

MAJOR IN MEDICAL MICROBIOLOGY AND INFECTIOUS DISEASE

Requirements Effective Fall 2026

Freshman

		AUCC	Credits
CHEM 111	General Chemistry I (GT-SC2)	3A	4
CHEM 112	General Chemistry Lab I (GT-SC1)	3A	1
CHEM 113	General Chemistry II		3
CHEM 114	General Chemistry Lab II		1
CO 150	College Composition (GT-CO2)	1A	3
LIFE 102	Attributes of Living Systems (GT-SC1)	3A	4
MIP 260	The World of Parasites		3
VMBS 100	Introduction to Biomedical Sciences Major		2
Select a minimum of 3 credits from the following:			3
MATH 118	College Algebra in Context II (GT-MA1)	1B	
MATH 124	Logarithmic and Exponential Functions (GT-MA1)	1B	
MATH 125	Numerical Trigonometry (GT-MA1)	1B	
MATH 126	Analytic Trigonometry (GT-MA1)	1B	
MATH 155	Calculus for Biological Scientists I (GT-MA1)	1B	
MATH 160	Calculus for Physical Scientists I (GT-MA1)	1B	
1C (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc)			3
Elective			3

Total Credits

30

Sophomore

BC 351	Principles of Biochemistry		4
MIP 250	Eukaryotic Microbiology		3
MIP 300	General Microbiology		3
MIP 302	General Microbiology Laboratory		2
MIP 342	Immunology		4
Select one group from the following:			8
Group A			
CHEM 245	Fundamentals of Organic Chemistry		
CHEM 246	Fundamentals of Organic Chemistry Laboratory		
Concentration Electives (see list below)			
Group B			
CHEM 341	Modern Organic Chemistry I		
CHEM 343 ¹	Modern Organic Chemistry II		
CHEM 344	Modern Organic Chemistry Laboratory		
Select one course from the following:			1-2
MIP 292	Early Career Preparation in Microbiology		
MIP 372	Graduate School Preparation for Microbiology		
Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)			3

3D

Social and Behavioral Sciences (<https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences>) 3C 3

Total Credits **31-32**

Junior

MIP 443 Microbial Physiology 3

MIP 450 Microbial Genetics 3

Select one course from the following: 5

PH 121 General Physics I (GT-SC1) 3A

PH 141 Physics for Scientists and Engineers I (GT-SC1) 3A

Select one course from the following: 4

BMS 300 Principles of Human Physiology

BMS 360 Fundamentals of Physiology

Concentration Electives (See list below) 5

Advanced Writing (<https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing>) 2 3

Arts and Humanities (<https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities>) 3B 3

Elective 3

Total Credits **29**

Senior

MIP 351 Medical Bacteriology 4B 3

MIP 420 Medical and Molecular Virology 4A 4

Select one course from the following: 2

MIP 400A Capstone in Microbiology: Medical Microbiology 4C

MIP 400B Capstone in Microbiology: Biotechnology 4C

MIP 400C Capstone in Microbiology: Immunology 4C

MIP 498 Research 4C

Select one course from the following: 3

STAT 301 Introduction to Applied Statistical Methods

STAT 307 Introduction to Biostatistics

Concentration Electives (See list below) 9

Arts and Humanities (<https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities>) 3B 3

Electives² 5-6

Total Credits **29-30**

Program Total Credits: **120**

Concentration Electives

Code Title Credits

Select a minimum of 17 credits from the following not taken elsewhere in the program. CHEM 343 may count as a Concentration Elective for students who select organic chemistry Group B in the Sophomore year.

