

# MICROBIOLOGY UNDERGRADUATE PROGRAM

## Program of Study: Micro & Genetics Major

Degree: BS, Microbiology (Catalog: 2015-2016)

### 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 314 (3) Mol. Cell Bio.
- \_\_\_\_\_ **Biol 315 (3)** Evolution

### VI) Microbiology (Total of 31 credits)\*

#### Core Microbiology Courses (16) credits

- \_\_\_\_\_ F MICRO 110 (1) Orientation
- \_\_\_\_\_ F/S MICRO 302 (3) Biology of Micro
- \_\_\_\_\_ F MICRO 310 (3) Medical Microbiology
- \_\_\_\_\_ S MICRO 320 (4) Molecular and Cellular Bact.
- \_\_\_\_\_ S\* MICRO 430 (3) Microb Diversity & Ecology or S\* MICRO 477 (3) Bact-Plant Interactions or F Micro 456 (3) Mycology
- \_\_\_\_\_ S MICRO 450 (2) Senior Seminar
- \_\_\_\_\_ F MICRO 451 (R) Senior Survey

#### Core Laboratory Courses (6 Credits)

- \_\_\_\_\_ F/S MICRO 302L (1) General Micro Lab
- \_\_\_\_\_ F MICRO 310L (1) Medical Micro Lab
- \_\_\_\_\_ F/S MICRO 440 (4) Microbial Genetics & Physiology & Diversity & Ecology Lab

#### Microbiology Electives – (9 credits required) with no more than 3 credits from laboratory courses

##### Common Clinical Electives

- \_\_\_\_\_ S MICRO 374 (3) Insects & Our Health
- \_\_\_\_\_ F MICRO 408 (3) Virology
- \_\_\_\_\_ S MICRO 475 (3) Immunology
- \_\_\_\_\_ S MICRO 475L (1) Immunology Lab
- \_\_\_\_\_ F Ent 478 (3) Global Protozoology
- \_\_\_\_\_ F MICRO 586 (3) Medical Bacteriology

##### Common Environmental Electives

- \_\_\_\_\_ F\* MICRO 410 (3) Insect-Virus Interactions
- \_\_\_\_\_ S\* MICRO 430 (3) Microb Diversity & Ecology
- \_\_\_\_\_ F MICRO 456 (3) Mycology
- \_\_\_\_\_ S MICRO 477 (3) Bacteria-Plant interactions
- \_\_\_\_\_ S MICRO 485 (3) Soil Micro Ecology
- \_\_\_\_\_ S MICRO 487 (3) Microbial Ecology

##### Common Physiology/Genetics Electives

- \_\_\_\_\_ F\* MICRO 402 (3) Microbial Genetics
- \_\_\_\_\_ S\* BBMB 403 (3) Microbial Physiology
- \_\_\_\_\_ F\* MICRO 410 (3) Insect-Virus Interactions
- \_\_\_\_\_ S\* MICRO 430 (3) Microb Diversity & Ecology

##### Common Food Microbiology Electives

- \_\_\_\_\_ S MICRO 407 (3) Micro Food Safety
- \_\_\_\_\_ S\* MICRO 419 (3) Foodborne Hazards
- \_\_\_\_\_ F MICRO 420 (3) Food Microbiology
- \_\_\_\_\_ F MICRO 421 (3) Food Microbiology Lab
- \_\_\_\_\_ F/S/SS MICRO 490 (1-3) Independent Study

### VII) Courses for Genetics Major

- \_\_\_\_\_ F **GEN 409** (3) Molecular Genetics
- \_\_\_\_\_ S **GEN 410** (3) Analytical Genetics
- \_\_\_\_\_ F **GEN 462** (3) Evol Genetics or
- \_\_\_\_\_ **EEOB 563** (3) Mole. Phylogenetics
- \_\_\_\_\_ F **GEN 491** (1) Senior Seminar or MICRO 451 (R) Senior Survey

S

\*F=offered fall semester, S=offered spring semester, F\*/S\* = offered alternate fall or spring

Iowa State University  
College of Agriculture  
Microbiology & Genetics One Example of an Eight Semester Plan  
15-16 Catalog

<b>Fall</b>				<b>Spring</b>		
Chem 177/177L	General Chemistry & Lab	5		Chem 178, L	General Chemistry & Lab	4
Biol 211/211L	Principles of Biology & Lab	4		Biol 212/212L	Principles of Biology & Lab	4
Engl 250 or 150	Written Oral Visual and Electronic Comm	3		Stat	Statistics 101 or 104	3-4
Micro 101	Microbes in Society	3		Micro 302/302L	Biology of Microorganisms & Lab	4
Micro 110	Orientation in Microbiology	1				
Lib 160	Library Instruction	1				15-16
		17				
<b>Fall</b>				<b>Spring</b>		
Chem 331/331L	Organic Chemistry I & Lab	4		Chem 332/332L	Organic Chemistry II & Lab	4
Micro 310/310L	Medical Microbiology & Lab	4		Micro	Micro Environmental or Elective	3
Math 165 or 181	Calculus I	4		Biol 314	Cell Biology	3
Biol 313	Genetics & Lab	4		Math 166 or 182 or Stat 301	Calculus II or Intermediate Stats	4
		16		Social	Social Science	3
						17
<b>Fall</b>				<b>Spring</b>		
Ethics	Ethics	3		Micro 320	Molecular and Cellular Bacteriology.	4
Micro Choice	Micro Environmental or Micro Elective	3		Phys 112	General Physics II	5
Phys 111	Physics	5		Engl Choice	Advanced English – 302, 309, 312 or 314	3
Sp Cm 212	Fundamentals of Public Speaking	3		Biol 315	Biological Evolution	3
Gen 409	Molecular Genetics	3				15
		17				
<b>Fall</b>				<b>Spring</b>		
Micro 440	Lab in Microbial Phys, Gen & Div.	4		US Diversity	US Diversity (from list)	3
Micro Choice	Microbiology Elective	3		Micro Choice	Microbiology Elective	3
Micro 451	Micro Senior Survey	R		Micro 450	Undergraduate Seminar	2
Int. Perspective	International perspectives	3		BBMB 405	Biochemistry II	3
BBMB 404	Biochemistry I	3		Gen 410	Analytical Genetics	3
Gen 462	Evolutionary Genetics	3		Humanities	Humanities	3
		16				17