# MICROBIOLOGY UNDERGRADUATE PROGRAM

## Program of Study

**Degree:** BS, Microbiology (Catalog: 2016-17)

## I) Communications (13 credits)
- Engl 150 (3) and Engl 250 (3)
- Sp Com 212 (3)
- Engl 302 (3) or Engl 309 (3) or Engl 314 (3) or Engl 312 (3)
- Lib 160 (1)

## II) Mathematical Sciences (11-12 credits)
- Stat 101 (4) or Stat 104 (3)

**Basic Mathematics**
- 2 semesters with at least one semester of calculus

**Suggested options:**
- Math 143 (4) Pre-Calc or Math 145 (3) Trig & Math 160 (4) Surv Calc
- Math 165 (4) & Math 166 (4) Calc I & II
- Math 181(4) & Math 182 (4) Differential Equations for Life Sciences
- Math 165 (4) & Stat 301 (4)

## III) Physical Sciences (23-31 credits)

### General Chemistry (8 credits)
- Chem 177(4), 177L(1), and Chem 178(3)

### Physics (5 or 10 Credits)
- Phys 111 (5) and Phys 112 (5) General (recommended)
- Phys 115/L (5) Phys for Life Sci. (only if not doing further schooling)

### Organic Chemistry (7 credits)
- Chem 331 (3), 331L (1), and 332 (3)

### Biochemistry Choose 1 of the following (3-6 credits)
- BBMB 404 (3) and BBMB 405 (3)
- BBMB 301 (3)
- BBMB 316 (3)

## IV) Personal Development, Human Relations, and Global Awareness (Total of 15 credits)
- Three credits in humanities
- Three credits in social sciences
- Three credits in ethics (See list)
- Three credits in international diversity (See list)
- Three credits in US diversity (See list)

## V) Biological Sciences (15 credits)
- Biol 211 (3) and Biol 211L (1)
- Biol 212 (3) and Biol 212L (1)
- Biol 313 (3) and Biol 313L (1)
- Biol 314 (3) or Biol 328 (3)

**F=offered fall semester, S=offered spring semester, F*/S* = offered alternate fall or spring**

## VI) Microbiology (Total of 31 credits)

### Core Microbiology Courses (16 credits)
- MICRO 110 (1) Orientation
- MICRO 302 (3) Biology of Micro
- MICRO 310 (3) Medical Microbiology
- MICRO 320 (4) Molecular and Cellular Bact.
- MICRO 430 (3) Micro Diversity & Ecology
- MICRO 477 (3) Bact-Plant Interactions or Micro 456 (3) Mycology
- MICRO 450 (2) Senior Seminar
- MICRO 451 (R) Senior Survey

### Core Laboratory Courses (6 Credits)
- MICRO 302L (1) General Micro Lab
- MICRO 310L (1) Medical Micro Lab
- MICRO 440 (4) Microbial Genetics & Physiology & Diversity & Ecology Lab

### Microbiology Electives – (9 credits required) with no more than 3 credits from laboratory courses

#### Common Clinical Electives
- MICRO 353 (3) Intro Parasitology
- MICRO 374 (3) Insects & Our Health
- MICRO 408 (3) Virology
- MICRO 475 (3) Immunology
- MICRO 475L (1) Immunology Lab
- Ent 478 (3) Global Protozoology
- MICRO 586 (3) Medical Bacteriology

#### Common Environmental Electives
- MICRO 410 (2) Insect-Virus Interactions
- MICRO 430 (3) Micro Diversity & Ecology
- MICRO 456 (3) Mycology
- MICRO 477 (3) Bacteria-Plant interactions
- MICRO 485 (3) Soil Micro Ecology
- MICRO 487 (3) Microbial Ecology

#### Common Physiology/Genetics Electives
- MICRO 402 (3) Microbial Genetics
- MICRO 410 (2) Insect-Virus Interactions
- MICRO 430 (3) Micro Diversity & Ecology

#### Common Food Microbiology Electives
- MICRO 407 (3) Micro Food Safety
- MICRO 419 (3) Foodborne Hazards
- MICRO 420 (3) Food Microbiology
- MICRO 421 (3) Food Microbiology Lab
- MICRO 490 (1-3) Independent Study

Other courses upon written request & review by the Undergrad Micro Supervisory Committee.

## VII) Electives (8-16 credits)
Courses to obtain 128 total credit hours
- Minor in Food Safety
- Minor in Emerging Global Diseases
<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>Chem 177/177L General Chemistry &amp; Lab</td>
<td>Chem 178 General Chemistry</td>
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<tr>
<td>Biol 211/211L Principles of Biology &amp; Lab</td>
<td>Biol 212/212L Principles of Biology &amp; Lab</td>
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<tr>
<td>Engl 250 or 150 Written Oral Visual and Electronic Comm</td>
<td>Stat 104 Statistics</td>
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<tr>
<td>Micro 101 Microbes in Society</td>
<td>Micro 302/302L Biology of Microorganisms &amp; Lab</td>
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<tr>
<td>Micro 110 Orientation in Microbiology</td>
<td>Social Sciences Social Sciences (from list)</td>
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<tr>
<td>Lib 160 Library Instruction</td>
<td>Social Sciences</td>
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<tr>
<td>Chem 331/331L Organic Chemistry I &amp; Lab</td>
<td>Chem 332/332L Organic Chemistry II</td>
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<td>Micro 310/310L Medical Microbiology &amp; Lab</td>
<td>Micro Environmental or Elective</td>
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<tr>
<td>Math 143, 145 or Calc Trig, Pre-Calc, or Calculus</td>
<td>Biol 313/313L Genetics &amp; Lab</td>
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<tr>
<td>Ethics</td>
<td>Humanities Humanities (from list)</td>
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<td>Fall</td>
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<tr>
<td>Biol 314 or Biol 328 Cell Biology or cellular aspects of human diseases</td>
<td>Micro 320 Molecular and Cellular Bacteriology.</td>
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<td>Micro Choice Micro Environmental or Micro Elective</td>
<td>Phys 112 General Physics II</td>
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<td>Phys 111 or Phys 115 General Physics I or Phys for Life Sci.</td>
<td>Engl Choice Advanced English – 302, 309, 312 or 314</td>
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<tr>
<td>Sp Cm 212 Fundamentals of Public Speaking</td>
<td>US Diversity US Diversity (from list)</td>
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<td>General Elective General Elective</td>
<td>General Elective</td>
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<td>17</td>
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<td>Fall</td>
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<tr>
<td>Micro Choice Microbiology Elective</td>
<td>Micro 450 Undergraduate Seminar</td>
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<td>Micro 451 Micro Senior Survey</td>
<td>Int. Perspective International perspectives</td>
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<tr>
<td>BBMB 404 Biochemistry I</td>
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<td>General Elective General Elective</td>
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Courses that work well for summer or study-abroad