### University Core and Graduation Requirements

#### University Core Requirements:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religion Cornerstones</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>REL A 275</td>
</tr>
<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
<td>1</td>
<td>2.0</td>
<td>REL A 250</td>
</tr>
<tr>
<td>Foundations of the Restoration</td>
<td>1</td>
<td>2.0</td>
<td>REL C 225</td>
</tr>
<tr>
<td>The Eternal Family</td>
<td>1</td>
<td>2.0</td>
<td>REL C 200</td>
</tr>
</tbody>
</table>

| The Individual and Society              |          |       |                          |
| American Heritage                       | 1-2      | 3-6.0 | from approved list       |
| Global and Cultural Awareness           | 1        | 3.0   | from approved list       |

| Skills                                  |          |       |                          |
| First Year Writing                      | 1        | 3.0   | from approved list       |
| Advanced Written and Oral Communications| 1        | 3.0   | CHEM 391*                |
| Quantitative Reasoning                  | 1        | 4.0   | MATH 112* or 113*        |
| Languages of Learning (Math or Language)| 1        | 4.0   | MATH 122 or 113*         |

| Arts, Letters, and Sciences             |          |       |                          |
| Civilization 1                         | 1        | 3.0   | from approved list       |
| Civilization 2                         | 1        | 3.0   | from approved list       |
| Arts                                    | 1        | 3.0   | from approved list       |
| Letters                                 | 1        | 3.0   | from approved list       |
| Biological Science                     | 1        | 3.0 / 4.0 | CHEM 481M* or BIO 130* |
| Physical Science                       | 2        | 7.0   | CHEM 111* and PHSCS 121* |
| Social Science                         | 1        | 3.0   | from approved list       |

#### Core Enrichment: Electives

|                    |          |       |                          |
| Religion Electives  | 3-4      | 6.0   | from approved list       |
| Open Electives      | Variable |       | Variable personal choice |

*THERESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (21-22 hours overlap)

### Graduation Requirements:

| Minimum residence hours required | 30.0     |
| Minimum hours needed to graduate | 120.0    |

### Suggested Sequence of Courses

#### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>1st Semester</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Open Electives</td>
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</tr>
<tr>
<td>CHEM 111* (F)</td>
<td></td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>First-year Writing or A HTG 100</td>
<td></td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>MATH 112 (WSpSu)</td>
<td></td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Religion Cornerstone course</td>
<td></td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>15.0</strong></td>
<td></td>
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</tbody>
</table>

*With department approval, CHEM 105 may be substituted for CHEM 111.

<table>
<thead>
<tr>
<th>2nd Semester</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First-year Writing or A HTG 100</td>
<td></td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>CHEM 112* (W)</td>
<td></td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>CHEM 113* (FW)</td>
<td></td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>CHEM 201 (FWSp)</td>
<td></td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>MATH 113 (FWSpSu)</td>
<td></td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Religion Cornerstone course</td>
<td></td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>14.5</strong></td>
<td></td>
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</table>

* With department approval, CHEM 106 may be substituted for CHEM 112; CHEM 107 for CHEM 113.

#### SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>3rd Semester</th>
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</thead>
<tbody>
<tr>
<td>CHEM 227 (FSp)</td>
<td></td>
<td>4.0</td>
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</tr>
<tr>
<td>BIO 130 (FW)</td>
<td></td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>PHCS 122 (FWSpSu)</td>
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<td>3.0</td>
<td></td>
</tr>
<tr>
<td>CHEM 351M* (F)</td>
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<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Religion Cornerstone course</td>
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<td>2.0</td>
<td></td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>16.0</strong></td>
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*CHEM 351 may be substituted for CHEM 351M.

<table>
<thead>
<tr>
<th>4th Semester</th>
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<tbody>
<tr>
<td>CHEM 352M* (W)</td>
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<td>3.0</td>
<td></td>
</tr>
<tr>
<td>CHEM 354* (FWSp)</td>
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<td>2.0</td>
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</tr>
<tr>
<td>PHCS 123 (FWSp)</td>
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<td>3.0</td>
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<tr>
<td>Religion Cornerstone course</td>
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<td>2.0</td>
<td></td>
</tr>
<tr>
<td>STAT 201 (FW)</td>
<td></td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>CHEM 497R or open electives</td>
<td></td>
<td>1.0</td>
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</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>14.0</strong></td>
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</table>

*CHEM 352 may be substituted for CHEM 352M; CHEM 353 may be substituted for CHEM 354.

#### JUNIOR YEAR

<table>
<thead>
<tr>
<th>5th Semester</th>
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<tbody>
<tr>
<td>CHEM 391 (FW)</td>
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</tr>
<tr>
<td>CHEM 481M* (F)</td>
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<tr>
<td>PHCS 220 (FWSpSu)</td>
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<tr>
<td>CHEM 497R or open elective</td>
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<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Civilization 1</td>
<td></td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Social Science</td>
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<td>3.0</td>
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<tr>
<td>Total Hours</td>
<td></td>
<td><strong>15.0</strong></td>
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*CHEM 481 may be substituted for CHEM 481M.

