### University Core and Graduation 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>
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</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>REL A 275</td>
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<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
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<td>2.0</td>
<td>REL A 290</td>
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<tr>
<td>Foundations of the Restoration</td>
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<td>REL C 225</td>
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<td>The Eternal Family</td>
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<td>The Individual and Society</td>
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<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>
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<td>3.0</td>
<td>from approved list</td>
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<tr>
<td>Skills</td>
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<tr>
<td>First Year Writing</td>
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<tr>
<td>Advanced Written and Oral Communications</td>
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<td>3.0</td>
<td>WRTG 316 recommended</td>
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<tr>
<td>Quantitative Reasoning</td>
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<td>3.0</td>
<td>STAT 121 recommended</td>
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<tr>
<td>Languages of Learning (Math or Language)</td>
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<td>3.0</td>
<td>STAT 121 recommended</td>
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<td>Arts, Letters, and Sciences</td>
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<tr>
<td>Civilization 1</td>
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<tr>
<td>Civilization 2</td>
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<tr>
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<td>Letters</td>
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<td>Biological Science</td>
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<td>MMBIO 121</td>
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<tr>
<td>Physical Science</td>
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<td>3.0-7.0</td>
<td>CHEM 105*, PHYSCS 105 recommended</td>
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<tr>
<td>Social Science</td>
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<td>Core Enrichment: Electives</td>
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<td>Religion Electives</td>
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<td>6.0</td>
<td>from approved list</td>
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<tr>
<td>Open Electives</td>
<td>Variable</td>
<td>Variable</td>
<td>personal choice</td>
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</tbody>
</table>

**FOR UNIVERSITY CORE QUESTIONS CONTACT THE ADVISEMENT CENTER — FOR PROGRAM QUESTIONS SEE YOUR FACULTY ADVISOR**

*These Classes fill both University Core and Program Requirements (7 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>Semester</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
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<tbody>
<tr>
<td>1st</td>
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<tr>
<td>4th</td>
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- **First-year Writing or American Heritage**: 3.0
- **CHEM 105**: 4.0
- **MMBIO 121**: 3.0
- **MMBIO 102**: 1.0
- **Languages of Learning (recommended STAT 121)**: 3.0
- **Religion Cornerstone course**: 2.0

**Total Hours**: 16.0

**2nd Semester**

- **First-year Writing or American Heritage**: 3.0
- **CELL 220**: 4.0
- **CHEM 106**: 3.0
- **CHEM 107**: 1.0
- **Civilization 1 elective**: 3.0
- **Religion Cornerstone course**: 2.0

**Total Hours**: 16.0

#### SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>#Classes</th>
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<tbody>
<tr>
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<td>2nd</td>
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- **CHEM 285**: 4.0
- **Civilization 2 elective**: 3.0
- **Religion Cornerstone course**: 3.0
- **General Electives**: 3.0

**Total Hours**: 16.0

**3rd Semester**

- **MMBIO 241**: 3.0
- **MMBIO 246**: 1.0
- **CHEM 105**: 3.0
- **Phys Sci elective (Recommended PHSCS 105)**: 3.0
- **Religion Cornerstone**: 2.0

**Total Hours**: 15.0

#### JUNIOR YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
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<tbody>
<tr>
<td>1st</td>
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<tr>
<td>3rd</td>
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- **Arts or Letters elective**: 3.0
- **PWS 340**: 3.0
- **MMBIO 261**: 3.0
- **Social Sciences elective**: 3.0
- **Religion elective**: 2.0

**Total Hours**: 16.0

**4th Semester**

- **MMBIO 405*****: 2.0
- **MMBIO 411**: 3.0
- **MMBIO 409**: 3.0
- **MMBIO 410**: 2.0
- **MMBIO 412**: 4.0

**Total Hours**: 14.0

**5th Semester**

#### SENIOR YEAR

<table>
<thead>
<tr>
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<tr>
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<td>2nd</td>
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<tr>
<td>3rd</td>
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- **Arts, Written & Oral Communication (Recommended WRTG 316)**: 3.0
- **General Elective**: 3.0

**Total Hours**: 6.0

**6th Semester**

- **MMBIO 405 in the Fall rather than the winter.**

#### Graduate Requirements:

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

Note: This degree program requires a minimum of 120.0 hours for graduation. 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.

Note: Quantitative Reasoning can be fulfilled by ACT Math subscore of 22 or higher.
**Program Requirements**

Licensure: This program meets the educational requirements designed to lead to an occupationally required professional license or certificate in the state of Utah. Students pursuing occupations requiring a license or certificate in a state other than Utah should contact the appropriate BYU academic advisement center as well as the licensing agency in the state where they intend to work to seek information and guidance regarding licensure and certification requirements.

