

MICROBIOLOGY UNDERGRADUATE PROGRAM
Program of Study: Micro & Genetics Major
Degree: BS, Microbiology (Catalog: 2019-2020)

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)
_____ Stat 301 (4) or Math 166 (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 111/111L (5) Gen. Physics I
_____ Phys 112/112L (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](#)
_____ Three credits in [international diversity](#)
_____ Three credits in [US diversity](#)
_____ **Three credits in** [Environmental Awareness](#)

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) Junior 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 VDPAM 428 (3) Princ. Of Epidemiology
_____ S MICRO 475 (3) Immunology
_____ S MICRO 475L (1) Immunology Lab
_____ F MICRO 586 (3) Medical Bacteriology

Common Environmental Electives

_____ S MICRO 353 (3) Intro Parasitology
_____ S* MICRO 430 (3) Microb 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
_____ 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
_____ S MICRO 421 (3) Food Microbiology Lab

_____ F/S/SS MICRO 490 (1-3) Independent Study

VII) Courses for Genetics Major (12-13)

_____ F **GEN 409** (3) Molecular Genetics
_____ S **GEN 410** (3) Analytical Genetics
_____ F **GEN 462** (3) Evol Genetics or
S **EEOB 563** (3) Mole. Phylogenetics
_____ F **GEN 322** or GEN 444 or S GEN 349
(one course in Bioinformatics)
_____ F **GEN 491** (1) Senior Seminar or
MICRO 451 (R) Senior Survey

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

Greyed out Courses = specific for genetics

**Iowa State University
College of Agriculture
Microbiology & Genetics One Example of an Eight Semester Plan
19-20 Catalog**

Fall				Spring		
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				
Fall				Spring		
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
Sp Cm 212	Fundamentals of Public Speaking	3		Biol 314	Cell Biology	3
Biol 313/313L	Genetics & Lab	4		Math 160 or 165	Calculus	4
Humanities	Humanities elective	3		Social	Social Science elective	3
		18				17
Fall				Spring		
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
Stat or Math	Stat 301 or Math 166	3-4		Biol 315	Biological Evolution	3
Gen 409	Molecular Genetics	3		BBMB404	Biochemistry 1	3
Micro 451	Micro Senior Survey	R				18
		17-18		Spring		
Fall				US Diversity	US Diversity (from list)	3
Micro Choice	Microbiology Elective	3		Micro Choice	Microbiology Elective	3
Micro 440	Lab in Microbial Phys, Gen & Div	4		Micro 450	Senior Seminar	2
Int. Perspective	International perspectives	3		BBMB 405	Biochemistry II	3
Gen 322 or 444	Bioinformatics	3		Gen 410	Analytical Genetics	3
Gen 462	Evolutionary Genetics	3		Env Awareness	Env Awareness elective	3
		16				17