

**Microbiology Undergraduate Program - Program of Study**  
**Degree: BS, Microbiology (Catalog: 2024-2025)**

**I) ISU Requirements (Total of 13 credits)**

- \_\_\_ International Perspective (3) (see approved CALS list)
- \_\_\_ US Diversity (3) (see approved CALS list)
- \_\_\_ Communications
  - \_\_\_ Engl 1500 (3) and \_\_\_ Engl 2500 (3)
  - \_\_\_ Lib 1600 (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 58 credits)**

**Math (10 Credits)**

- \_\_\_ 1) Stat 1010 (4) or 1040 (3)
- \_\_\_ 2) Math 1430 (4/pre-calc) or 1450 (3/Trig) or  
Stat 3010 (4) or Math 1650 (4/Calculus 1)
- \_\_\_ 3) Math 1600 (4/Surv Calc) or 1650 (4/Calculus 1)  
or Math 1660 (4/Calculus 2)

**Physical Science (27 Credits)**

- \_\_\_ 1) Chem 1770 (3), 1770L (1) Gen. Chem I  
Chem 1780 (3) Gen. Chem II
- \_\_\_ 2) Phys 1310/1310L (5) Gen. Physics I  
Phys 1320/1320L (5) Gen. Physics II  
(Recommended)

**OR**

- \_\_\_ Phys 1150/1150L (5) Phys for Life Sci.  
(only if not doing further schooling)
- \_\_\_ 3) Chem 3310(3), 3310L (1) Organic Chem I  
Chem 3320 (3) Organic Chem II
- \_\_\_ 4) BBMB 3010 (3) **OR** \_\_\_ BBMB 3160 (3)  
Biochemistry

**OR**

- \_\_\_ BBMB 4040 (3) **AND** BBMB 4050 (3)

**Biological Sciences (15 credits)**

- \_\_\_ 1) Biol 2110 (3) & Biol 2110L(1) **or** Micro 1150 (2/F)
- \_\_\_ 2) Biol 2120 (3) and Biol 2120L (1)
- \_\_\_ 3) Biol 3130 (3) and Biol 3130L (1) Genetics
- \_\_\_ 4) Biol 3140 (3) **or** Biol 3280 (3/F) Cell Biology

**Scientific Communication (6 credits)**

- \_\_\_ 1) SPCM 2120 (3)
- \_\_\_ 2) English 3020, 3090, 3120, 3140 (3) Choose 1

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 4300 & 4560 & 4770 can count as Micro  
requirement #5 **OR** #11, but not both

updated 03/08/2024

**IV) Microbiology (Total of 31 credits)**

**Core Microbiology Courses (16 credits)**

- \_\_\_ 1) MICRO 1100 (1/F) Orientation
- \_\_\_ 2) MICRO 3020 (3) Biology of Microorganisms
- \_\_\_ 3) MICRO 3100 (3/F) Medical Microbiology
- \_\_\_ 4) MICRO 3200 (4/S) Molecular and Cellular Bact.
- \_\_\_ 5)\* MICRO 4300 (3/S/odd) Micro Diversity & Ecology  
**or** Micro 4560 (3/F) Mycology  
**or** MICRO 4770 (3/S/even) Bact-Plant Interactions
- \_\_\_ 6) MICRO 4500 (2/S) Capstone - Senior Seminar
- \_\_\_ 7) MICRO 4510 (R/F) Micro - Junior Survey

**Core Laboratory Courses (6 Credits)**

- \_\_\_ 8) MICRO 3020L (1) General Micro Lab
- \_\_\_ 9) MICRO 3100L (1/F) Medical Micro Lab  
**Or** MICRO 4750L (2/S) Immunology Lab
- \_\_\_ 10) MICRO 4400 (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 3530 (3/S) Intro Parasitology
- \_\_\_ MICRO 3740 (3/S) Insects & Our Health
- \_\_\_ MICRO 3740L (1/S/even) Insects/Health Lab
- \_\_\_ MICRO 4080 (3/F) Virology
- \_\_\_ MICRO 4280 (3/S) Principles of Epidemiology
- \_\_\_ MICRO 4750 (3/S) Immunology
- \_\_\_ MICRO 4750L (2/S) Immunology Lab
- \_\_\_ MICRO 5170 (3/F) Gut Microbiome
- \_\_\_ MICRO 5860 (4/F) Medical Bacteriology

