 Université Core and Graduation Requirements

<table>
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<tr>
<th>Requirement</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
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<tbody>
<tr>
<td><strong>Religion Cornerstones</strong></td>
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<tr>
<td>Teachings &amp; Doctrine, Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>Rel A 275</td>
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<tr>
<td>Jesus Christ &amp; the Everlasting Gospel</td>
<td>1</td>
<td>2.0</td>
<td>Rel A 250</td>
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<td>Foundations of the Restoration</td>
<td>1</td>
<td>2.0</td>
<td>Rel C 225</td>
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<tr>
<td>The Eternal Family</td>
<td>1</td>
<td>2.0</td>
<td>Rel C 200</td>
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| **The Individual and Society**        |          |       |         |
| Citizenship                           | 1–2      | 3–6.0 | from approved list |
| Global & Cultural Awareness           | 1        | 3.0   | from approved list |

| **Skills**                            |          |       |         |
| Effective Communication               |          |       |         |
| First-Year Writing                    | 1        | 3.0   | from approved list |
| Adv Written & Oral Communication      | 0–1      | 0–4.0 | Stat 121*, Math 112*, or Math 119* |
| Quantitative Reasoning                | 1        | 3.0   | from approved list |

| **Arts, Letters, and Sciences**       |          |       |         |
| Civilization 1 and 2                 | 2        | 6.0   | from approved list |
| Arts                                  | 1        | 3.0   | from approved list |
| Letters                               | 1        | 3.0   | from approved list |
| Scientific Principles & Reasoning    | 1–2      | 4–5.0 | from approved list |
| Biological Science                    |          |       |         |
| Physical Science                      | 2        | 7.0   | Chem 105* and Phscs 105* |
| 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 |

Graduation Requirements:

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

### Program Requirements

#### Complete one of the following courses:
- Bio 130* Biology: 4.0
- MMBio 121* General Biology: 3.0
- PDBio 120* Science of Biology: 2.0

#### Complete the following biology core courses:
- MMBio 151 Introduction to Microbiology: 4.0
- MMBio 240* Molecular Biology: 3.0
- MMBio 241 Molecular & Cellular Biology Lab: 1.0
- MMBio 261 Infection and Immunity: 3.0

#### Complete three courses from the following (at least two of which must have a lab component):
- MMBio 360* Microbial Genetics: 4.0
- MMBio 363* Microbial Ecology: 3.0
- MMBio 364* Bacterial Pathogenesis: 4.0
- MMBio 461 Advanced Bacterial Physiology: 3.0
- MMBio 463 Immunology: 3.0
- MMBio 465 Virology: 3.0

**Note 1:** For MMBio 360, 363, and 364, lab registration is automatic and included in the course with the lecture. MMBio 463 and 465 can be taken with or without the MMBio 467 or 466 labs, respectively.

**Note 2:** It is recommended students take any courses not used to fill this requirement as electives (see below).

#### Complete the following physical science courses:
- Chem 105* General College Chemistry: 4.0
- Chem 106 General College Chemistry: 3.0
- Chem 107 General College Chemistry Lab: 1.0
- Phscs 105 General Physics 1: 3.0

#### Complete one of the following physical science courses:
- Chem 285 Intro Bio-organic Chemistry: 4.0
- Chem 351 Organic Chemistry: 3.0

**Note:** For medical school and some graduate schools, Chem 351, 352, 353, and 481 are required classes. These classes may be used as electives for the microbiology degree program (see below).

#### Complete one of the following quantitative courses:
- Math 112* Calculus 1: 4.0
- Math 119* Introduction to Calculus: 4.0
- Stat 121* Principles of Statistics: 3.0

**Note:** Only 6 total credit hours of MMBio 194A, 194B, 399R, 470R, and 494R will count toward major hours with a credit hour max. for each individual course. (More credit hours may be taken but they will not count towards major requirements.)

(Continued in next column)
Immunologists study the molecular and cellular biology of the immune system and its interactions with microorganisms. Parasitologists study the biology, etiology, and epidemiology of parasites and the mechanisms by which they interact with their hosts.

Cell biologists study the molecular biology, signal transduction and cell signaling pathways involved in all aspects of biological function. This includes studies at the molecular level of diseases such as heart disease, cancer, diabetes, and AIDS, etc.

Epidemiologists study disease epidemics with an effort to track down the method and cause of the disease. (See faculty advisor for additional career choices.)

Students are encouraged to participate in laboratory research. Faculty-directed research programs are available to undergraduates throughout the year.

FINANCING:

Students may be employed either as research or teaching assistants. Several endowed scholarships are available.

PROGRAM OBJECTIVES:
The objectives of the microbiology major program are to provide a conceptual knowledge base and critical thinking skills related to the following areas:

- Microbial cell biology
- Microbial genetics
- Interactions and impact of microorganisms and humans
- Interactions and impact of microorganisms in the environment
- Integrating themes (microbial evolution and diversity)

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