**Requirement 1 — Complete 13 Courses**

Program Prerequisites:
- **CELL 220** - Human Anatomy (with lab) 4.0
- **CHEM 105** - Gen College Chem 1Lab Intagr 4.0
- **CHEM 106** - General College Chemistry 2 3.0
- **CHEM 107** - Gen Colln Chem Lab 1.0
- **CHEM 285** - Intro Bio-organic Chemistry 4.0
- **MMBIO 102** - Intro Clin Lab Tec 1.0
- **MMBIO 121** - Gen Biology: Health & Disease 3.0
- **MMBIO 221** - General Microbiology 3.0
- **MMBIO 222** - Gen Micro Lab 1.0
- **MMBIO 240** - Molecular Biology 3.0
- **MMBIO 241** - Molecular & Cellular Bio Lab 1.0
- **MMBIO 261** - Infection & Immunity 3.0
- **PWS 340** - Genetics 3.0

**Requirement 2 — Complete 10 Courses**

Program courses:
- **MMBIO 405** - MLS Laboratory Operations 1.0
- **MMBIO 406** - Clinical Chemistry 4.0
- **MMBIO 407** - Clinical Microbiol 5.0
- **MMBIO 409** - Hematology 3.0
- **MMBIO 410** - Hematology Laboratory 2.0
- **MMBIO 411** - Molecular Diagnostics 3.0
- **MMBIO 412** - Immunohematology 4.0
- **MMBIO 418** - Medical Parasitology 2.0
- **MMBIO 419** - Clinical Parasitology Lab 1.0
- **MMBIO 491** - Apps in Lab Medicn 1.0

**Requirement 3 — Complete 2 hours**

Complete an internship experience. Complete at least 2 hours from the following:
- **MMBIO 496R** - Clinical Experience - You may take once 1.0v

Recommended Courses are not required to complete the program. Although not required, these courses are recommended.
- **STAT 121** - Principles of Statistics 3.0
- **WRTG 316** - Technical Communication 3.0

**THE DISCIPLINE:**

This degree program is for students who desire to practice clinical laboratory science/medical technology in diagnostic laboratories or related options. The program in clinical laboratory science is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (8410 West Bryn Mawr Avenue, Suite 670, Chicago, IL 60631, 773-714-8880). Program graduates are eligible for National Certification examinations (i.e., ASCP, NCA).

**OBJECTIVE:**

At career entry, the clinical laboratory scientist/medical technologist will be proficient in performing the full range of clinical laboratory tests in areas such as hematology, clinical chemistry, immunohematology, microbiology, serology/immunology, coagulation, molecular, and other emerging diagnostics, and will play a role in the development and evaluation of test systems and interpretive algorithms. The clinical laboratory scientist / medical technologist will have diverse responsibilities in areas of analysis and clinical decision-making, regulatory compliance with applicable regulations, education, and quality assurance/performance improvement wherever laboratory testing is researched, developed, or performed. The clinical laboratory scientist/medical technologist will also possess basic knowledge, skills, and relevant experiences in:

a. Communication to enable consultative interactions with members of the healthcare team, external relations, customer service, and patient education;

b. Financial, operations, marketing, and human resource management of the clinical laboratory to enable cost-effective, high-quality, value-added laboratory services;

(continued in next column)

c. Information management to enable effective, timely, accurate, and cost-effective reporting of laboratory-generated information, and;

d. Research design/practice sufficient to evaluate published studies as an informed consumer.

**CAREERS:**

Medical Laboratory Scientist in a Hospital laboratory; Outpatient lab or a Reference Lab; Quality Control/Assurance officer in clinical laboratory; MLS in a Clinical Diagnostic Molecular Laboratory; Clinical Laboratory Information System analyst; Physician Office Laboratory; Management in a Clinical Laboratory; MLS Specialty in Clinical Hematology, Chemistry, Immunohematology or Microbiology; Graduate Studies; Veterinary Medicine Laboratory Scientist; Medical Laboratory Industry – instrumentation sales and service; MLS Educator; Research Scientist; Pathology Assistant Studies. See faculty advisor for additional career choices.

**HONORARY SOCIETIES AND CLUBS:**

The student chapter of the Utah Society for Clinical Laboratory Science provides opportunity for fellowship and professional association.

**FINANCING:**

An endowed scholarship is available to students in clinical laboratory science. Recipient is selected by CLS faculty after program admission. No application is necessary.

**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**

Microbiology and Molecular Biology
Brigham Young University
4007 Life Sciences Building Provo, UT 84602
Telephone: (801) 422-2889

**ADVICEMENT CENTER INFORMATION**

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2060 Life Sciences Building Provo, UT 84602
Telephone: (801) 422-3042
lifesciences@byu.edu