CHEMISTRY, BACHELOR OF SCIENCE (BS)

The Slippery Rock University Chemistry Degree is certified by the American Chemistry Society or ACS. In order to earn ACS certification, students must complete 2 credits of Independent Study and 1 credit of Research in addition to the BS requirements. Students can also choose an option concentration in order to broaden their background in chemistry or to gain additional experience if they wish to pursue other interests.

Concentrations are available in the following areas:

- Biochemistry
- Computational Chemistry
- Education
- Environmental Chemistry
- Forensic Chemistry
- Health Sciences

Program Learning Outcomes

- Students will demonstrate knowledge of the main disciplines of chemistry, namely *Organic, Analytical, Biological, Physical, and Inorganic* chemistry. (UG 2, 3, 4, 5)
- Students will demonstrate development of technical skills for practical applications of chemistry. (UG 2, 3, 4, 5)
- Students will present collected experimental data in written and oral reports. (UG 1, 2, 3, 4, 5)
- Students and faculty will participate in faculty-led research projects. Students are expected to be actively working in the laboratory under the supervision and guidance of a faculty mentor. (UG 1, 2, 3, 4, 5)

Related Links

Chemistry, BS Program Page (https://www.sru.edu/academics/majors-and-minors/chemistry-bs/)

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: 2.0 or higher

Summary*

Code	Title	Hours
Rock Studies 2 Requirements		45
Major/Concentration Requirements		47-48
Natural Science and Mathematics College Wide Requirement		12
ACS Certification – Optional		0-3
Electives		27-28

* 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 [2,3]	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 & CHEM 111	General Chemistry I and General Chemistry I Lab [2,3]	4
Physical Sciences Inquiry		
PHYS 216	University Physics 1 with Lab [2,3]	4
Subtotal		17
Thematic Thread		
Select 12 Credits (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/) [4]		12
Total Hours		**45**

1. Course offered in multiple subjects; cannot take in first major subject
2. Course counts for 50% of Major requirements and Major GPA
3. Course can be counted as a Rock Studies 2 Requirement, but earns credit only once toward your 120-credits total.
4. 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/Concentration Requirements

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

Code	Title	Hours
Required Introductory Chemistry Courses		
CHEM 108	General Chemistry II [1,2]	3
CHEM 112	General Chemistry II Lab [1]	1
Subtotal		4
Required Foundation Chemistry Courses		
CHEM 201	Organic Chemistry I [1,2]	3
CHEM 211	Organic Chemistry Laboratory I [1]	1
CHEM 301	Physical Chemistry I [1]	3
CHEM 321	Physical Chemistry Laboratory I [1]	1
CHEM 335	Biochemistry I [1]	3
CHEM 336	Biochemistry Laboratory I [1]	1
CHEM 350	Analytical Chemistry [1]	3
CHEM 351	Analytical Chemistry Lab [1]	1
CHEM 442	Inorganic Chemistry [1]	3
CHEM 452	Physical Inorganic Chemistry Laboratory [1]	1
Subtotal		20
Required In-Depth Chemistry Courses		
CHEM 304	Organic Chemistry II [1,2]	3
CHEM 314	Organic Chemistry Laboratory II [1]	1
CHEM 425	Instrumental Analysis [1]	3
CHEM 426	Instrumental Analysis Laboratory [1]	1
Subtotal		8
Additional Required In-Depth Chemistry Courses		
CHEM 460	Materials Chemistry [1]	3
CHEM 461	Advanced Chemistry Laboratory [1]	2
Select one lecture course:		3
CHEM 337	Biochemistry II [1]	
ENGR 220	Engineering Materials [1]	
Subtotal		8
Cognate Courses		
PHYS 217	University Physics 2 with Lab [1]	4
Select one addtional math course:		3-4
MATH 230	Calculus II [1,3]	
STAT 152	Elementary Statistics [1, 3]	
Subtotal		7-8
Total Hours		**47-48**

1 Course counts for 50% of Major requirements and Major GPA
2 A 'C' or better must be earned in course to register for Chemistry courses 300 or above.
3 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 Requirement

Code	Title	Hours
CHEM 107	General Chemistry I [1,2]	3
CHEM 111	General Chemistry I Lab [1,3]	1
MATH 225	Calculus I [1,3]	4
PHYS 216	University Physics 1 with Lab [1,3]	4
Total Hours		**12**

1 Course counts for 50% of Major requirements and Major GPA
2 A 'C' or better must be earned in course to register for Chemistry courses 300 or above.
3 Course can be counted as a Rock Studies 2 Requirement, but earns credit only once toward your 120-credits total.

