Chemistry, Bachelor of Science

The B.S. specializations in Chemistry and Chemistry/Biochemistry have been approved by the Committee on Professional Training of the American Chemical Society (ACS) and consist of courses designed to offer training in the fundamentals of chemistry. Opportunities exist for the student to take courses to prepare for a wide variety of careers in chemistry and related fields. The B.S. program is recommended for students wishing to enter graduate programs in chemistry or to find employment as professional chemists.

Students interested in obtaining certification to teach this subject area in secondary education need to contact an advisor in this department to carefully plan the course work to satisfy degree and some teacher certification requirements. A degree in this major is required for participation in teacher education certification options.

Program Requirements

In addition to general University requirements, students seeking the B.S. in Chemistry must meet the requirements listed below.

Students should consult with their academic advisor for courses which may satisfy both the General Education requirements and common prerequisites.

A grade of "C-" or better is required in all common prerequisites. No grade below a "C-" in a major course may be applied toward graduation.

Chemistry B.S. and Chemistry/Biochemistry B.S. specialization majors must complete the following for ACS certification:

- PHY 2048 University Physics I 3
- PHY 2049 University Physics II 3
- BCH 3033+L Biochemistry I (+Lab) 4

Chemistry/Biochemistry, B.S. Specialization majors must also take the following for ACS certification:

One of the following: 4
- PCB 3063C Genetics
- MCB 3020+L Microbiology (+Lab)

Plus one additional course in biochemistry 3

B.S. Chemistry Specialization

General Education

In addition to the General Education requirements listed on this page, students must satisfy all additional University requirements, including the Gordon Rule, multicultural, and foreign language requirements. With appropriate planning and coordination with an academic advisor, students may satisfy some of the general University requirements through the General Education curriculum. For a complete listing of general degree requirements, refer to the "Graduation and General Degree Requirements (http://catalog.uwf.edu/undergraduate/universityrequirements)" section of this catalog.

General Education Curriculum:

Communication

- ENC 1101 English Composition I 3
- ENC 1102 English Composition II 3

Mathematics

Choose one course from Group A and one Additional course from either Group A or Group B

Group A

- MAC 1105 College Algebra
- MAC 2311 Analytic Geometry and Calculus I
- MGF 1106 Mathematics for Liberal Arts I
- MGF 1107 Mathematics for Liberal Arts II
- STA 2023 Elements of Statistics

Group B

- MAC 1105C College Algebra with Lab
- MAC 1114 Trigonometry
- MAC 1140 Precalculus Algebra
- MAC 2233 Calculus with Business Applications
- MAC 2312 Analytic Geometry and Calculus II

Social Sciences

Choose one course from Group A and one additional course from either Group A or Group B

Group A

- AMH 2020 United States since 1877
- ANT 2000 Introduction to Anthropology
- ECO 2013 Principles of Economics Macro
- POS 2041 American Politics
- PSY 2012 General Psychology
- SPM 2010 Sport in Global Society
- SYG 2000 Introduction to Sociology

Group B

- AMH 2010 United States to 1877
- ANT 2400 Current Cultural Issues
- CCJ 2002 Survey of Crime and Justice
- CPO 2002 Comparative Politics
- DEP 2004 Human Development Across the Lifespan
- EUH 1000 Western Perspectives I
- EUH 1001 Western Perspectives II
- FIN 2104 Personal Financial Planning
- GEA 2000 Nations and Regions of the World
- GEB 1011 Introduction to Business
- IDH 1041 Honors Core 2
- INR 2002 International Politics
- MMC 2000 Principles of Mass Communication
- PLA 2013 Survey of American Law
- SOW 2192 Understanding Relationships in the 21st Century
- SYG 2010 Current Social Problems

Humanities

Choose one course from Group A and one additional course from either Group A or Group B

Group A

- ARH 1000 Art Appreciation
- LIT 2000 Introduction to Literature
### Natural Sciences

Choose one course from Group A and one additional course from either Group A or Group B

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST 1002</td>
<td>Descriptive Astronomy</td>
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<tr>
<td>BSC 1005</td>
<td>General Biology for Non-Majors</td>
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<tr>
<td>BSC 1085</td>
<td>Anatomy and Physiology I</td>
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<tr>
<td>BSC 2010</td>
<td>Biology I</td>
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<tr>
<td>CHM 1202</td>
<td>Concepts in Chemistry *</td>
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<tr>
<td>CHM 2045</td>
<td>General Chemistry I</td>
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<tr>
<td>ESC 2000</td>
<td>Introduction to Earth Science</td>
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<tr>
<td>EVR 2001</td>
<td>Introduction to Environmental Science</td>
</tr>
<tr>
<td>PHY 1020</td>
<td>Introduction to Concepts in Physics *</td>
</tr>
<tr>
<td>PHY 2048</td>
<td>University Physics I **</td>
</tr>
<tr>
<td>PHY 2048C</td>
<td>University Physics I - Studio</td>
</tr>
<tr>
<td>PHY 2053</td>
<td>General Physics I **</td>
</tr>
</tbody>
</table>

### Lower Division Electives

Students must complete sufficient 1000/2000 level electives to satisfy at least 60 sh in the lower division. Current UWF students may use elective courses at any level (1000-4000) to meet this elective requirement.