*Common Environmental Electives*

- \_\_\_ PLP 4080 (3) Principles of Plant Pathology
- \_\_\_ MICRO 4300 \* (3/S/odd) Micro Diversity & Ecology
- \_\_\_ MICRO 4560 \* (3/F) Mycology
- \_\_\_ MICRO 4770 \* (3/S/even) Bacteria-Plant interactions
- \_\_\_ MICRO 4870 (3/F) Microbial Ecology

*Common Physiology/Genetics Electives*

- \_\_\_ MICRO 4020 (3/F/even) Microbial Genetics

*Common Food Microbiology Electives*

- \_\_\_ MICRO 4070 (3) Micro Food Safety
- \_\_\_ MICRO 4190 (3/S/odd) Foodborne Hazards
- \_\_\_ MICRO 4200 (3/F) Food Microbiology
- \_\_\_ MICRO 4210 (3/S) Food Microbiology Lab

*Maximum 490 credits applied toward Micro electives = 3*

- \_\_\_ Micro 4900A Research (1-3 credits)
- \_\_\_ Micro 4900B Literature review (1-3 credits)
- \_\_\_ Micro 4900C Lab Teaching Assistant (1 credit)

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

- \_\_\_ Micro 1010(3/F) Microbial World
- \_\_\_ Micro 1160 (2/S) Phage Genome Lab
- \_\_\_ Micro 2650 (2) Predicting the next epidemic

**Iowa State University**  
**College of Agriculture and Life Sciences**  
**Microbiology Eight Semester Plan 24-25 Catalog**

Fall			Spring		
Chem 1770/1770L	General Chemistry & Lab	5	Chem 1780	General Chemistry	3
Biol 2110/2110L	Principles of Biology & Lab (or Micro 115)	4/5	Biol 2120/2120L	Principles of Biology & Lab	4
Engl 2500 or 1500	Written Oral Visual and Electronic Comm	3	Math	Statistics 1010 or 1040	3
Micro 1010	Microbes in Society	3	Micro 3020/3020L	Biology of Microorganisms & Lab	4
Micro 1100	Orientation in Microbiology	1	Micro 1160	Bioinformatics	2
Lib 1600	Library Instruction	1			17
	(Learning team classes available)	17/18			
Fall			Spring		
Chem 3310/3310L	Organic Chemistry I & Lab	4	Chem 3320	Organic Chemistry II	3
Bio 3130/3130L	Genetics & Lab	4	Biol 3140 or 3280(F)	Molecular Cell Biology	3
Micro 3100/3100L	Medical Microbiology & Lab	4	Math	Math 1430, or 1450, 1650, Stat 3010	4
SPCM 2120	Fundamentals of Public Speaking	3	Micro Choice	Environmental Micro (4300, 4770 or 4560)	3
	(Learning team classes available)	15	Humanities	Humanities (from list)	3
					16
Fall			Spring		
Micro 4510	Microbiology Survey	R	BBMB 3010 or 3160	Biochemistry	3
Phys 1310/1310L or Phys 1150/1150L	General Physics I or Physics for Life Sci. with lab	5	Phys 1320/1320L	General Physics II or electives	5
Math	Math 1600 or 1650 or 1660	4	Ethics	Ethics (from list)	3
English	3020, 3090, 3120 or 3140	3	Micro 3200	Molecular & Cellular Bacteriology	4
Social Science	Social Science elective	3			15
		15			
Fall			Spring		
Micro 4400	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 4500	Capstone Seminar	2
		16			17

Courses that work well for summer or study-abroad

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