

MICROBIOLOGY UNDERGRADUATE PROGRAM

Program of Study

Degree: BS, Microbiology (Catalog: 2019-2020)

I) Communications (13 credits)

- _____ Engl 150 (3) and _____ Engl 250 (3)
- _____ Sp Com 212 (3)
- _____ Engl 302 or Engl 309 or Engl 314 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 & Math 160 (4) Surv Calc
- _____ Math 145 (3) Trig & Math 160 (4) Surv Calc
- _____ Math 165 (4) & Math 166 (4) Calc I&II
- _____ 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 111/111L (5) and Phys 112/112L (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) or Micro 115X (2)
- _____ 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) Capstone Seminar
- _____ F MICRO 451 (R) Microbiology 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 VDPAM 428 (3) Principles of Epidemiology
- _____ S MICRO 475 (3) Immunology
- _____ S MICRO 475L (1) Immunology Lab
- _____ F MICRO 517X (3) Gut Microbiome
- _____ F MICRO 586 (4) Medical Bacteriology

Common Environmental Electives

- _____ F/S PLP 408 (3) Principles of Plant Pathology
- _____ S* MICRO 430 (3) Micro Diversity & Ecology
- _____ F MICRO 456 (3) Mycology
- _____ S* MICRO 477 (3) Bacteria-Plant interactions
- _____ F MICRO 487 (3) Microbial Ecology

Common Physiology/Genetics Electives

- _____ F* MICRO 402 (3) Microbial Genetics
- _____ F MICRO 408 (3) Virology
- _____ S* MICRO 430 (3) Micro Diversity & Ecology

Common Food Microbiology Electives

- _____ S MICRO 407 (3) Micro Food Safety
- _____ F MICRO 420 (3) Food Microbiology
- _____ S MICRO 421 (3) Food Microbiology Lab

Other courses upon written request & review by the Undergrad Micro Supervisory Committee.
_____ F/S/SS Micro 490 (1-3) Independent Study

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

- _____ S Micro 116X (2) Phage Genome Lab

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

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

Iowa State University
College of Agriculture and Life Sciences
Microbiology Eight Semester Plan
19-20 Catalog

Fall				Spring		
Chem 177/177L	General Chemistry & Lab	5		Chem 178	General Chemistry	3
Biol 211/211L	Principles of Biology & Lab (or Micro 115)	4		Biol 212/212L	Principles of Biology & Lab	4
Engl 250 or 150	Written Oral Visual and Electronic Comm	3		Stat 101	Statistics	3
Micro 101	Microbes in Society	3		Micro 302/302L	Biology of Microorganisms & Lab	4
Micro 110	Orientation in Microbiology	1		Micro 116	Bioinformatics	2
Lib 160	Library Instruction	1				17
	(Learning team classes available)	17				
Fall				Spring		
Chem 331/331L	Organic Chemistry I & Lab	4		Chem 332	Organic Chemistry II	3
Bio 313/313L	Genetics & Lab	4		*Biol 314	Molecular Cell Biology (or 328 in fall)	3
Micro 310/310L	Medical Microbiology & Lab	4		Math	Math 143, 145 or 165	4
Sp. Cm 212	Fundamentals of Public Speaking	3		Micro Choice	Micro Elective (430, 477 or 456)	3
	(Learning team classes available)	15		Humanities	Humanities (from list)	3
						16
Fall				Spring		
* Biol 328	Cellular aspects of human diseases(or 314 spring)			BBMB 301 or 316	Biochemistry	3
Phys 111/111L or Phys 115/115L	General Physics I or Phys for Life Sci. with lab	5		Phys 112/112L	General Physics II or Micro elective	5
Math	Math 160 or 166 or Stat 301	4		Ethics	Ethics (from list)	3
English	302, 309, 312 or 314	3		Micro 320	Molecular & Cellular Bacteriology	4
Micro 451	Microbiology Survey	R				
Social Science	Social Science elective	3				15
		15				
Fall				Spring		
Micro 440	Lab in Microbial Phys, Gen & Div.	4		General Electives	General Electives	6
General Electives	General Electives	6		US Diversity	US Diversity (from list)	3
Micro Choice	Microbiology Elective	3		Micro Choices	Microbiology Electives	6
Int. Perspective	International perspectives (from list)	3		Micro 450	Capstone Seminar	2
		16				17

Courses that work well for summer or study-abroad

updated 5/1/19