<table>
<thead>
<tr>
<th>Total Hours</th>
<th>0-5</th>
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</table>

### Major

Choose 10-11 sh (with approval from departmental advisor):

<table>
<thead>
<tr>
<th>Total Hours</th>
<th>0-5</th>
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</thead>
</table>

** Indicates common prerequisites which can be used to satisfy General Education requirements.
CHM 4455+L  Introduction to Polymer Science (+Lab) *
CHM 4912  Undergraduate Chemistry Research *
CHM 3940  Chemistry Internship *
CHM 4930  Seminar: Special Topics in Advanced Chemistry *

Total Hours  40-41

* Courses offered for a variable number of semester hours.
+ Courses included in the major GPA

Honors Research Track
CHM 2XXX  Research Experience  2
CHM 4931  Seminars in Chemistry *  1
CHM 3740L  Advanced Laboratory Techniques *  2
CHM 3410  Physical Chemistry I *  5
CHM 3230  Organic Chemistry III *  3
CHM 3411  Physical Chemistry II *  4
CHM 3741L  Physical Chemistry Laboratory *  2
CHM 3120+L  Analytical Chemistry (+Lab) *  4
CHM 4130+L  Instrumental Analysis (+Lab) *  4
Chemistry Elective  3-4
CHM 4611  Inorganic Chemistry *  4
CHM 4610L  Inorganic Synthesis *  1
CHM 4912  Undergraduate Chemistry Research *  8

This specialization is only for students in the Honors Program, and requires completion of an Honors thesis.

Upper Division Electives
Student must complete sufficient 3000/4000 level electives to meet UWF’s requirement of 48 semester hours in the upper division or complete all departmental requirements at the 3000/4000 level, whichever is greater.

Total Hours  19-20

B.S. Chemistry/Biochemistry Specialization

General Education
In addition to the General Education requirements listed on this page, students must satisfy all additional University requirements, including the Gordon Rule, multicultural, and foreign language requirements. With appropriate planning and coordination with an academic advisor, students may satisfy some of the general University requirements through the General Education curriculum. For a complete listing of general degree requirements, refer to the "Graduation and General Degree Requirements (http://catalog.uwf.edu/undergraduate/universityrequirements)" section of this catalog.

General Education Curriculum:

Communication
ENC 1101  English Composition I  3
ENC 1102  English Composition II  3

Mathematics
Choose one course from Group A and one Additional course from either Group A or Group B

Group A
MAC 1105  College Algebra
MAC 2311  Analytic Geometry and Calculus I
MGF 1106  Mathematics for Liberal Arts I
MGF 1107  Mathematics for Liberal Arts II
STA 2023  Elements of Statistics

Group B
MAC 1105C  College Algebra with Lab
MAC 1114  Trigonometry
MAC 1140  Precalculus Algebra
MAC 2233  Calculus with Business Applications
MAC 2312  Analytic Geometry and Calculus II

Social Sciences
Choose one course from Group A and one additional course from either Group A or Group B

Group A
AMH 2020  United States since 1877
ANT 2000  Introduction to Anthropology
ECO 2013  Principles of Economics Macro
POS 2041  American Politics
PSY 2012  General Psychology
SPM 2010  Sport in Global Society
SYG 2000  Introduction to Sociology

Group B
AMH 2010  United States to 1877
ANT 2400  Current Cultural Issues
ANT 2100  Introduction to Archaeology
CCJ 2002  Survey of Crime and Justice
CPO 2002  Comparative Politics
DEP 2004  Human Development Across the Lifespan
EUH 1000  Western Perspectives I
EUH 1001  Western Perspectives II
FIN 2104  Personal Financial Planning
GEA 2000  Nations and Regions of the World
GEB 1011  Introduction to Business
IDH 1041  Honors Core 2
INR 2002  International Politics
MMC 2000  Principles of Mass Communication
PLA 2013  Survey of American Law
SOW 2192  Understanding Relationships in the 21st Century
SYG 2100  Current Social Problems

Humanities
Choose one course from Group A and one additional course from either Group A or Group B

Group A
ARH 1000  Art Appreciation
LIT 2000  Introduction to Literature
MUL 2010  Music Appreciation
PHI 2010  Introduction to Philosophy
THE 2000  Theatre Appreciation

Group B
AML 2010  American Literature I
AML 2020  American Literature II
AML 2072  Sex, Money, and Power in American Literature
ARH 2050  Western Survey I: Prehistory to the Medieval Period
ARH 2051  Western Survey II: Renaissance to Contemporary
ART 1015C  Exploring Artistic Vision
ART 2821  Art and Visual Culture Today
CRW 2001  Introduction to Creative Writing
ENL 2010  History of English Literature I
ENL 2020  History of English Literature II
IDH 1040  Honors Core 1
MUH 2930  The Music Experience: Special Topics
PHI 2103  Critical Thinking
PHI 2603  Ethics in Contemporary Society
REL 1300  World Religions
THE 2300  Survey of Dramatic Literature
SPC 2608  Basic Communication Skills

