

PHYSICS, BACHELOR OF ARTS (BA) - PRE-MASTER OF EDUCATION (7-12)

Program Learning Outcomes

Upon graduation, students in the Physics Program at SRU will be:

- Proficient in the basic and advanced concepts of classical and modern physics.
- Accomplished problem solvers capable of applying inductive and deductive logic, mathematical modeling, computational tools, and principles of physics to novel situations.
- Skilled at constructing and assembling experimental apparatuses, conducting and analyzing measurements of physical phenomena, and drawing valid conclusions from experimental data.
- Effective communicators, capable of presenting scientific results effectively to diverse audiences.
- Prepared for a career in science, industry, and education or to pursue a graduate program in physics or related areas.

Related Links

Physics - Pre-Masters of Education, BA Program Page (<https://www.sru.edu/academics/majors-and-minors/physics-pre-masters-of-education/>)

Physics Fact Sheet URL (<https://www.sru.edu/documents/programs/factsheets/undergraduate/physics-fs.pdf>)

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

Curriculum Guide

GPA Requirement

Major GPA: 2.00 or higher
Overall GPA: 2.00 or higher

Summary*

| Code | Title | Hours |
|------|--|-------|
| | Rock Studies 2 Requirements | 45 |
| | Modern Language Requirements | 0-9 |
| | Other Basic Requirements | 0-3 |
| | Major Requirements | 39 |
| | Concentration Requirements | 15 |
| | Natural Science and Math College-Wide Requirements | 12 |
| | Electives | 36 |

* 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 225 | Calculus I | 4 |
| 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 211 | General Physics I with Lab | 4 |
| 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.

BA Modern Language Requirement

BA degree requires language proficiency at the 103 class level. Exemption by placement or examination is possible.

| Code | Title | Hours |
|----------------------|-------|------------|
| Complete 0-9 credits | | 0-9 |
| Total Hours | | 0-9 |

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

- 20 major credits must be taken at SRU or PASSHE
- 20 major credits must be taken at the 300 level or above

| Code | Title | Hours |
|-----------------------------------|--|-----------|
| Required Physics Courses | | |
| PHYS 212 | General Physics II with Lab ¹ | 3 |
| PHYS 213 | General Physics III/ Lab ¹ | 4 |
| PHYS 312 | Modern Physics 1 ¹ | 3 |
| PHYS 314 | Statics ¹ | 3 |
| Select one of the following: | | 3 |
| PHYS 331 | Mathematical Methods of Physics ¹ | |
| MATH 331 | Mathematical Methods of Physics ¹ | |
| Select one of the following: | | 2 |
| PHYS 381 | Advanced Physics Laboratory ¹ | |
| PHYS 382 | Optics Laboratory ¹ | |
| PHYS 412 | Modern Physics 2 ¹ | 1 |
| Subtotal | | 19 |
| Required Physics Electives | | |
| Select two of the following: | | 6 |
| PHYS 315 | Dynamics ¹ | |
| PHYS 375 | Thermal Physics ¹ | |
| PHYS 385 | Computational Physics ¹ | |
| PHYS 410 | Electricity and Magnetism ¹ | |
| PHYS 480 | Quantum ¹ | |
| Subtotal | | 6 |
| Related Field Work | | |
| CPSC 146 | Programming Principles ¹ | 3 |
| MATH 230 | Calculus II ^{1,2} | 4 |
| MATH 231 | Calculus III ¹ | 4 |
| MATH 240 | Linear Algebra and Differential Equations ¹ | 3 |
| Subtotal | | 14 |
| Total Hours | | 39 |

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

² Course can be counted as a Rock Studies 2 Requirement, but earns credit only once toward your 120-credits total.

* 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 ¹ | 3 |
| CHEM 111 | General Chemistry I Lab ¹ | 1 |
| MATH 125 | Precalculus ¹ | 4 |
| or MATH 225 | Calculus I | |
| PHYS 201 | Elements of Physics I with Lab ¹ | 4 |

| | | |
|--------------------|----------------------------|-----------|
| or PHYS 211 | General Physics I with Lab | |
| Total Hours | | 12 |

¹ Course can be counted as a Rock Studies 2 Requirement, but earns credit only once toward your 120-credits total.

Recommended Courses for Optional Physics Pre Masters in Education Major

| Code | Title | Hours |
|--------------------|--|-----------|
| SPED 121 | Overview of Special Education | 3 |
| SEFE 338 | Standards-Based Instruction & Assessment in the Inclusionary Classroom | 3 |
| BIOL 101 | General Biology | 3 |
| or BIOL 105 | Environmental Biology | |
| EGEO 100 | Environmental Geology | 3 |
| or EGEO 101 | Physical Geology | |
| PHYS 317 | Space Science | 3 |
| Total Hours | | 15 |

PHYSICS - BA (6 64)

w/optional Pre Masters in Education (PX)

This program is effective as of Fall 2019.

Revised 07-2019

UCC 2.5.2019

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