

College Credit Planner

Bachelor of Science in Microbiology, Immunology & Pathology

Minimum of 120 hours required (42 hours 300 level or above)

*Credit requirements may vary based on student placement and program details

College Courses

COURSE TITLE	COURSE #	DEGREE REQUIREMENT	CREDITS	COMPLETED?	SEMESTER
Additional Credits (Transfer/AP Credit and Free Electives)					
Free Electives		Additional Credits	Variable		
Transfer Credit		Additional Credits	Variable		
All University Core Curriculum (AUCC)					
College Composition	CO150	AUCC	3		
Calculus for Biological Scientists	MATH 155	AUCC	4		
Intro to Biostatistics	STAT 307	AUCC	3		
Advanced Writing		AUCC	3		
Attributes of Living Systems	LIFE 102	AUCC	4		
Biology Elective		AUCC	Variable		
General Physics I	PH121	AUCC	5		
General Physics II	PH122	AUCC	5		
General Chemistry I	CHEM 111	AUCC	4		
General Chemistry I Lab	CHEM 112	AUCC	1		
General Chemistry II	CHEM 113	AUCC	3		
General Chemistry II Lab	CHEM 114	AUCC	1		
Modern Organic Chemistry I	CHEM 341	AUCC	3		
Modern Organic Chemistry II	CHEM 343	AUCC	3		
Modern Organic Chemistry Lab	CHEM 344	AUCC	2		
Principles of Biochemistry	BC 351	AUCC	4		
Arts and Humanities	3B	AUCC	3		
Arts and Humanities	3B	AUCC	3		
Social/Behavioral Science	3C	AUCC	3		
Historical Perspectives	3D	AUCC	3		
Global/Cultural Awareness	3E	AUCC	3		
MIP Required Courses					
General Microbiology	MIP 300	MIP Required	3		
General Microbiology Lab	MIP 302	MIP Required	2		
Immunology	MIP 342	MIP Required	4		
Medical Bacteriology	MIP 351	MIP Required	3		
Medical and Molecular Virology	MIP 420	MIP Required	4		
Microbial Physiology	MIP 443	MIP Required	4		
Microbial Genetics	MIP 450	MIP Required	3		
Research Credits	MIP 400 or 498	MIP Required	Variable		
MIP Electives (2 labs & total 12 hours; minimum 4 courses)					
MIP Elective Lab	MIP Lab	MIP Elective	Variable		
MIP Elective Lab	MIP Lab	MIP Elective	Variable		
MIP Elective	MIP Elective	MIP Elective	Variable		
MIP Elective	Departmental Elective	MIP Elective	Variable		
Total Credit Hours					

*Minimum 120

Elective Course List

Microbiology electives MUST include 3 MIP electives (2 must include lab component).

To reach 12 credits, additional electives may be chosen from "Other Science Electives" list.*

*A maximum of 3 credits of variable hours (MIP 298, 384, 495 & 498) can be counted as MIP Electives.

◆ Courses that fulfill the formal microbiology laboratory component.

◇ Electives recommended for students planning to apply to a Medical Technology program.

