# MICROBIOLOGY UNDERGRADUATE PROGRAM

## Program of Study: Micro & Genetics Major

**Degree:** BS, Microbiology (Catalog: 2016-2017)

## 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)
- Math 160 (4) or Math 165 (4) or Math 181 (4)
- Stat 301 (4) or Math 166 (4) or Math 182 (4)

## III) Physical Sciences (32 credits)
### General Chemistry (8 credits)
- Chem 177(4), 177L(1) Gen. Chem I
- Chem 178 (3), 178L (1) Gen Chem II

### Physics (10 Credits)
- Phys 111 (5) Gen. Physics I
- Phys 112 (5) Gen. Physics II

### Organic Chemistry (8 credits)
- Chem 331 (3), 331L (1) Organic Chem I
- Chem 332 (3), 332L (1) Organic Chem II

### Biochemistry (6 credits)
- BBMB 404 (3) Biochemistry I
- BBMB 405 (3) Biochemistry II

## 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)

Lists available:
- http://www.ag.iastate.edu/student/curriculum/

## V) Biological Sciences (18 credits)
- Biol 211 (3) & Biol 211L (1) Principles of Bio I
- Biol 212 (3) & Biol 212L (1) Principles of Bio II
- Biol 313 (3) & Biol 313L (1) General Genetics
- Biol 315 (3) Evolution

## VI) Microbiology (Total of 31 credits)<br>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) Microb Diversity & Ecology or 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 310L (1) Medical Micro Lab

Microbiology Electives – (9 credits required) with no more than 3 credits from laboratory courses
### Common Clinical Electives
- 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) Microb 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) Microb 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
- F/S/SS MICRO 490 (1-3) Independent Study

## VII) Courses for Genetics Major (12-13)
- GEN 409 (3) Molecular Genetics
- GEN 410 (3) Analytical Genetics
- GEN 462 (3) Evol Genetics or EEOB 563 (3) Mole. Phyllogenetics
- GEN 322 or GEN 444 or GEN 349 (one course in Bioinformatics)
- GEN 491 (1) Senior Seminar or MICRO 451 (R) Senior Survey
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<tr>
<td>Chem 177/177L General Chemistry &amp; Lab</td>
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<td>Biol 211/211L Principles of Biology &amp; Lab</td>
<td>4 Biol 212/212L Principles of Biology &amp; Lab 4</td>
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<td>Engl 250 or 150 Written Oral Visual and Electronic Comm</td>
<td>3 Stat Statistics 101 or 104 3-4</td>
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<td>Micro 101 Microbes in Society</td>
<td>3 Micro 302/302L Biology of Microorganisms &amp; Lab 4</td>
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<td>Micro 110 Orientation in Microbiology</td>
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<td>Lib 160 Library Instruction</td>
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<td>Chem 331/331L Organic Chemistry I &amp;Lab</td>
<td>4 Chem 332/332L Organic Chemistry II &amp; Lab 4</td>
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<td>Micro 310/310L Medical Microbiology &amp; Lab</td>
<td>4 Micro Micro Environmental or Elective 3</td>
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<td>Math 165 or 181 Calculus I</td>
<td>4 Biol 314 Cell Biology 3</td>
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<td>Biol 313/313L Genetics &amp; Lab</td>
<td>4 Math 166 or 182 or Stat 301 Calculus II or Intermediate Stats 4</td>
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<td>Ethics</td>
<td>3 Micro 320 Molecular and Cellular Bacteriology. 4</td>
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<td>Micro Choice Micro Environmental or Micro Elective</td>
<td>3 Phys 112 General Physics II 5</td>
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<td>Phys 111 Physics</td>
<td>5 Engl Choice Advanced English – 302, 309, 312 or 314 3</td>
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<td>Sp Cm 212 Fundamentals of Public Speaking</td>
<td>3 Biol 315 Biological Evolution 3</td>
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<tr>
<td>Gen 409 Molecular Genetics</td>
<td>3 Gen 322 or 444 Bioinformatics course 3</td>
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<td>Micro 440 Lab in Microbial Phys, Gen &amp; Div.</td>
<td>4 US Diversity US Diversity (from list) 3</td>
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<td>Micro Choice Microbiology Elective</td>
<td>3 Micro Choice Microbiology Elective 3</td>
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<td>Micro 451 Micro Senior Survey</td>
<td>R Micro 450 Undergraduate Seminar 2</td>
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<td>Int. Perspective International perspectives</td>
<td>3 BBMB 405 Biochemistry II 3</td>
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<td>BBMB 404 Biochemistry I</td>
<td>3 Gen 410 Analytical Genetics 3</td>
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<td>Gen 462 Evolutionary Genetics</td>
<td>3 Humanities Humanities 3</td>
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