For students entering the degree program during the 2016–2017 curricular year.

### 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 &amp; Doctrine, Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>Rel A 275</td>
</tr>
<tr>
<td>Jesus Christ &amp; 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>Citizenship</td>
<td>1+2</td>
<td>3–6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Global &amp; 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>Effective Communication</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>Adv Written &amp; Oral Communication</td>
<td>1</td>
<td>3.0</td>
<td>Englr 316 recommended</td>
</tr>
<tr>
<td>Quantitative Reading</td>
<td>1</td>
<td>4.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Languages of Learning (Math or Language)</td>
<td>1</td>
<td>4.0</td>
<td>Math 112* or 119*</td>
</tr>
<tr>
<td><strong>Arts, Letters, and Sciences</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civilization 1 and 2</td>
<td>2</td>
<td>6.0</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>Scientific Principles &amp; Reasoning</td>
<td></td>
<td>5.0</td>
<td>MMBio 240* and PDBio 120*</td>
</tr>
<tr>
<td>Biological Science</td>
<td>2</td>
<td>5.0</td>
<td>MMBio 240* and PDBio 120*</td>
</tr>
<tr>
<td>Physical Science</td>
<td>2</td>
<td>6–7.0</td>
<td>Chem 105* + one course from approved list</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td><strong>Core Enrichment: Electives</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion Electives</td>
<td>3–4</td>
<td>6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Open Electives</td>
<td>Variable</td>
<td>Variable</td>
<td>personal choice</td>
</tr>
</tbody>
</table>

### PROGRAM REQUIREMENTS (60-62 total hours)

- **Core Enrichment: Electives**
  - Complete an additional 3 hours from the general major electives list below.

### B. Biomedical genetics core track:

- **Complete the following courses:**
  - Bio 420 Evolutionary Biology 2.0
  - Chem 351 Organic Chemistry 3.0
  - Chem 352 Organic Chemistry 3.0
  - Chem 481 Biochemistry 3.0

- **Complete an additional 6-7 hours from the general major electives list below.**

### C. Microbial genetics and biotechnology core track:

- **Complete the following courses:**
  - Bio 420 Evolutionary Biology 2.0
  - Chem 351 Organic Chemistry 3.0

### D. Bio-business core track:

- **Complete the following courses:**
  - Bus M 241 Marketing Management 3.0
  - Bus M 489 Agribusiness Management 2.0

### General Electives:

- Bio 220A Biological Diversity: Animals 4.0
- Bio 220B Biological Diversity: Plants 4.0
- Bio 350 Ecology 3.0
- Bio 365 Computational Biology 3.0
- Bio 370 Bioethics 2.0
- Bio 420 Evolutionary Biology 2.0
- Bio 421 Evolutionary Biology Laboratory 1.0
- Bio 430 Plant Classification & ID 4.0
- Bio 450 Conservation Biology 3.0
- Bio 463 Genetics of Human Disease 3.0
- Bio 465 Bioinformatics & Proteomics 3.0
- Bio 494R Mentored Research 6.0V
- Bio 560 Population Genetics 4.0

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (13 hours overlap)*
BS in GENETICS, GENOMICS, AND BIOTECHNOLOGY (285823)  
2016–2017

