250 | Wetland Ecology ¹ | 3 |
| MARS 260 | Marine Ecology ¹ | 3 |
| MARS 270 | Coastal Vegetation ¹ | 3 |
| MARS 298 | Selected Topics ¹ | 3 |
| MARS 300 | Behavior of Marine Organisms ¹ | 3 |
| MARS 310 | The Mammals of Coastal Ecosystems ¹ | 3 |
| MARS 320 | Marine Microbiology ¹ | 3 |
| MARS 330 | Tropical Invertebrates ¹ | 3 |
| MARS 342 | Marine Botany ¹ | 3 |
| MARS 343 | Marine Ichthyology ¹ | 3 |
| MARS 344 | Anatomy of Marine Chordates ¹ | 3 |
| MARS 345 | Ornithology ¹ | 3 |
| MARS 350 | Physiology of Marine Invertebrates ¹ | 3 |
| MARS 398 | Selected Topics ¹ | 3 |

| | | |
|----------|---|---|
| MARS 420 | Marine Micropaleontology ¹ | 3 |
| MARS 431 | Ecology of Marine Plankton ¹ | 3 |
| MARS 441 | Biology of Molluscs ¹ | 3 |
| MARS 490 | Independent Study ¹ | 3 |
| MARS 491 | Coral Reef Ecology ¹ | 3 |
| MARS 492 | Marine Mammals ¹ | 3 |
| MARS 498 | Selected Topics ¹ | 3 |
| MARS 500 | Problems in Marine Science ¹ | 3 |

¹ Course counts for 50% of Major requirements and Major GPA

Co-Curricular and Experiential Learning

Students are encouraged to explore additional curricular and co-curricular opportunities. There is a strong correlation between long-term student success and participation in the following types of programs and activities:

1. Volunteering
2. Job Shadowing

Doctor of Physical Therapy (DPT) Prerequisite Admission Requirements

For Application Requirements

Please refer to Slippery Rock University's Physical Therapy (Doctor of Physical Therapy) website for requirements: www.sru.edu/PT/ (<http://www.sru.edu/PT/>)

Rock Studies 2

| Code | Title | Hours |
|--|--|--------------|
| Prerequisite Courses - SRU Physical Therapy | | |
| Select one of the following: | | 6-8 |
| BIOL 209 & BIOL 309 | Human Anatomy and Physiology I and Human Anatomy and Physiology II | |
| BIOL 340 & BIOL 410 | Vertebrate Anatomy with Lab and Animal Physiology with Lab | |
| CHEM 107 & CHEM 111 | General Chemistry I and General Chemistry I Lab | 4 |
| CHEM 108 & CHEM 112 | General Chemistry II and General Chemistry II Lab | 4 |
| Select one of the following: | | 8 |
| PHYS 201 & PHYS 202 | Elements of Physics I with Lab and Elements of Physics II/ Lab | |
| PHYS 216 & PHYS 217 | University Physics 1 with Lab and University Physics 2 with Lab | |
| STAT 152 or BIOL 325 | Elementary Statistics I and Biostatistics and Experimental Design with Lab | 3 |
| PSYC 105 | Introduction to Psychology | 3 |
| PSYC 244 or PSYC 276 | Developmental Psychology and Introduction to Abnormal Psychology | 3 |
| Total Hours | | 31-33 |

Important Curriculum Guide Notes

This Curriculum Guide is provided to help SRU students and prospective students better understand their intended major curriculum. Enrolled SRU students should note that the My Rock Audit may place already-earned and/or in progress courses in different, yet valid, curriculum categories. Enrolled SRU students should use the My Rock Audit Report

and materials and information provided by their faculty advisers to ensure accurate progress towards degree completion. *The information on this guide is current as of the date listed. Students are responsible for curriculum requirements at the time of enrollment at the University.*

PASSHE - Pennsylvania State System of Higher Education Institutions

BIOLOGY – PRE-HEALTH PROFESSIONS – BS (6108)

PRE-PT Traditional

Effective Summer 2023

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