

Microbiology Undergraduate Program - Program of Study

Degree: BS, Microbiology (Catalog: 2021-2022)

I) ISU Requirements (Total of 13 credits)

- International Perspective (3) (see approved CALS list)
 US Diversity (3) (see approved CALS list)
 Communications
 Engl 150 (3) and Engl 250 (3)
 Lib 160 (1)

II) CALS Requirements (Total of 9 credits)

- Humanities (3) see CALS approved list
 Social Science (3) see CALS approved list
 Ethics (3) see CALS approved list

III) ISU or CALS & Microbiology (Total of 54 credits)

Math (10 Credits)

- 1) Stat 101 (4) or 104 (3)
 2) Math 143(4/pre-calc) or 145(3/Trig) or Stat 301(4) or Math 165 (4/Calculus 1)
 3) Math 160(4/Surv Calc) or 165 (4/Calculus 1) or Math 166 (4/Calculus 2)

Physical Science (23 Credits)

- 1) Chem 177/177L (5) and 178 (3) Inorganic
 2) Phys 131/131L (5) and Phys 132/132L (5) General Physics (recommended) **OR** Phys 115/115L (5) Phys for Life Sci. (only if not doing further schooling)
 3) Chem 331/331L (4), and Chem 332 (3) Organic
 4) BBMB 301 (3) or BBMB 316 (3) OR BBMB 404 (3) AND BBMB 405 (3)

Biological Sciences (15 credits)

- 1) Biol 211 (3) & Biol 211L(1) **or** Micro 115 (2/F)
 2) Biol 212 (3) and Biol 212L (1)
 3) Biol 313 (3) and Biol 313L (1) Genetics
 4) Biol 314 (3/S) **or** Biol 328 (3/F) Cell Biology

Scientific Communication (6 credits)

- 1) Speech 212 (3)
 2) English 302, 309, 312, 314 (3) Choose 1

Minors to Consider: Pharmacology & Toxicology, Food Safety, Genetics, Global Health, etc.

(4) = 4 credits (3) = 3 credits (2) = 2 credits
 F=offered fall semester S=offered spring semester,
 No designation = offered Fall and Spring
 Odd = odd years 2023, 2025, etc.
 Even = even year 2022, 2024, etc

5)* Micro 430 & 456 & 477 can count as Micro requirement #5 **OR** #11, but not both

updated 9/20/21

IV) Microbiology (Total of 31 credits)

Core Microbiology Courses (16 credits)

- 1) MICRO 110 (1/F) Orientation
 2) MICRO 302 (3) Biology of Microorganisms
 3) MICRO 310 (3/F) Medical Microbiology
 4) MICRO 320 (4/S) Molecular and Cellular Bact.
 5)* MICRO 430 (3/S/odd) Micro Diversity & Ecology **or** Micro 456 (3/F) Mycology **or** MICRO 477 (3/S/even) Bact-Plant Interactions
 6) MICRO 450 (2/S) Capstone - Senior Seminar
 7) MICRO 451 (R/F) Micro - Junior Survey

Core Laboratory Courses (6 Credits)

- 8) MICRO 302L (1) General Micro Lab
 9) MICRO 310L (1/F) Medical Micro Lab
Or MICRO 475L (2/S) Immunology Lab
 10) MICRO 440 (4) Lab in Microbial Physiology, Diversity & Genetics

Microbiology Electives – (9 credits)

- 11) Choose from the list below (*Max 3 cr of lab*)

Common Clinical Electives

- MICRO 353 (3/S) Intro Parasitology
 MICRO 374 (3/S) Insects & Our Health
 MICRO 374L (1/S/even) Insects/Health Lab
 MICRO 408 (3/F) Virology
 MICRO 428 (3/S) Principles of Epidemiology
 MICRO 475 (3/S) Immunology
 MICRO 475L (2/S) Immunology Lab
 MICRO 517 (3/F) Gut Microbiome
 MICRO 586 (4/F) Medical Bacteriology

Common Environmental Electives

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

Common Physiology/Genetics Electives

- MICRO 402 (3/F/even) Microbial Genetics
 MICRO 408 (3/F) Virology
 MICRO 430 (3/S/odd) Micro Diversity & Ecology

Common Food Microbiology Electives

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

Maximum 490 credits applied toward Micro electives = 3

- Micro 490A Research (1-3 credits)
 Micro 490B Literature review (1-3 credits)
 Micro 490C Lab Teaching Assistant (1 credit)

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

- Micro 101 (3/F) Microbial World
 Micro 116 (2/S) Phage Genome Lab
 Micro 265X (2) Predicting the next epidemic

Iowa State University
College of Agriculture and Life Sciences
Microbiology Eight Semester Plan 21-22 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)	4/5	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)	17/18			
Fall			Spring		
Chem 331/331L	Organic Chemistry I & Lab	4	Chem 332	Organic Chemistry II	3
Bio 313/313L	Genetics & Lab	4	Biol 314 or 328(F)	Molecular Cell Biology (328 - Diseases)	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	Environmental Micro (430, 477 or 456)	3
	(Learning team classes available)	15	Humanities	Humanities (from list)	3
					16
Fall			Spring		
Micro 451	Microbiology Survey	R	BBMB 301 or 316	Biochemistry	3
Phys 131/131L or Phys 115/115L	General Physics I or Physics for Life Sci. with lab	5	Phys 132/132L	General Physics II or electives	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
Social Science	Social Science elective	3			15
		15			
Fall			Spring		
Micro 440	Lab in Microbial Physio, Gen & Diversity.	4	General Electives	General Electives or Courses toward Minor	6
General Electives	General Electives or Courses toward Minor	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 3/22/21