I) ISU Requirements (Total of 13 credits)

- International Perspective (3) (see approved CALS list)
- US Cultures and Communities (3) (see approved CALS list)
- Communications
  - Engl 1500 (3) and Engl 2500 (3)
  - Lib 1600 (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 58 credits)

Math (10 Credits)

- 1) Stat 1010 (4) or 1040 (3)
- 2) Math 1430 (4/pre-calculus) or 1450 (3/trigonometry) or Stat 3010 (4) or Math 1650 (4/Calculus 1)
- 3) Math 1600 (4/Surv Calc) or 1650 (4/Calculus 1) or Math 1660 (4/Calculus 2)

Physical Science (27 Credits)

- 1) Chem 1770 (3), 1770L (1) Gen. Chem I
- 2) Chem 1780 (3) Gen. Chem II
- Phys 1320/1320L (5) Gen. Physics II

(Recommended)

OR


(only if not doing further schooling)

- 3) Chem 3310(3), 3310L (1) Organic Chem I
- Chem 3320 (3) Organic Chem II
- 4) BBMB 3010 (3) OR BBMB 3160 (3) Biochemistry

OR

- BBMB 4040 (3) AND BBMB 4050 (3)

Biology Sciences (15 credits)

- 1) Biol 2110 (3) & Biol 2110L(1) or Micro 1150 (2/F)
- 2) Biol 2120 (3) and Biol 2120L (1)
- 3) Biol 3130 (3) and Biol 3130L (1) Genetics
- 4) Biol 3140 (3) or Biol 3280 (3/Calculus 2) Cell Biology

Scientific Communication (6 credits)

- 1) SPCM 2120 (3)
- 2) English 3020, 3090, 3120, 3140 (3) Choose 1

F=offered fall semester S=offered spring semester,
No designation = offered Fall and Spring
Odd = odd years 2023, 2025, etc.
Even = even years 2022, 2024, etc
5)* Micro 4300 & 4560 & 4770 can count as Micro
requirement #5 OR #11, but not both
updated 06/21/2024

IV) Microbiology (Total of 31 credits)

Core Microbiology Courses (16 credits)

- 1) MICRO 1100 (1/F) Orientation
- 2) MICRO 3020 (3) Biology of Microorganisms
- 3) MICRO 3100 (3/F) Medical Microbiology
- 4) MICRO 3200 (4/Calculus 3) Molecular and Cellular Bact.
- 5)* MICRO 4300 (3/S/odd) Prokaryotic Diversity & Ecology
  - Micro 4560 (3/F) Mycology
  - MICRO 4770 (3/S/even) Bact-Plant Interactions
- 6) MICRO 4500 (2/F) Capstone - Senior Seminar
- 7) MICRO 4510 (R/F) Micro - Junior Survey

Core Laboratory Courses (6 credits)

- 8) MICRO 3020L (1/F) General Micro Lab
- 9) MICRO 3100L (1/F) Medical Micro Lab
- MICRO 4750L (2/S) Immunology Lab
- 10) MICRO 4400 (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 3530 (3/S) Intro Parasitology
- MICRO 3740 (3/S) Insects & Our Health
- MICRO 3740L (1/S/odd) Insects/Health Lab
- MICRO 4080 (3/F) Virology
- MICRO 4280 (3/S) Principles of Epidemiology
- MICRO 4750 (3/S) Immunology
- MICRO 4750L (2/S) Immunology Lab
- MICRO 5170 (3/F) Gut Microbiome
- MICRO 5860 (4/F) Medical Bacteriology

Common Environmental Electives

- PLP 4080 (3) Principles of Plant Pathology
- MICRO 4560 * (3/F) Mycology
- MICRO 4770 * (3/S/even) Bacteria-Plant interactions
- MICRO 4850 (3/F) Soil & Environmental Microbiology
- MICRO 4870 (3/F) Microbial Ecology

Common Physiology/Genetics Electives

- MICRO 4020 (3/F/even) Microbial Genetics

Common Food Microbiology Electives

- MICRO 4070 (3) Micro Food Safety
- MICRO 4190 (3/S/odd) Foodborne Hazards
- MICRO 4200 (3/F) Food Microbiology
- MICRO 4210 (3/S) Food Microbiology Lab

Maximum 490 credits applied toward Micro electives = 3
- Micro 4900A Research (1-3 credits)
- Micro 4900B Literature review (1-3 credits)
- Micro 4900C Lab Teaching Assistant (1 credit)

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

- Micro 1010(3/F) Microbial World
- Micro 1160 (2/S) Phage Genome Lab
- Micro 2650 (2) Predicting the next epidemic
<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
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<tr>
<td><strong>Chem 1770/1770L</strong></td>
<td><strong>General Chemistry &amp; Lab</strong> 5</td>
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<tr>
<td><strong>Biol 2110/2110L</strong></td>
<td><strong>Principles of Biology &amp; Lab (or Micro 115)</strong> 4/5</td>
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<td><strong>Engl 2500 or 1500</strong></td>
<td><strong>Written Oral Visual and Electronic Comm</strong> 3</td>
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<tr>
<td><strong>Micro 1010</strong></td>
<td><strong>Microbes in Society</strong> 3</td>
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<tr>
<td><strong>Micro 1100</strong></td>
<td><strong>Orientation in Microbiology</strong> 1</td>
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<tr>
<td><strong>Lib 1600</strong></td>
<td><strong>Library Instruction</strong> 1</td>
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<td>(Learning team classes available) 17/18</td>
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<tr>
<td>Chem 3310/3310L</td>
<td><strong>Organic Chemistry I &amp; Lab</strong> 4</td>
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<td>Bio 3130/3130L</td>
<td><strong>Genetics &amp; Lab</strong> 4</td>
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<td>Micro 3100/3100L</td>
<td><strong>Medical Microbiology &amp; Lab</strong> 4</td>
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<tr>
<td>SPCM 2120</td>
<td><strong>Fundamentals of Public Speaking</strong> 3</td>
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<td>(Learning team classes available) 15</td>
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<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
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<tr>
<td>Micro 4510</td>
<td><strong>Microbiology Survey</strong></td>
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<tr>
<td>Phys 1310/1310L or Phys 1150/1150L</td>
<td><strong>General Physics I or Physics for Life Sci. with lab</strong> 5</td>
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<tr>
<td>Math</td>
<td><strong>Math</strong> 4</td>
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<tr>
<td>English</td>
<td><strong>3020, 3090, 3120 or 3140</strong> 3</td>
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<tr>
<td>Social Science</td>
<td><strong>Social Science elective</strong> 3</td>
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<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
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<tr>
<td>Micro 4400</td>
<td><strong>Lab in Microbial Physio, Gen &amp; Diversity.</strong> 4</td>
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<td>General Electives</td>
<td><strong>General Electives or Courses toward Minor</strong> 6</td>
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<td>Micro Choice</td>
<td><strong>Microbiology Elective</strong> 3</td>
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<tr>
<td>Int. Perspective</td>
<td><strong>International perspectives (from list)</strong> 3</td>
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<td><strong>Fall</strong></td>
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Courses that work well for summer or study-abroad

updated 03/08/2024