College of Health, Science and Technology
Physical and Environmental Sciences: Biochemistry, Chemistry, Engineering, Geography, Geology, and Physics

Bloomsburg LOCK HAVEN MANSFIELD
COMMONWEALTH UNIVERSITY

# CHEMISTRY BS - BIOCHEMISTRY (ASBMB)

## Bachelor of Science (BS)

This degree map is based on the current Academic Catalog and is subject to change. Please note that the degree map is designed to give you a sense of roughly how courses might be distributed over a 4-year degree. Your exact schedule will differ depending on a range of factors though we recommend taking a minimum of 15 credits each fall and spring semester. Regular consultation with your academic advisor is the best way to make sure that you are taking the courses you need in the right order to ensure efficient progress through your degree program.

### Sample 4-Year Plan

| First Year | | | |
|---|---|---|---|
| **Fall Courses** | **Credits** | **Spring Courses** | **Credits** |
| MATH 160 Calculus 1 (General Education) | 4 | MATH 170 Calculus 2 | 4 |
| CHEM 121 General Chemistry 1 (General Education) | 4 | CHEM 122 General Chemistry 2 (General Education) | 4 |
| General Education Course | 3 | PHYS 211 General Physics 1 (General Education) | 4 |
| General Education Course – First Year Seminar | 3 | General Education Course | 3 |
| Semester Total | 14 | Semester Total | 15 |

| Second Year | | | |
|---|---|---|---|
| **Fall Courses** | **Credits** | **Spring Courses** | **Credits** |
| CHEM 281 Organic Chemistry 1 | 4 | CHEM 282 Organic Chemistry 2 | 4 |
| PHYS 212 General Physics 2 | 4 | CHEM 261 Inorganic Chemistry | 4 |
| General Education Course | 3 | Free Elective | 3 |
| BIOL110 Principles in Biology 1 | 4 | General Education Course | 3 |
| | | Free Elective | 3 |
| Semester Total | 15 | Semester Total | 17 |

| Third Year | | | |
|---|---|---|---|
| **Fall Courses** | **Credits** | **Spring Courses** | **Credits** |
| CHEM 341 Quantitative Analysis | 4 | CHEM 452 Biochemistry 2 | 4 |
| CHEM 351 Biochemistry 1 | 4 | BIOL 209 Genetics | 3 |
| General Education Course | 3 | BIOL 210 Genetics Lab | 1 |
| Free Elective | 3 | General Education Course | 3 |
| Free Elective | 3 | General Education Course | 3 |
| Semester Total | 17 | Semester Total | 14 |

| Fourth Year | | | |
|---|---|---|---|
| **Fall Courses** | **Credits** | **Spring Courses** | **Credits** |
| CHEM 371 Physical Chemistry 1 | 4 | CHEM Elective | 4 |
| CHEM Elective | 3 | CHEM Research or Internship | 1 |
| General Education Course | 3 | General Education Course | 3 |
| Biology Elective | 3 | Biology Elective | 3 |
| Free Elective | 3 | Free Elective | 1 |
| Semester Total | 16 | Semester Total | 12 |

**Winter/Summer College - Optional**

While not required, Winter and Summer sessions are offered each year and may help you stay on track or get ahead. You may take up to seven (7) credits during Winter College and up to 14 credits during Summer College.

*Revised March 2025*

# CHEMISTRY BS - BIOCHEMISTRY (ASBMB)

## Curriculum Checklist

**Fall 2023 Commonwealth Courses (60 credits)**

___ CHEM 121 General Chemistry 1 (N) (4)
___ CHEM 122 General Chemistry 2 (N) (4)*
___ CHEM 281 Organic Chemistry 1 (4)*
___ CHEM 282 Organic Chemistry 2 (4)*
___ CHEM 261 Inorganic Chemistry (4)*
___ CHEM 341 Quantitative Analysis (4)*
___ CHEM 371 Physical Chemistry 1 (4)*
___ CHEM 351 Biochemistry 1 (4)*
___ CHEM 452 Biochemistry 2 (4)*
___ MATH 160 Calculus 1 (Q) (4)*
___ MATH 170 Calculus 2 (4)*
___ PHYS 211 General Physics 1 (N) (4)
___ PHYS 212 General Physics 2 (4)*
___BIOL 110 Principles in Biology 1 (4)
___ BIOL 209 Genetics (3)*
___ BIOL 210 Genetics Lab (1)*

**Fall 2023 Commonwealth Elective Courses**

**A. Category A (1 Credit)**

___ CHEM 492 Chemistry Research 1 (1)*
___ CHEM 498 Chemistry Internship (1)*

**B. Category B (8 Credits)**

___ CHEM 442 Instrumental Analysis (4)*
___ CHEM 472 Physical Chemistry 2 (4)*
___ CHEM 462 Advanced Inorganic Chemistry (4)*

**C. Category C (6 Credits)**

___ BIOL 211 Cell Biology (4)*
___ BIOL 337 Basic Virology (3)*
___ BIOL 340 Microbiology (4)*
___ BIOL 350 Plant Pathology (3)*
___ BIOL 411 Radiation Biology (3)*
___ BIOL 430 Evolution (3)*
___ BIOL 431 Mycology (3)*
___ BIOL 442 Advanced Virology (3)*
___ BIOL 443 Molecular Biology (3)*
___ BIOL 444 Molecular Biology Lab (1)*
___ BIOL 445 Pharmacology (3)*
___ BIOL 446 Immunology (3)*
___ BIOL 450 Developmental Biology (3)*
___ BIOL 462 Cancer Biology (3)*
___ BIOL 465 Medical Genomics (3)*
___ BIOL 466 Bioinformatics (3)*
___ BIOL 474 Human Physiology (3)*
___ BIOL 475 Animal Cell Physiology (3)*
___ BIOL 476 Neurophysiology (3)*
___ BIOL 477 Plant Physiology (3)*
___ BIOL 489 Special Topics in Biology (3)*

*Denotes advanced coursework
Students must take a minimum of 42 credits of advanced coursework. Advanced coursework can be met in major courses, minor courses, free elective courses, and general education courses. Courses that meet this requirement are designated in Banner.

## General Education Requirements (45 credits)

***Note: Some requirements may be fulfilled by coursework in your major program including directed Gen Ed courses noted below***

- Foundations (15 credits)
  - FYS (U): FYS100 First Year Seminar
  - Writing (W):
  - Oral Comm. (O):
  - Quantitative (Q): MATH160 Calculus 1
  - History (H):
- Interconnections (9 credits)
  - Diversity (D):
  - Global Perspectives. (G):
  - D or G or Foreign Lang. (F):
- Citizenship & Responsibility
  (6 credits from at least two goals)
  - Goal 1: Citizenship (S):
  - Goal 2 Ethical Reasoning (E):
  - Goal 3: Crit. Reasoning (R):
- Natural World & Technologies (9 credits)
  - Natural World (N): CHEM121 General Chemistry 1
  - Natural World (N): CHEM122 General Chemistry 2
  - Technology (T): PHYS211 General Physics 1
- Creativity & Expression (6 credits)
  - Literature (L):
  - Arts (A) or Creativity (C):

## Degree Requirements

All students must obtain a minimum of 120 credits (a minimum of 42 credits must be advanced coursework), complete all General Education requirements, and all requirements for the selected major. Meet with your advisor and consult Degree Works to monitor your progress and for all graduation requirements.

*A minimum GPA of 2.0 in the major and overall are required.*