<table>
<thead>
<tr>
<th>6th Semester</th>
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<tbody>
<tr>
<td>CHEM 482 (W)</td>
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<tr>
<td>CHEM 468 (W)</td>
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<tr>
<td>PWS 340 (FW)</td>
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<tr>
<td>CHEM 497R or open elective</td>
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<td>1.0</td>
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</tr>
<tr>
<td>Civilization 2</td>
<td></td>
<td>3.0</td>
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<tr>
<td>Religion Elective</td>
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<tr>
<td>Total Hours</td>
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#### SENIOR YEAR

<table>
<thead>
<tr>
<th>7th Semester</th>
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<tbody>
<tr>
<td>CHEM 489 (F)</td>
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<tr>
<td>CHEM 584 (F)</td>
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<tr>
<td>CHEM 594R (FW)</td>
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<tr>
<td>PD BIO 360 (FWSpSu)</td>
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<tr>
<td>CHEM 498R or other Requirement 3</td>
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<td></td>
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<tr>
<td>Global and Cultural Awareness</td>
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<tr>
<td>Religion Elective</td>
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<td>2.0</td>
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</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td><strong>15.5</strong></td>
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</table>

<table>
<thead>
<tr>
<th>8th Semester</th>
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<tbody>
<tr>
<td>CHEM 485 (FW)</td>
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<tr>
<td>CHEM 586 (W)</td>
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<tr>
<td>CHEM 489R or other Requirement 4</td>
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<tr>
<td>Arts</td>
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<tr>
<td>Letters</td>
<td></td>
<td>3.0</td>
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</tr>
<tr>
<td>Religion Elective</td>
<td></td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td><strong>14.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Note:
CHEM 498R is a research capstone class. Typically, enrollment in CHEM 498R follows enrollment in CHEM 497R. Both courses give students an opportunity to be mentored in a faculty’s research lab and receive class credit. Permission from faculty to enroll in either course is required. Contact department office for specific details.
No more than 3 hours of D credit is allowed in major courses.

REQUIREMENT 1 Complete 17 courses.

REQUIREMENT 2 Complete 8 courses

REQUIREMENT 3 Complete 3.0 hours from the following course(s)

REQUIREMENT 4 Complete 3.0 hours from the following course(s)

REGISTRATION ADVICE

The Biochemistry Bachelor of Science degree provides

mid-year incoming students should meet with an advisor prior
to the add/drop deadline of their first semester, usually after
the first week of class.

The department recommends a review of progress and
planned registration with a faculty advisor in the semester
when 30, 60, and 90 hours are completed. However, academic
advisement is available to all majors at any point in their
academic career. Contact the department advisement office to
schedule an appointment with a faculty advisor: in
person C104 BNSN; by phone 801-422-6269; by
email suemort@chem.byu.edu or coffice@chem.byu.edu

THE DISCIPLINE

The Biochemistry Bachelor of Science degree provides
excellent preparation for students preparing for health-related
fields (medicine, dentistry, veterinary medicine) or for those
who desire an advanced degree (MS or PhD) in biochemistry,
molecular biology, or the health sciences. Chemists and
biochemists study the fundamental processes that govern the
natural world, including atomic structure and how atoms
interact to form molecules and materials. They study the
mechanisms of chemical processes, including those that
underpin living systems such as the transfer of information
from DNA to RNA to proteins. They work to develop simplifying
models (theories) that permit the correlation and explanation
of observations about the behavior of life to the structure of
rocks and minerals.

Chemistry and biochemistry provide an essential foundation
for the medical sciences, engineering (especially chemical
engineering), electronics, energy, environmental sciences,
molecular biology, and, virtually all manufacturing
processes.

Chemistry and biochemistry are active branches of science
that are vital to human existence. Inasmuch as the field
embraces all aspects of the material world, it is subdivided into
five areas of interest. Examples of these diverse areas include
the regulation of protein synthesis, cellular signal transduction
at the molecular level.
level and proteomics (biochemistry), design and synthesis of medicinal compounds, catalysts and polymers (organic chemistry), design and synthesis of new molecular structures and materials (inorganic chemistry), spectroscopic study of energy transfer and molecular structures (physical chemistry), and analysis of medicinal compounds, biological materials, and contaminants or trace elements found in the environment (analytical chemistry).

Chemistry and biochemistry involve far more than test tubes and beakers. They include sophisticated methodologies such as recombinant DNA technology, working with a variety of instruments such as mass spectrometers, calorimeters, chromatographs, ultracentrifuges, lasers, X-ray diffractometers, electron microscopes and nuclear magnetic resonance spectrometers, all of which are used by undergraduate chemistry and biochemistry students at BYU. Computers also play an important role in these disciplines, with applications ranging from simulation of molecules and their interactions to the collection and analysis of data. The chemistry and biochemistry curricula are both rigorous and intellectually rewarding.

CAREER OPPORTUNITIES

Graduates in chemistry and biochemistry obtain positions in education and many different industries, performing analysis, synthesis, characterization, observation, and modeling. Those who work hard, are creative, and have intellectual curiosity are in particular demand. The discipline also provides an excellent preprofessional course of study for those interested in medicine, dentistry, law, and business.

MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

DEPARTMENT INFORMATION

Department of Chemistry and Biochemistry Advisement

Brigham Young University
C-104 BNSN
Provo, UT 84602
Telephone: (801) 422-6269

ADVISEMENT CENTER INFORMATION

Physical and Mathematical Sciences College Advisement Center
Brigham Young University
N-181 ESC
Provo, UT 84602
Telephone: (801) 422-2674