A minimum of two laboratory courses MUST be selected from the following:

MIP 150 CURE - Introduction to Microbiology Research

MIP 270 CURE-Microbial Sequence Research

MIP 335 Food Microbiology Laboratory

MIP 343 Immunology Laboratory

MIP 352 Medical Bacteriology Laboratory

MIP 355 CURE – Phage Discovery and Genetics

MIP 401 CURE – Advanced Research in Microbiology

MIP 425 Virology and Cell Culture Laboratory

MIP 433/ESS 433 Microbial Ecology Laboratory

MIP 462/ BSPM 462/BZ 462 Parasitology and Vector Biology

MIP 550 Microbial and Molecular Genetics Laboratory

Two unique courses (for a maximum of 6 credits) may be selected from the following:

MIP 298 Introductory Research

MIP 384 Supervised College Teaching

MIP 495 Independent Study

MIP 498 Research

ANeq 460	Meat Safety	2	MIP 334	Food Microbiology	3
BC 404	Comprehensive Biochemistry Laboratory	2	MIP 400A	Capstone in Microbiology: Medical Microbiology	2
BC 463	Molecular Genetics	3	MIP 400B	Capstone in Microbiology: Biotechnology	2
BMS 301	Human Gross Anatomy	5	MIP 400C	Capstone in Microbiology: Immunology	2
BMS 302	Laboratory in Principles of Physiology	2	MIP 410	Foundations of Modern Biotechnology	2
BMS 305	Domestic Animal Gross Anatomy	4	MIP 432/ESS 432	Microbial Ecology	3
BMS 325	Cellular Neurobiology	3	MIP 443	Microbial Physiology	3
BMS 330	Microscopic Anatomy	4	MIP 450	Microbial Genetics	3
BMS 345	Functional Neuroanatomy	4	MIP 496	Group Study	1-3
BMS 401	Laboratory Research in Biomedical Sciences	4	MIP 540	Fundamentals of Biosafety and Biosecurity	2
BMS 420	Cardiopulmonary Physiology	3	MIP 551	Infectious Diseases and Social Equity	3
BMS 450	Pharmacology	3	MIP 552	Social Impacts of Biomedical Research	3
BMS 460	Essentials of Pathophysiology	3	MIP 553	Health Communication for Infectious Diseases	3
BSPM 302	Applied and General Entomology	2	MIP 555	Principles and Mechanisms of Disease	3
BSPM 361	Elements of Plant Pathology	3	MIP 570	Functional Genomics	3
BZ 220	Introduction to Evolution	3	OT 215	Medical Terminology	1
BZ 310	Cell Biology	4	PH 122	General Physics II (GT-SC1)	5
BZ 333	Introductory Mycology	4	SOCR 330	Principles of Genetics	3
BZ 350	Molecular and General Genetics	4	SOCR 455	Microbiomes of Soil Systems	3
BZ 360	Bioinformatics and Genomics	4	VS 331	Histology	4
BZ 418	Ecology of Infectious Diseases	4	VS 333	Domestic Animal Anatomy	4
CHEM 343	Modern Organic Chemistry II ¹	3	¹ CHEM 343 may count as a Concentration Elective for students who select organic chemistry Group B in the Sophomore year. ² Select enough elective credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).		
ERHS 210	Cancer Biology, Medicine, and Society	3			
ERHS 220	Introduction to Environmental Public Health	3			
ERHS 320	Environmental Health–Water Quality	3			
ERHS 332	Principles of Epidemiology	3			
ERHS 350	Principles of Occupational Safety and Health	3			
ERHS 410	Environmental Health–Air and Waste Management	3			
ERHS 430	Human Disease and the Environment	3			
ERHS 446	Environmental Toxicology	3			
ERHS 448	Environmental Contaminants	3			
ERHS 502	Fundamentals of Toxicology	3			
ERHS 567	Cell and Molecular Toxicology Techniques	3			
FTEC 360	Brewing Processes	4			
FTEC 460	Brewing Science II	5			
FTEC 574	Current Issues in Food Safety	2			
LIFE 103	Biology of Organisms–Animals and Plants	4			
LIFE 201B	Introductory Genetics: Molecular/Immunological/Developmental (GT-SC2)	3			
LIFE 203	Introductory Genetics Laboratory	2			
LIFE 210	Introductory Eukaryotic Cell Biology	3			
LIFE 211	Introductory Cell Biology Honors Recitation	1			
LIFE 212	Introductory Cell Biology Laboratory	2			
LIFE 320	Ecology	3			
MATH 155	Calculus for Biological Scientists I (GT-MA1)	4			
MATH 160	Calculus for Physical Scientists I (GT-MA1)	4			
MIP 303	General Microbiology–Honors Recitation	1			
MIP 315	Pathology of Human and Animal Disease	3			