

**MICROBIOLOGY UNDERGRADUATE PROGRAM**  
**Program of Study**  
**Degree: BS, Microbiology (Catalog: 2016-17)**

**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)

**Basic Mathematics**

2 semesters with at least one semester of calculus

Suggested options:

- \_\_\_\_\_ Math 143 (4) Pre-Calc or Math 145 (3) Trig &  
Math 160 (4) Surv Calc  
\_\_\_\_\_ Math 165 (4) & Math 166 (4) Calc I&II  
\_\_\_\_\_ Math 181 (4) & Math 182 (4) Differential  
Equations for Life Sciences  
\_\_\_\_\_ Math 165 (4) & Stat 301 (4)

**III) Physical Sciences (23-31 credits)**

**General Chemistry (8 credits)**

- \_\_\_\_\_ Chem 177(4), 177L(1), and Chem 178(3)

**Physics (5 or 10 Credits)**

- \_\_\_\_\_ Phys 111 (5) and Phys 112 (5) General  
(recommended)  
\_\_\_\_\_ Phys 115 (4) & Phys 115L (1) Phys for Life Sci.  
(only if not doing further schooling)

**Organic Chemistry (7 credits)**

- \_\_\_\_\_ Chem 331 (3), 331L (1), and 332 (3)

**Biochemistry Choose 1 of the following (3-6 credits)**

- \_\_\_\_\_ BBMB 404 (3) and BBMB 405 (3)  
\_\_\_\_\_ BBMB 301 (3)  
\_\_\_\_\_ BBMB 316 (3)

**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 persp. \(See list\)](#)  
\_\_\_\_\_ Three credits in [US diversity \(See list\)](#)

**V) Biological Sciences (15 credits)**

- \_\_\_\_\_ Biol 211 (3) and Biol 211L (1)  
\_\_\_\_\_ Biol 212 (3) and Biol 212L (1)  
\_\_\_\_\_ Biol 313 (3) and Biol 313L (1)  
\_\_\_\_\_ Biol 314 (3) or Biol 328 (3)

**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) Micro 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 or  
S MICRO 475L (1) Immunology 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 353 (3) Intro Parasitology  
\_\_\_\_\_ S MICRO 374 (3) Insects & Our Health  
\_\_\_\_\_ F MICRO 408 (3) Virology  
\_\_\_\_\_ S MICRO 475 (3) Immunology  
\_\_\_\_\_ S MICRO 475L (1) Immunology Lab  
\_\_\_\_\_ F MICRO 586 (3) Medical Bacteriology

*Common Environmental Electives*

- \_\_\_\_\_ F\* MICRO 410 (2) Insect-Virus Interactions  
\_\_\_\_\_ S\* MICRO 430 (3) Micro 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 (2) Insect-Virus Interactions  
\_\_\_\_\_ S\* MICRO 430 (3) Micro 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  
\_\_\_\_\_ S MICRO 421 (3) Food Microbiology Lab  
\_\_\_\_\_ F/S/SS MICRO 490 (1-3) Independent Study

Other courses upon written request & review by the  
Undergrad Micro Supervisory Committee.

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

**Possibly leading to a:**

- **Minor in Food Safety**
- **Minor in Emerging Global Diseases**

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

**Iowa State University  
College of Agriculture  
Microbiology Eight Semester Plan  
16-17 Catalog**

<b>Fall</b>				<b>Spring</b>		
Chem 177/177L	General Chemistry & Lab	5		Chem 178	General Chemistry	3
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 104	Statistics	3
Micro 101	Microbes in Society	3		Micro 302/302L	Biology of Microorganisms & Lab	4
Micro 110	Orientation in Microbiology	1		Social Sciences	Social Sciences (from list)	3
Lib 160	Library Instruction	1				
		17				17
<b>Fall</b>				<b>Spring</b>		
Chem 331/331L	Organic Chemistry I & Lab	4		Chem 332/332L	Organic Chemistry II	3
Micro 310/310L	Medical Microbiology & Lab	4		Micro Choice	Micro Environmental or Elective	3
Math 143, 145 or Calc	Trig, Pre-Calc, or Calculus	4		Biol 313/313L	Genetics & Lab	4
Sp Cm 212	Fundamentals of Public Speaking	3		Humanities	Humanities (from list)	3
		15		Math or Stat	Calculus (I or II) or Intermediate Stats (301)	4
						17
<b>Fall</b>				<b>Spring</b>		
Biol 314 or Biol 328	Cell Biology or cellular aspects of human diseases	3		Micro 320	Molecular and Cellular Bacteriology.	4
BBMB 301, 316 or 404	Biochemistry	3		Phys 112/112L	General Physics II or elective	5
Phys 111/111L or Phys 115/115L	General Physics I or Phys for Life Sci. with lab	5		Engl Choice	Advanced English – 302, 309, 312 or 314	3
Ethics	Ethics	3		US Diversity	US Diversity (from list)	3
Micro 451	Microbiology Survey	R				15
General Elective	General Elective	3				
		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 450	Capstone Seminar	2
Int. Perspective	International perspectives	3		Micro Choices	Microbiology Electives	6
General Electives	General Electives	6		General Elective	General Elective	3
		16				14

**Courses that work well for summer or study-abroad**