# Slippery Rock University of Pennsylvania – Curriculum Guide
## Bachelor of Science in Chemistry
### Concentration in Computational Chemistry

### LIBERAL STUDIES REQUIREMENTS (45–46 credits)
See Liberal Studies Guide for Goal and Enrichment choices

### GOAL COURSE REQUIREMENTS
Complete Goal requirements as indicated below (36-37 credits)

- **Basic Requirements (9 credits)**
  - ENGL 102: Critical Writing 3
  - ENGL 104: Critical Reading 3
  - COMM 200: Civil Discourse 3

- **The Arts (3 credits)**
  - Goal 3

- **Global Community (9 credits)**
  - Goal – Non-US 3
  - Goal – US 3

- **Human Institutions/Interpersonal Relationships (3 credits)**
  - Goal 3

- **Science, Technology & Math (9-10 credits)**
  - Goal – Sci 3
  - PHYS 211^: General Physics I / Lab 4
  - MATH 225^: Calculus I 4

### CHALLENGES OF THE MODERN AGE (3 credits)
Choose one course from three of the following Enrichment areas.

- **Global Community**
- **Human Institutions/Interpersonal Relationships**
- **Science, Technology & Math**

### ENRICHMENT COURSE REQUIREMENTS

- **Science, Technology & Math (9 credits)**
  - MATH 230^: Calculus II 4

### OTHER BASIC REQUIREMENTS
(Check with your advisor 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.)

- **ACSD 110: Beginning Algebra** 3

### COMPUTER COMPETENCY
Students must demonstrate “computer competency” by:

- Passed Exam: Pass Computer Competency Exam at SRU
- OR: CPSC 100, 110, 130, 210 or PE 202 at SRU or another post-secondary institution 1 - 3

### 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-enrolled 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 advisors to ensure accurate progress towards degree completion. The information on this guide is current as of the date below. Students are responsible for curriculum requirements at the time of enrollment at the University.

### MAJOR REQUIREMENTS (52 credits)
- 28 major credits must be taken at SRU or PASSHE
- 28 major credits must be at the 300 level or above

#### Required Introductory Chemistry Courses (4 credits)
- CHEM 108^: General Chemistry II 3
- CHEM 112^: General Chemistry II Lab 1

#### Required Foundation Chemistry Courses (22 credits)
- CHEM 201^: Organic Chemistry I 3
- CHEM 211^: Organic Chemistry I Lab 1
- CHEM 243^: Introduction to Research in Chemistry 1
- CHEM 301^: Physical Chemistry I 3
- CHEM 321^: Physical Chemistry I Lab 1
- CHEM 335^: Biochemistry I 3
- CHEM 336^: Biochemistry I Lab 1
- CHEM 350^: Analytical Chemistry 3
- CHEM 351^: Analytical Chemistry Lab 1
- CHEM 442^: Inorganic Chemistry 3
- CHEM 452^: Physical Inorganic Chemistry Lab 1
- CHEM 491^: Chemistry Seminar 1

#### Required In-Depth Chemistry Courses (14 credits)
- CHEM 202^: Organic Chemistry II 3
- CHEM 212^: Organic Chemistry II Lab 1
- CHEM 302^: Physical Chemistry II 3
- CHEM 425^: Instrumental Analysis 3
- CHEM 426^: Instrumental Analysis Lab 1
- CHEM 460^: Materials Chemistry 3

#### Additional Required In-Depth Chemistry Courses (4 credits)
Choose one lecture and one laboratory course

- CHEM 337^: Biochemistry II 3
- CHEM 338^: Biochemistry II Lab 1
- CHEM 415^: Forensic Analysis 3
- CHEM 416^: Forensic Analysis Lab 1
- CHEM 475^: Advanced Organic Synthesis/Lab 4

#### Cognate Courses (6 credits)

- PHYS 213^: General Physics III / Lab 4
- MATH 230^: Calculus II 4

### NATURAL SCIENCE AND MATHEMATICS
#### COLLEGE WIDE REQUIREMENT (12 credits)

- CHEM 107^: General Chemistry I 3
- PHYS 211^: General Physics I / Lab 4
- MATH 225^: Calculus I 4

### ELECTIVES

- CHEM 490^: Independent Study (required for ACS Certification) 2

### COMPUTATIONAL CHEMISTRY CONCENTRATION
(26 credits)

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<thead>
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<th>Course</th>
<th>Title</th>
<th>Cr</th>
<th>Gr</th>
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<tbody>
<tr>
<td>CPSC 146^</td>
<td>Programming Principles</td>
<td>3</td>
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<tr>
<td>CPSC 246^</td>
<td>Advanced Programming Principles</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CPSC 374^</td>
<td>Algorithms and Data Structures</td>
<td>3</td>
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<tr>
<td>CPSC 480^</td>
<td>Machine Learning &amp; Bioinformatics</td>
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### Required Math and Science Courses (13 credits)

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BIOL 104^</td>
<td>Principles of Biology/Lab</td>
<td>4</td>
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<tr>
<td>PHYS 385^</td>
<td>Computation Physics</td>
<td>3</td>
<td></td>
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<tr>
<td>STAT 152^</td>
<td>Elementary Statistical</td>
<td>3</td>
<td></td>
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<tr>
<td>MATH 240^</td>
<td>Linear Algebra &amp; Differential Equations</td>
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### GPA REQUIREMENT
2.00 or higher Major GPA
2.00 or higher Overall GPA

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*Course may have a prerequisite. See Undergraduate Online Catalog.*

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

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

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

*A ‘C' or better must be earned in course to register for Chemistry courses 300 or above.*

PASSHE = Pennsylvania State System of Higher Education Institution

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**Effective Fall 2013**
**Revised 07/2018**