### 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><strong>Religion Cornerstones</strong></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>
<tr>
<td><strong>The Individual and Society</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Heritage</td>
<td>1-2</td>
<td>3-6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td><strong>Skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Year Writing</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Advanced Written and Oral Communications</td>
<td>1</td>
<td>3.0</td>
<td>CHEM 391*</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>1</td>
<td>4.0</td>
<td>MATH 112* or 113*</td>
</tr>
<tr>
<td>Languages of Learning (Math or Language)</td>
<td>1</td>
<td>4.0</td>
<td>MATH 112* or 113*</td>
</tr>
<tr>
<td><strong>Arts, Letters, and Sciences</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civilization 1</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Civilization 2</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Arts</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Letters</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Biological Science</td>
<td>1</td>
<td>3.0</td>
<td>CHEM 481M*, BIO 130*</td>
</tr>
<tr>
<td>Physical Science</td>
<td>2</td>
<td>7.0</td>
<td>CHEM 111* and PHSCS 121*</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
</tbody>
</table>

**Core Enrichment: Electives**

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

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (16 hours overlap)*

#### Graduation Requirements:

- Minimum residence hours required: 30.0
- Minimum hours needed to graduate: 120.0

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### Suggested Sequence of Courses

#### FRESHMAN YEAR

1st Semester
- Open Electives: 2.0
- CHEM 111* (F): 4.0
- First-year Writing or A HTG 100: 3.0
- MATH 112 (WSpSu): 4.0
- Religion Cornerstone course: 2.0
- **Total Hours**: 15.0

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

2nd Semester
- First-year Writing or A HTG 100: 3.0
- CHEM 112* (W): 3.0
- CHEM 113* (FW): 2.0
- CHEM 201 (FWSp): 0.5
- MATH 111 (FWSpSu): 4.0
- Religion Cornerstone course: 2.0
- **Total Hours**: 14.5

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

#### SOPHOMORE YEAR

3rd Semester
- CHEM 227 (FWSp): 4.0
- BIO 130 (FW): 4.0
- PHSCS 121 (FWSpSu): 3.0
- CHEM 351M (F): 3.0
- Religion Cornerstone course: 2.0
- **Total Hours**: 16.0

**Total Hours:** 48.0

4th Semester
- CHEM 457M (FW): 3.0
- CHEM 352 (FWSp): 2.0
- PHSCS 123 (FWSp): 3.0
- Religion Cornerstone course: 2.0
- STAT 201 (FW): 3.0
- CHEM 497R or open electives: 1.0
- **Total Hours**: 14.0

**Total Hours:** 14.0

**BS in Biochemistry (692826) MAP Sheet**

Physical and Mathematical Sciences, Chemistry and Biochemistry

For students entering the degree program during the 2018-2019 curricular year.

#### JUNIOR YEAR

5th Semester
- CHEM 391 (FW): 3.0
- CHEM 481M (F): 3.0
- PHSCS 220 (FWSpSu): 3.0
- Religion Elective: 2.0
- Civilization 1: 3.0
- Letters: 3.0
- **Total Hours**: 15.0

6th Semester
- CHEM 482 (W): 3.0
- CHEM 468 (W): 3.0
- PWS 340 (FW): 3.0
- Religion Elective: 2.0
- Civilization 2: 3.0
- PD BIO 360 (FWSpSu) or other course for requirement 3 (see Program Requirements): 3.0
- **Total Hours**: 17.0

#### SENIOR YEAR

7th Semester
- CHEM 489 (F): 3.0
- CHEM 584 (F): 3.0
- CHEM 594R (FW): 0.5
- Global and Cultural Awareness: 3.0
- Religion Elective: 2.0
- Open Electives: 3.0
- **Total Hours**: 14.5

8th Semester
- CHEM 495 (FW): 1.0
- CHEM 586 (W): 3.0
- Requirement 4 or other elective: 3.0
- Arts: 3.0
- Religion Elective: 2.0
- Social Science: 3.0
- **Total Hours**: 15.0

**Total Hours:** 48.0

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**Note:** Enrolling in CHEM 497R gives students an opportunity to be mentored in a faculty’s research lab and receive class credit. Enrollment in this course can be repeated for several successive semesters. Permission is required from the faculty member. Contact the department office for specific details and to receive a permission-to-add code.

**Note:** Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.
BS in Biochemistry (692826)
2018-2019 Program Requirements (77 Credit Hours)

No more than 3 hours of D credit is allowed in major courses.
The Chemistry and Biochemistry Department requires the final 10 hours of
required chemistry credit to be taken in residence at BYU for this degree
program.

REQUIREMENT 3 Complete 17 courses

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

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,
materials science, pharmacy, 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 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
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ADVISEMENT CENTER INFORMATION
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Brigham Young University
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