**Natural Sciences**

Choose one course from Group A and one additional course from either Group A or Group B

**Group A**

- AST 1002  Descriptive Astronomy
- BSC 1005  General Biology for Non-Majors
- BSC 1085  Anatomy and Physiology I
- BSC 2010  Biology I
- CHM 1020  Concepts in Chemistry*
- CHM 2045  General Chemistry I
- ESC 2000  Introduction to Earth Science
- EVR 2001  Introduction to Environmental Science
- PHY 1020  Introduction to Concepts in Physics*
- PHY 2048  University Physics I**
- PHY 2048C  University Physics I - Studio
- PHY 2053  General Physics I**

**Group B**

- ANT 2511  Biological Anthropology
- BOT 2010  General Botany
- BSC 1050  Fundamentals of Ecology
- BSC 1086  Anatomy and Physiology II*
- BSC 2011  Biology II
- BSC 2311  Introduction to Oceanography and Marine Biology
- CGS 2060  Excursions in Computing
- CHM 1032  Fundamentals of General Chemistry*
- CHM 2046  General Chemistry II*
- CIS 2530  Introduction to Cyber Security
- GEO 1200  Physical Geography
- GLY 2010  Physical Geology
- MCB 1000  Fundamentals of Microbiology*
- PHY 2049  University Physics II**

**PHY 2054**  General Physics II*  
* May be taken with or without lab.
** General Physics is non-calculus based and is usually recommended for non-science majors. University Physics is calculus based and is usually recommended for science majors.
*** Although students receive 5 semester hours credit for PHY 2048C, an additional 3 semester science course will be needed to meet General Education requirements.

**General Education Electives**

Choose an additional course from two of the three areas of Humanities, Social Sciences and Natural Sciences

**Common Prerequisites**

State mandated common prerequisites must be completed prior to graduation, but are not required for admission to the program. See the Common Prerequisite Manual (https://dlss.flvc.org/admin-tools/common-prerequisites-manuals) for course substitutions from Florida colleges and universities.

- CHM 2045+L  General Chemistry I (+Lab)*  4
- CHM 2046+L  General Chemistry II (+Lab)*  4
- MAC 2311  Analytic Geometry and Calculus I*  4
- MAC 2312  Analytic Geometry and Calculus II*  4
- CHM 2210+L  Organic Chemistry I (+Lab)*  4
- CHM 2211+L  Organic Chemistry II (+Lab)*  4
- PHY 2048+L  University Physics I (+Lab)**  4
- PHY 2049+L  University Physics II (+Lab)**  4

Total Hours 32
* Indicates common prerequisites which can be used to satisfy General Education requirements.

**Lower Division Electives**

Students must complete sufficient 1000/2000 level electives to satisfy at least 60 sh in the lower division. Current UWF students may use elective courses at any level (1000-4000) to meet this elective requirement. Majors should complete the Physics or Organic Chemistry sequence not completed in the Common Prerequisites.

Total Hours 0-5

**Major**

- CHM 3120+L  Analytical Chemistry (+Lab)*  4
- CHM 3230  Organic Chemistry III*  3
- CHM 3410  Physical Chemistry I*  5
- CHM 3411  Physical Chemistry II*  4
- CHM 3740L  Advanced Laboratory Techniques*  2
- CHM 3741L  Physical Chemistry Laboratory*  2
- CHM 4931  Seminars in Chemistry*  1
- CHM 4610L  Inorganic Synthesis*  1
- CHM 4611  Inorganic Chemistry*  4

Choose two of the following (advisor approved):

- BCH 3033+L  Biochemistry I (+Lab)
- BCH 3034  Biochemistry II
- MCB 3020+L  Microbiology (+Lab)
- PCB 3063C  Genetics
<table>
<thead>
<tr>
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<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PCB 4524</td>
<td>Molecular Biology</td>
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<tr>
<td>CHM 4130+L</td>
<td>Instrumental Analysis (+Lab)</td>
<td>6-8</td>
</tr>
<tr>
<td>CHM 4455+L</td>
<td>Introduction to Polymer Science (+Lab)</td>
<td></td>
</tr>
<tr>
<td>CHM 3940</td>
<td>Chemistry Internship *</td>
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</tr>
<tr>
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<td>Undergraduate Chemistry Research *</td>
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</tr>
<tr>
<td>CHM 4930</td>
<td>Seminar: Special Topics in Advanced Chemistry *</td>
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</tr>
</tbody>
</table>

Total Hours: 40-42

+ Courses included in the major GPA

**Major Related**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BSC 2010+L</td>
<td>Biology I (+Lab)</td>
<td>4</td>
</tr>
<tr>
<td>BSC 2011+L</td>
<td>Biology II (+Lab)</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Hours: 8

**Upper Division Electives**

Student must complete sufficient 3000/4000 level electives to meet UWF's requirement of 48 semester hours in the upper division or complete all departmental requirements at the 3000/4000 level, whichever is greater.

Total Hours: 18-20