### MICROBIOLOGY UNDERGRADUATE PROGRAM

#### Program of Study

Degree: BS, Microbiology (Catalog: 2020-2021)

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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 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

1) Speech 212 (3)
2) English 302, 309, 312, 314 (3) Choose 1

#### Math

1) Stat 101 (4) or 104 (3)
2) Math 143 (pre-calculus) or 145 (3/Trig) or Stat 301 (4) or Math 165 (4/Calculus 1)
3) Math 160 (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 111/111L (5) and Phys 112/112L (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

Minors to consider: Pharmacology & Toxicology, Food Safety, Genetics, Emerging Global Diseases

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### 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.
6) MICRO 450 (2/F) Capstone - Senior Seminar
7) MICRO 451 (R/F) Micro - Junior Survey

#### Core Laboratory Courses (6 Credits)

8) MICRO 302L (1) General Micro Lab
9) MICRO 310L (1/F) Medical Micro Lab
10) MICRO 475L (1/S) Immunology Lab

#### 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
  - VDPM 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/odd) Microbial Genetics
  - MICRO 408 (3/F) Virology
  - MICRO 430 (3/S/odd) Micro Diversity & Ecology

- **Common Food Microbiology Electives**
  - MICRO 407 (3) Bacteria & Soap
  - 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.
11) Micro 490 (1-3) Research, Lit Rev, TA (only 1)

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### V) Electives (8-16 credits) Courses to obtain 128 total credit hours

- Micro 101 (3/F) Microbial World
- Micro 116X (2/S) Phage Genome Lab
- Micro 265X (2) Predicting the next epidemic
# Iowa State University
## College of Agriculture and Life Sciences
### Microbiology Eight Semester Plan  20-21 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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<tr>
<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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<tr>
<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>Lib 160  Library Instruction</td>
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<td>Lib 160  Library Instruction</td>
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<tr>
<td>(Learning team classes available)</td>
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<tr>
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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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<td>Bio 313/313L  Genetics &amp; Lab</td>
<td>*Biol 314  Molecular Cell Biology</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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<td>Sp. Cm 212  Fundamentals of Public Speaking</td>
<td>Micro Choice  Micro Elective (430, 477 or 456)</td>
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<tr>
<td>*Biol 314 or 328  Molecular Cell Biology (328-diseases)</td>
<td>BBMB 301 or 316  Biochemistry</td>
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<td>Phys 111/111L or Phys 115/115L  General Physics I or Phys for Life Sci. with lab</td>
<td>Phys 112/112L  General Physics II or Micro elective</td>
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<tr>
<td>English  302, 309, 312 or 314</td>
<td>Micro 320  Molecular &amp; Cellular Bacteriology</td>
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<td>Micro 451  Microbiology Survey</td>
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<td>Social Science  Social Science elective</td>
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<td>Micro 440  Lab in Microbial Phys, Gen &amp; Div.</td>
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<td>Micro Choices  Microbiology Electives</td>
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<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 3/27/2020