Microbiology Electives

Course	Title	Terms Offered	Prerequisites	Credits
◆ MIP 150	Introduction to Research Methods	F, S	None	3
MIP 192	Microbiology First Year Seminar		None/New freshman only	2
MIP 260	World of Parasites	S	BZ 110 or LIFE 102; CHEM 111	3
MIP 275	Microcomputing Applications in Microbiology	S	None	2
MIP 298	Introductory Research	F, S, SS	Completion of form with sponsor	variable
MIP 303	General Microbiology—Honors Recitation	F, S	Participation in Honors Program	1
MIP 315	Animal and Human Disease	F, S		3
MIP 334	Food Microbiology	S	MIP 300	3
◆ MIP 335	Food Microbiology Laboratory	F—odd years	MIP 302; MB 334 or concurrent	2
◆ ◇ MIP 343	Immunology Laboratory	S	MIP 302; MIP 342 or concurrent	2
MIP 350	Microbial Diversity	F	MIP 300	3
◆ ◇ MIP 352	Medical Microbiology Laboratory	S	MIP 302; MIP 351 or concurrent	3
MIP 384	Supervised College Teaching	F, S, SS	Completion of form with sponsor	variable
MIP 400A-G	Capstones in Microbiology (if not taken as capstone);[See Catalog for complete list; topics rotate]	F, S	MIP 342; MIP 351 or MIP 420 or concurrent; (add. prerequisites required for some sections)	2
◆ ◇ MIP 425	Virology and Cell Culture Laboratory	F	MIP 302; MIP 420 or concurrent	2
MIP 432	Microbial Ecology	S—even years	MIP 302	3
◆ MIP 433	Microbial Ecology Lab	S—even years	MIP 432 or concurrent	1
◆ ◇ MIP/BSPM/BZ 462	Parasitology and Vector Biology	F	BZ 110 or LIFE 103; MIP 302	5
MIP 495	Independent Study	F, S, SS	Completion of form with sponsor	variable
MIP 498	Research (if not taken as capstone)		Completion of form with sponsor	variable
MIP 530	Advanced Molecular Virology	S—even years	BC 351 or BC 401; MIP 450	3
MIP 540	Biosafety in Research Laboratories	S	MIP 300	2
MIP 543	RNA Biology	F—odd years	BSPM/BZ/MIP 462 or MIP 563	2
◆ MIP 550	Microbial and Molecular Genetics Laboratory	S	MIP 302; MIP 450; instructor consent	4
MIP 555	Principle and Mechanisms of Disease	F	BMS 300	3
MIP 570	Functional Genomics	F	MIP 300 and 302; MIP 443 and MIP 450 or instructor consent	3
MIP 563	Biology of Disease Vectors	S—odd years	MIP 462 or instructor consent	3
MIP/BZ 577	Computer Analysis in Population Genetics	F	MIP/BZ 578 or concurrent	1
MIP/BZ 578	Genetics of Natural Populations	F	One course each in genetics and statistics	4

Other Science Electives

Course	Title	Terms Offered	Prerequisites	Credits
ANEQ 460	Meat Safety	F	Three credits of 100 level chemistry	2
BC 404	Comprehensive Biochemistry Lab	F, S	(BC 401 or conc) & (CHEM 245 or C343) & (LIFE 212)	2
BIOM 533/ECE 533	Biomolecular Tools for Engineers	F	BMS 300 or MIP 300	3
◇ BMS 300	Prin of Human Physiology	F, S, SS	LIFE 102; CHEM 111	4
BMS 301	Human Gross Anatomy	F, S, SS	LIFE 102	5
BMS 305	Domestic Animal Gross Anatomy	F, S, SS	LIFE 102	4
BZ 310	Cell Biology	F, S	"C" in CHEM 245 or CHEM 341; BZ 110 or BZ 120 or LIFE 103	4
BZ 333	Introductory Mycology	F	LIFE 103	4
BZ 350	Molecular and General Genetics	F	LIFE 102 or LIFE 103; STAT 301 or STAT 307 or concurrent	4
BZ 418	Ecology of Infectious Diseases	S	LIFE 320	4
CHEM 331	Quantitative Analysis	S	CHEM 113	3
CHEM 334	Quantitative Analysis Laboratory	F, S	CHEM 114; CHEM 331	1
ERHS 320	Environmental Health Water Quality	F	MIP 300 or concurrent	3
ERHS 332	Principles of Epidemiology	S	MIP 149 or concurrent MIP 300; STAT 307 or concurrent	3
ERHS 502	Fundamentals of Toxicology		BMS 300 or BMS 360; CHEM 245 or CHEM 341 or CHEM 345	3
ERHS 567	Cell & Molecular Toxicology Techniques	F	MIP 301 or MIP 302	3
FTEC 420	Quality Assessment of Food Products	S	FTEC 110; LIFE 205	3
FTEC 460	Brewing Science and Technology	F, S	CHEM 245; MATH 118; age 21; comple	3
FTEC 572	Food Biotechnology	S	MIP 334	2
HORT 477	Enology—History and Winemaking	F	CHEM 107/108 concurrent or CHEM 111	3
LIFE 103	Biology of Organisms	F, S, SS	LIFE 102	4
LIFE 201B	Introductory Genetics	S	LIFE 102	3
LIFE 203	Genetic Mechanisms Lab	S	LIFE 201B or concurrent	2
LIFE 210	Introductory Eukaryotic Cell Biology	F	LIFE 102; CHEM 111, CHEM 112, or concurrent	3
LIFE 211	Eukaryotic Cell Biology Recitation	F	LIFE 210 or concurrent	1
LIFE 212	Introductory Cell Biology Laboratory	F	CHEM 112; LIFE 210 or concurrent	2
LIFE 320	Ecology	F,S	BZ 101 or BZ 104 or BZ 120 or LIFE 102 and MATH 141 or MATH 155 or MATH 160	3
SOCR 455	Soil Microbiology	F	MIP 300 or SOCR 240	3
SOCR 456	Soil Microbiology Lab	F	SOCR 455 or concurrent	1

Biology Electives

MIP Major: 1 Biology Elective Required

Note: If a course is used to fulfill AUCC Category 3A or departmental elective, it may not be used to fulfill the required biology elective.

