PHYSICS, BACHELOR OF SCIENCE (BS) - PRE-MASTER OF EDUCATION (7-12)

Program Learning Outcomes

LO1: Graduates will demonstrate a comprehensive understanding of core physics concepts including mechanics, electromagnetism, thermal and statistical physics, and quantum mechanics **(UGO 02, 03, 04)**

LO2: Graduates will be skilled in using physical laws, relevant mathematical and statistical techniques, and computational tools to model physical systems and solve complex problems across various domains in physics. **(UGO 02, 03, 04, 06)**

LO3: Graduates will possess hands-on experience in designing, conducting, and analyzing experiments using appropriate laboratory equipment and techniques. **(UGO 02, 04, 06)**

LO4: Graduate will demonstrate the ability to effectively communicate complex physical concepts and results through oral presentations, written reports, and visual aids tailored to diverse audiences. **(UGO 01, 05)**

LO5: Graduates will be capable of collaborating effectively within diverse, interdisciplinary teams and recognize the significance of professional integrity in scientific practices. **(UGO 07, 08, 09, 10)**

Related Links

Physics - Pre-Masters of Education, BS 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
Major Requirements		59
Natural Science and Math College-Wide Requirements (Included in Rock Studies Requirements)		12
Electives		16

* 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	
POLI 235	Civil Discourse and Democracy	
Subtotal		16
Integrated Inquiry		
Creative and Aesthetic Inquiry		
Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Humanities Inquiry		
Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Social Science Inquiry		
Select 3 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Natural Sciences Inquiry		
CHEM 107	General Chemistry I	3
CHEM 111	General Chemistry I Lab	1
Physical Sciences Inquiry		
PHYS 216	University Physics 1 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.

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

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

Code	Title	Hours
Physics Core		
PHYS 217	University Physics 2 with Lab [1]	4

PHYS 310	Classical Mechanics [1]	3
PHYS 312	Modern Physics [1]	3
PHYS 381	Advanced Physics Laboratory [1]	2
PHYS 385	Computational Physics [1]	3
Subtotal		15
Concentration in Pre-Master of Education (7-12)		
Required Concentration Physics Courses		
PHYS 331	Mathematical Methods of Physics and Engineering [1]	3
or MATH 331	Mathematical Methods of Physics and Engineering	
PHYS 375	Thermal and Statistical Physics [1]	3
PHYS 410	Electricity and Magnetism [1]	3
PHYS 480	Quantum Mechanics [1]	3
Subtotal		12
Required Education Courses		
SPED 121	Overview of Special Education [1]	3
SEFE 338	Standards-Based Instruction & Assessment in the Inclusionary Classroom [1]	3
Subtotal		6
Required Electives		
Select minimum 12 credits from the following. At least 4 credits must be 300-level or higher. [3]		12
PHYS 314	Statics [1]	
PHYS 315	Dynamics [1]	
PHYS 317	Space Science [1]	
PHYS 485	Condensed Matter Physics [1]	
SEFE 200	Introduction to Education, Teaching Methods and Field	
SEFE 230	Production and Utilization of Instructional Technology	
SEFE 342	Educational Psychology for Diverse Learners	
CHEM 108	General Chemistry II [1]	
CHEM 112	General Chemistry II Lab [1]	
STAT 350	Applied Statistics [1]	
CPSC 146	Programming Principles [1]	
Subtotal		12
Required Cognate Courses		
MATH 230	Calculus II [1,2]	4
MATH 231	Calculus III [1]	4
MATH 232	Linear Algebra	3
MATH 301	Differential Equations I [1]	3
Subtotal		14
Total Hours		**59**

[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.

[3] Minimum of 3 credits from *Required Electives Block* must be at 300 level or above to comply with Upper Division course requirement,

Natural Science and Math College-Wide Requirements

Code	Title	Hours
Students must take the following four courses:		
CHEM 107	General Chemistry I [1]	3
CHEM 111	General Chemistry I Lab [1]	1
MATH 225	Calculus I [1]	4
PHYS 216	University Physics 1 with Lab	4
Total Hours		**12**

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

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

PHYSICS - BS (6164)
w/optional Pre Masters in Education (PX)
This program is effective as of Summer 2025
Revised 07.14.2025
UCC 10.29.2024