Chm 353 Organic Chemistry Lab-Nonmjr 2.0V
Chm 497R Undergrad Special Problems 6.0V
ExSc 497R Undergrad Research & Study 4.0V
MMBio 221 General Microbiology 3.0
MMBio 241 Molecular & Cellular Biology Lab 1.0
MMBio 261 Infection and Immunity 3.0
MMBio 360 Microbial Genetics 3.0
MMBio 363 Microbial Ecology 3.0
MMBio 364 Bacterial Pathogenesis 4.0
MMBio 390R Readings in Molecular Biology 1.0
MMBio 430 Advanced Cell Biology 3.0
MMBio 441 Advanced Molecular Biology 3.0
MMBio 442 Advanced Molecular Biology Lab 2.0
MMBio 461 Advanced Bacterial Physiology 3.0
MMBio 463 Immunology 3.0
MMBio 465 Virology 3.0
MMBio 466 Virology Laboratory 1.0
MMBio 467 Immunology Lab 1.0
MMBio 490R Molecular Biology Seminar 1.0
MMBio 494R Mentored Research 3.0V
MMBio 557 Genes and Cancer 2.0
NDFS 330 Comparative Animal Nutrition 3.0
NDFS 494R Undergrad Research in NDFS 3.0V
PDBio 325 Tissue Biology (with Lab) 3.0
PDBio 363 Advanced Physiology Laboratory 1.0
PDBio 482 Developmental Biology 3.0
PDBio 494R Undergrad Research in PDBio 4.0V
PDBio 495R Adv. Undergrad Rerch in PDBio 4.0V
PDBio 562 Reproductive Physiology 3.0
PDBio 582 Developmental Genetics 3.0
PWS 100 Living with Plants 3.0
PWS 199R Academic Internship 3.0V
PWS 282 Introduction to Soil Science 3.0
PWS 283 Introduction to Soil Science Lab 1.0
PWS 301 Plant Growth and Reproduction 3.0
PWS 305 Soils and Water Quality 3.0
PWS 306 Soil & Water Quality Lab 1.0
PWS 331 Science of Plant Pest Control 3.0
PWS 385 Enviro Micro & Biochemistry 3.0
PWS 386 Enviro Micro & Biochemistry Lab 1.0
PWS 431 Plant Health Diagnostcs 3.0
PWS 494R Mentored Learning Experience 6.0V
PWS 514 Soil Microbiology 2.0
PWS 559 Molecular Plant Breeding 3.0
PWS 575 Plant Pathology 3.0
PWS 586 Plant Cell Biology 3.0
Stat 121 Principles of Statistics 3.0
Stat 201 Stats for Engineers & Scientists 3.0

Note 1: 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 2: Business majors should do PWS 199R (Academic Internship) during summer between Junior and Senior years.

Recommended courses
For preprofessional students in tracks A, B, or C above:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc 200</td>
<td>3.0</td>
</tr>
<tr>
<td>Bus M 201</td>
<td>3.0</td>
</tr>
<tr>
<td>Phscs 105, 106, 107, 108</td>
<td></td>
</tr>
</tbody>
</table>

For graduate school preparation in biotechnology:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phscs 105, 106, 107, 108</td>
<td></td>
</tr>
</tbody>
</table>

For students seeking employment in the biotech industry:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE courses</td>
<td>6.0</td>
</tr>
<tr>
<td>School of Management minor:</td>
<td></td>
</tr>
<tr>
<td>Econ 110</td>
<td>3.0</td>
</tr>
</tbody>
</table>

This unique degree is for students who desire combined training in biotechnology and plant genetics. It is a relatively new discipline representing one of the most exciting developments in biological sciences in the 21st century. Students completing this degree will find themselves in the very forefront of biology in the 21st century.

CAREER OPPORTUNITIES:
The major is designed to provide a broad range of skills, including the following: quantitative reasoning; interpretation of scientific literature; recognition of historical and current scientific trends; principles of scientific data collection, interpretation, and assimilation; and critical writing. Graduates enter directly into industry, medical schools, or graduate programs in any of the many biological science disciplines.

HANDS-ON LEARNING OPPORTUNITIES:
Every student in this major is encouraged to seek mentored research opportunities with faculty in the life sciences. Completing one or more of these mentored research opportunities will set students apart and provide experience and credentials valuable in being admitted into the best graduate programs in the U.S.

FINANCING:
Scholarships are available for qualified students from the department, college, and university.

HONORARY SOCIETIES AND CLUBS:
The program encourages student participation in the Genetics and Biotechnology Club. Genetics students share a common study area, the Mendel Lab, in room 5114 LSB. Students are also active participants in professional societies; national honor societies; and in other BYU campus academic, service, and social clubs. For more information on the Genetics and Biotechnology Club, contact Dr. Joshua Udall at (801) 422-9307.

The discipline:
This unique degree is for students who desire combined training in biotechnology and plant genetics. It is a relatively new discipline representing one of the most exciting developments in biological sciences in the 21st century. Students completing this degree will find themselves in the very forefront of biology in the 21st century.