# Microbiology Undergraduate Program - Program of Study

**Degree:** BS, Microbiology (Catalog: 2022-2023)

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## 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 9 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 54 credits)

### Math (10 Credits)
- **1)** Stat 101 (4) or 104 (3)
- **2)** Math 143 (4/pre-calc) or 145 (3/Trig) or Stat 301 (4) or Math 165 (4/Calculus 1)
- **3)** 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 132/132L (5)
- **3)** Phys 115/115L (5) Phys for Life Sci. (only if not doing further schooling)
- **4)** Chem 331/331L (4), and Chem 332 (3) Organic
- **5)** 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 115 (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) Cell Biology

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

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 2023, 2025, etc.
Even = even year 2022, 2024, etc
5)* Micro 430 & 456 & 477 can count as Micro requirement #5 OR #11, but not both

updated 3/1/2022

## 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/odd) Micro Diversity & Ecology or Micro 456 (3/F) Mycology or MICRO 477 (3/even) Bact-Plant Interactions
- **6)** MICRO 450 (2/S) Capstone - Senior Seminar

### 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
- **MICRO 428** (3/S) Principles of Epidemiology
- **MICRO 475** (3/S) Immunology
- **MICRO 475L** (2/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/odd) Micro Diversity & Ecology
- **MICRO 456** (3/F) Mycology
- **MICRO 477** (3/even) Bacteria-Plant interactions
- **MICRO 487** (3/S) Microbial Ecology

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

#### Common Food Microbiology Electives
- **MICRO 407** (3/S) Micro Food Safety
- **MICRO 419X** (3/S) Foodborne Hazards
- **MICRO 420** (3/F) Food Microbiology
- **MICRO 421** (3/S) Food Microbiology Lab

Maximum 490 credits applied toward Micro electives = 3

#### Micro 490A Research (1-3 credits)
- **Micro 490B Literature review (1-3 credits)
- Micro 490C Lab Teaching Assistant (1 credit)

## V) Electives (8-16 credits) Courses to obtain 128 total credit hours
- **Micro 101** (3/F) Microbial World
- **Micro 116** (2/S) Phage Genome Lab
- **Micro 265X** (2) Predicting the next epidemic
<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>Chem 177/177L</td>
<td>General Chemistry &amp; Lab</td>
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<tr>
<td>Biol 211/211L</td>
<td>Principles of Biology &amp; Lab (or Micro 115)</td>
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<tr>
<td>Engl 250 or 150</td>
<td>Written Oral Visual and Electronic Comm</td>
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<tr>
<td>Micro 101</td>
<td>Microbes in Society</td>
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<tr>
<td>Micro 110</td>
<td>Orientation in Microbiology</td>
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<tr>
<td>Lib 160</td>
<td>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</td>
<td>Organic Chemistry I &amp; Lab</td>
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<td>Bio 313/313L</td>
<td>Genetics &amp; Lab</td>
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<td>Micro 310/310L</td>
<td>Medical Microbiology &amp; Lab</td>
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<td>Sp. Cm 212</td>
<td>Fundamentals of Public Speaking</td>
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<td>(Learning team classes available)</td>
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<td>Fall</td>
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<tr>
<td>Micro 451</td>
<td>Microbiology Survey</td>
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<tr>
<td>Phys 131/131L or Phys 115/115L</td>
<td>General Physics I or Physics for Life Sci. with lab</td>
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<tr>
<td>Math</td>
<td>Math 160 or 165 or Stat 301</td>
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<td>English</td>
<td>302, 309, 312 or 314</td>
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<td>Social Science</td>
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<td>Fall</td>
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<td>Micro 440</td>
<td>Lab in Microbial Physio, Gen &amp; Diversity.</td>
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<tr>
<td>General Electives</td>
<td>General Electives or Courses toward Minor</td>
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<td>Micro Choice</td>
<td>Microbiology Elective</td>
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<tr>
<td>Int. Perspective</td>
<td>International perspectives (from list)</td>
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Courses that work well for summer or study-abroad

updated 3/1/2022