ACS Certification – Optional

Code	Title	Hours
CHEM 490	Independent Study [1]	2
CHEM 496	Research [1]	1
Total Hours		**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. High-Impact Practice (HIP) designated classes (e.g., Organic Chemistry II Lab)
2. Student-faculty research
3. Student leadership development (Chemistry Club)
4. Career education and development
5. Internships
6. Student teaching (serve as Lab Assistants and tutors)
7. Volunteering

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

CHEMISTRY - BS (6118) / CIM 104
This program is effective as of Summer 2026
Revised 04.28.2026
UCC 02.10.2026

Recommended Four-Year Plan

Course	Title	Hours
First Year		
Fall		
CHEM 107 & CHEM 111	General Chemistry I and General Chemistry I Lab	4

BIOL 114	Biology II: Foundations of Molecules, Genes and Cells with Lab	4
ENGL 102	Critical Writing	3
ESAP 101	FYRST Seminar *	1
Select one of the following:		3-4
MATH 120	Intermediate Algebra (if necessary)	
MATH 125	Precalculus (if necessary)	
MATH 225	Calculus I (if necessary)	
MATH 230	Calculus II	
	Hours	**15-16**

Spring

CHEM 108 & CHEM 112	General Chemistry II and General Chemistry II Lab	4
Select one of the following:		4
MATH 125	Precalculus (if necessary)	
MATH 225	Calculus I (if necessary)	
MATH 230	Calculus II	
SUBJ 139	Foundations of Academic Discovery	3
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
	Hours	**14**

Second Year

Fall

CHEM 201 & CHEM 211	Organic Chemistry I and Organic Chemistry Laboratory I	4
Select one of the following:		4
MATH 225	Calculus I (if necessary)	
MATH 230	Calculus II	
PHYS 216	University Physics 1 with Lab	4
ENGL 104	Critical Reading	3
	Hours	**15**

Spring

CHEM 304 & CHEM 314	Organic Chemistry II and Organic Chemistry Laboratory II	4
MATH 230	Calculus II (if necessary)	4
PHYS 217	University Physics 2 with Lab	4
Civil Discourse Requirement - select one		3
COMM 200	Civil Discourse: Theory & Practice	
PHIL 110	Ethics and Civil Discourse	
POLI 235	Civil Discourse and Democracy	
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
	Hours	**18**

Third Year

Fall

Select one of the following:		7-8
In even years, select:		
CHEM 335 & CHEM 336	Biochemistry I and Biochemistry Laboratory I	
CHEM 442	Inorganic Chemistry	
In odd years, select:		
CHEM 301 & CHEM 321	Physical Chemistry I and Physical Chemistry Laboratory I	
CHEM 350 & CHEM 351	Analytical Chemistry and Analytical Chemistry Lab	
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
	Hours	**16-17**

Spring

Select one of the following:		4-7
In odd years, select:		
CHEM 452	Physical Inorganic Chemistry Laboratory	
CHEM 460	Materials Chemistry	
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		
In even years, select:		
CHEM 302	Physical Chemistry II	
CHEM 425 & CHEM 426	Instrumental Analysis and Instrumental Analysis Laboratory	
Select one of the following In Depth Chemistry Elective (1 lecture and 1 lab):		4
CHEM 337 & CHEM 338	Biochemistry II and Biochemistry Laboratory II	
CHEM 340	Air Quality Assessment	
CHEM 370	Water Quality Assessment	
CHEM 415 & CHEM 416	Forensic Analysis and Forensic Analysis Lab	
CHEM 475	Advanced Organic Synthesis	
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
	Hours	**17-20**

Fourth Year

Fall

Select one of the following:		7-8
In even years, select:		
CHEM 335 & CHEM 336	Biochemistry I and Biochemistry Laboratory I	
CHEM 442	Inorganic Chemistry	
In odd years, select:		
CHEM 301 & CHEM 321	Physical Chemistry I and Physical Chemistry Laboratory I	
CHEM 350 & CHEM 351	Analytical Chemistry and Analytical Chemistry Lab	
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
	Hours	**16-17**

Spring

Select one of the following:		7
In odd years, select:		
CHEM 452	Physical Inorganic Chemistry Laboratory	
CHEM 460	Materials Chemistry	
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		
In even years, select:		
CHEM 302	Physical Chemistry II	
CHEM 425 & CHEM 426	Instrumental Analysis and Instrumental Analysis Laboratory	
Select one of the following In Depth Chemistry Electives (1 Lecture and 1 Lab):		4
CHEM 337 & CHEM 338	Biochemistry II and Biochemistry Laboratory II	
CHEM 340	Air Quality Assessment	
CHEM 370	Water Quality Assessment	
CHEM 415 & CHEM 416	Forensic Analysis and Forensic Analysis Lab	
CHEM 475	Advanced Organic Synthesis	
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
Inquiry/Thread/Elective Course (https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/)		3
	Hours	**20**
	Total Hours**	**131-137**

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

* Students are encouraged to take ESAP 101 as a Free Elective.

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

***This document serves as a guide. Earning a degree requires at least 120 credits, though some majors require more. Before registering for courses, consult your academic adviser and review your curriculum guide. Be sure to review and confirm your plan with your adviser at least once each academic year.*

Major Code: 6118
Revised date: 06.01.2026