# Microbiology Undergraduate Program - Program of Study

## Degree: BS, Microbiology (Catalog: 2021-2022)

### I) ISU Requirements (Total of 13 credits)
- ***International Perspective*** (3) (see approved CALS list)
- ***US Diversity*** (3) (see approved CALS list)
- ***Communications***
  - **Engl 150 (3) and Engl 250 (3)**
  - **Lib 160 (1)**

### II) CALS Requirements (Total of 12 credits)
- ***Humanities*** (3) see CALS approved list
- ***Social Science*** (3) see CALS approved list
- ***Ethics*** (3) see CALS approved list

### III) ISU or CALS & Microbiology (Total of 50 credits)

#### Scientific Communication (6 credits)
- **1) Speech 212 (3)**
- **2) English 302, 309, 312, 314 (3) Choose 1**

#### Math (10 Credits)
- **1) Stat 101 (4) or 104 (3)**
- **2) Math 143/Pre-calc or 145 (Trig)**
  - Math 301 (4) or Math 165 (4/Calculus 1)
  - Math 160 (4/Surv Calc) or 165 (4/Calculus 1) or Math 166 (4/Calculus 2)

#### Physical Science (23 Credits)
- **1) Chem 177/177L (5) and 178 (3) Inorganic**
- **2) Phys 131/131L (5) and Phys 132/132L (5)**
  - General Physics (recommended) OR Phys 115/115L (5) Phys for Life Sci.
  - (only if not doing further schooling)
- **3) Chem 331/331L (4), and Chem 332 (3) Organic**
- **4) BBMB 301 (3) or BBMB 316 (3) OR BBMB 404 (3) AND BBMB 405 (3)**

#### Biological Sciences (15 credits)
- **1) Biol 211 (3) & Biol 211L (1) or Micro 115X (2/F)**
- **2) Biol 212 (3) and Biol 212L (1)**
- **3) Biol 313 (3) and Biol 313L (1) Genetics**
- **4) Biol 314 (3/S) or Biol 328 (3/F) Molecular Bio.**

#### Minors to Consider:
- Pharmacology & Toxicology
- Food Safety, Genetics, Global Health, etc.

(4) = 4 credits (3) = 3 credits (2) = 2 credits
F=offered fall semester S=offered spring semester,
No designation = offered Fall and Spring
Odd = odd years 2021, 2023, etc.
Even = even year 2020, 2022, etc

5)* Micro 430 & 456 & 477 can count as Micro requirement #5 OR #11, but not both

**updated 2/22/21**

### IV) Microbiology (Total of 31 credits)

#### Core Microbiology Courses (16 credits)
- **1) MICRO 110 (1/F) Orientation**
- **2) MICRO 302 (3) Biology of Microorganisms**
- **3) MICRO 310 (3/F) Medical Microbiology**
- **4) MICRO 320 (4/S) Molecular and Cellular Bact.**
- **5)* MICRO 430 (3/S/odd) Micro Diversity & Ecology**
  - or MICRO 456 (3/F) Mycology
  - or MICRO 477 (3/S/even) Bact-Plant Interactions
- **6) MICRO 450 (2/S) Capstone - Senior Seminar**
- **7) MICRO 451 (R/F) Micro - Junior Seminar**

#### Core Laboratory Courses (6 Credits)
- **8) MICRO 302L (1) General Micro Lab**
- **9) MICRO 310L (1/F) Medical Micro Lab**
- **10) MICRO 440 (4) Lab in Microbial Physiology, Diversity & Genetics**

#### Microbiology Electives – (9 credits)
- **11) Choose from the list below (Max 3 cr of lab)**

**Common Clinical Electives**
- **MICRO 353 (3/S) Intro Parasitology**
- **MICRO 374 (3/S) Insects & Our Health**
- **MICRO 374L (1/S/even) Insects/Health Lab**
- **MICRO 408 (3/F) Virology**
- **VDPAM 428 (3/S) Principles of Epidemiology**
- **MICRO 475 (3/S) Immunology**
- **MICRO 475L (1/S) Immunology Lab**
- **MICRO 517 (3/F) Gut Microbiome**
- **MICRO 586 (4/F) Medical Bacteriology**