◆ Electives recommended for students planning to apply to a Medical Technology program.

Biology Electives						
	Course	Title	Terms Offered	Prerequisites	Credits	
◆	BMS 300	Prin of Human Physiology	F, S, SS	LIFE 102; CHEM 111	4	
	BMS 301	Human Gross Anatomy	F, S, SS	LIFE 102	5	
	BMS 305	Domestic Animal Gross Anatomy	S	LIFE 102	4	
	BZ 310	Cell Biology	F, S	"C" in CHEM 245 or CHEM 341; BZ 110 or BZ 120 or LIFE 103	4	
	BZ 333	Introductory Mycology	F	LIFE 103	4	
	BZ 350	Molecular and General Genetics	F	LIFE 102 or LIFE 103; STAT 301 or STAT 307 or concurrent	4	
	LIFE 103	Biology of Organisms	F, S, SS	LIFE 102	4	
	LIFE 201B	Introductory Genetics	S	LIFE 102	3	
	LIFE 203	Genetic Mechanisms Lab	S	LIFE 201B or concurrent	2	
	LIFE 210	Introductory Eukaryotic Cell Biology	F	LIFE 102; CHEM 111, CHEM 112, or concurrent	3	
	LIFE 211	Eukaryotic Cell Biology Recitation	F	LIFE 210 or concurrent	1	
	LIFE 212	Introductory Cell Biology Laboratory	F	CHEM 112; LIFE 210 or concurrent	2	
	LIFE 320	Ecology	F,S	BZ 101 or BZ 104 or BZ 120 or LIFE 102 and MATH 141 or MATH 155 or MATH 160	3	

Suggested Schedule for Microbiology Majors

Freshman Year—Fall

CHEM 111 General Chem I	4
CHEM 112 Gen Chem Lab I	1
CO 150 Composition	3
LIFE 102 Attrib of Living Systems	4
MATH 117, 118, 124, 125	0–4
MIP 192 First Year Seminar	2
Total Credits	14–18

Freshman Year—Spring

Biology Elective	3–5
CHEM 113 General Chem II	3
CHEM 114 Gen Chem Lab II	1
Free Electives	3
MATH 155 Calculus	4
Total Credits	14–16

Cumulative number of credits needed to graduate in 4 years



Have a minimum of 30 credits by the end of year 1



Have a minimum of 60 credits by the end of year 2



Have a minimum of 90 credits by the end of year 3



Have a minimum of 120 credits by the end of year 4

Sophomore Year—Fall

CHEM 341 O-Chem I	3
MIP 300 General Micro	3
MIP 302 Gen Micro Lab	2
AUCC Category 2 (Adv Comm)	3
Free Electives (e.g., OT215, 1 cr)	2
Total Credits	13

Sophomore Year—Spring

CHEM 343 O-Chem II	3
CHEM 344 O-Chem Lab	2
STAT 307 Biostatistics	3
MIP 342 Immunology	4
Social/Behavioral Sci (Cat 3-C)	3
Departmental Electives	2
Total Credits	17

Junior Year—Fall

BC 351 Biochem	4
PH 121 Physics I	5
Historical Perspectives (Cat 3-D)	3
MIP 450 Genetics	3
Total Credits	15

Junior Year—Spring

MIP 351 Medical Bacteriology	3
PH 122 Physics II	5
Global and Cult Awareness (Cat 3-E)	3
Departmental Electives	3
Free Elective (e.g., HES)	1
Total Credits	15

Senior Year—Fall

MIP 420 Virology	4
MIP 498 or MIP 400 Capstone	2–3
Arts/Humanities (Cat 3-B)	3
Departmental Electives	2
Free Electives	4
Total Credits	15–16

Senior Year—Spring

MIP 443 Microbial Phys	4
Arts and Humanities (Cat 3-B)	3
Departmental Electives	3
Free Electives	4–5
Total Credits	14–15

In this suggested schedule, MIP 192 First Year Seminar accounts for 2 credits of Departmental Electives.

Pre-med students should plan to take the MCAT exam in their Junior year. Those taking a preparatory MCAT class should consider dropping their credit load to 12 credits because of the significant time commitment involved. This is best accomplished by taking 3 additional credits in the freshman year.