**Common Environmental Electives**
- **PLP 408 (3) Principles of Plant Pathology**
- **MICRO 430 * (3/S/odd) Micro Diversity & Ecology**
- **MICRO 456 * (3/F) Mycology**
- **MICRO 477 * (3/S/even) Bacteria-Plant interactions**
- **MICRO 487 (3/F) Microbial Ecology**

**Common Physiology/Genetics Electives**
- **MICRO 402 (3/F/even) Microbial Genetics**
- **MICRO 408 (3/F) Virology**
- **MICRO 430 (3/S/odd) Micro Diversity & Ecology**

**Common Food Microbiology Electives**
- **MICRO 407 (3/S) Micro Food Safety**
- **MICRO 420 (3/F) Food Microbiology**
- **MICRO 421 (3/S) Food Microbiology Lab**

Other courses upon written request & review by the Undergrad Micro Supervisory Committee.
- **Micro 490 (1-3) Research, Lit Rev, TA (only 1 credit)**

### V) Electives (8-16 credits) Courses to obtain 128 total credit hours
- **1) Micro 101 (3/F) Microbial World**
- **2) Micro 116 (2/S) Phage Genome Lab**
- **3) Micro 265X (2) Predicting the next epidemic**
# Microbiology Eight Semester Plan  21-22 Catalog

<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 (or Micro 115)</td>
<td>Biol 212/212L Principles of Biology &amp; Lab</td>
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<td>Engl 250 or 150 Written Oral Visual and Electronic Comm</td>
<td>Stat 101 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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<td>Micro 110 Orientation in Microbiology</td>
<td>Micro 116 Bioinformatics</td>
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<td>Lib 160 Library Instruction</td>
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<td>(Learning team classes available)</td>
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<td>Fall</td>
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<tr>
<td>Chem 331/331L Organic Chemistry I &amp;Lab</td>
<td>Chem 332 Organic Chemistry II</td>
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<tr>
<td>Bio 313/313L Genetics &amp; Lab</td>
<td>Biol 314 or 328(F) Molecular Cell Biology (328 - Diseases)</td>
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<td>Micro 310/310L Medical Microbiology &amp; Lab</td>
<td>Math Math 143, 145 or 165</td>
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<tr>
<td>Sp. Cm 212 Fundamentals of Public Speaking</td>
<td>Micro Choice Environmental Micro (430, 477 or 456)</td>
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<td>(Learning team classes available)</td>
<td>Humanities Humanities (from list)</td>
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<tr>
<td>Micro 451 Microbiology Survey</td>
<td>BBMB 301 or 316 Biochemistry</td>
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<tr>
<td>Phys 131/131L or Phys 115/115L Physics I or Physics for Life Sci. with lab</td>
<td>Phys 132/132L General Physics II or electives</td>
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<td>Math Math 160 or 166 or Stat 301</td>
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<td>English 302, 309, 312 or 314</td>
<td>Micro 320 Molecular &amp; Cellular Bacteriology</td>
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<td>Social Science Social Science elective</td>
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<tr>
<td>Micro 440 Lab in Microbial Physio, Gen &amp; Diversity.</td>
<td>General Electives General Electives or Courses toward Minor</td>
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<td>General Electives General Electives or Courses toward Minor</td>
<td>US Diversity US Diversity (from list)</td>
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<tr>
<td>Micro Choice Microbiology Elective</td>
<td>Micro Choices Microbiology Electives</td>
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<tr>
<td>Int. Perspective International perspectives (from list)</td>
<td>Micro 450 Capstone Seminar</td>
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Courses that work well for summer or study-abroad

updated 2/22/21