

BS MICROBIOLOGY SAMPLE SCHEDULE

Year 1					
Fall semester			Credits		
BIO 111	General Biology I		4		
CHE 111	General Chemistry I		4		
ENG101	First Year Writing		3		
HUM 115	Voice and Identity		3		
MAT001	Pre-Calculus (if needed)		3		
PBH102	First Year Experience		1		
	Total		15/18		
Spring Semester			Credits		
BIO 121	General Biology II		4		
CHE 121	General Chemistry II		4		
HUM 1XX or 2XX	Humanities: Methods and Approaches Selective		3		
MAT 121	Calculus I		4		
	Elective 1		3		
	Total		18		

Year 2					
Fall semester			Credits		
BIO 210	Microbiology		4		
CHE 211	Organic Chemistry I		4		
HUM 2XX	Science and Health through the Humanities Lenses Selective		3		
PHY 212	College Physics I		4		
	Elective 2		3		
	Total		18		
Spring Semester			Credits		
BIO 346	Cell Biology		3		
CHE 212	Organic Chemistry II		4		
MAT 145	Elementary Statistics		3		
PHY 222	College Physics II		4		
	Elective 3		3		
	Total		17		

Year 3					
Fall semester			Credits		
BIO 350	Biomedical Lab Techniques I		3		
BIO 370	Microbial Physiology		3		
CHE 311	Biochemistry		3		
PSC 315	Immunology		3		
	Elective 4		3		
	Total		15		
Spring Semester			Credits		
BIO 340	Microbial Genetics		3		
BIO 349	Virology		3		
BIO 355	Biomedical Lab Techniques II*		3		
	Elective 5		3		
	Micro Selective 1		3		
	Total		15		

Year 4					
Fall semester			Credits		
BIO 253	Scientific Communication*		2		
BIO 345	Journal Club		1		
BIO 480	Micro. Capstone Experience I		3		
	Elective 6		3		
	Micro Selective 2		3		
	Total		12		
Spring Semester			Credits		
BIO 345	Journal Club		1		
BIO 485	Micro. Capstone Experience II		3		
	Elective 7		3		
	Micro Selective 3		3		
	Micro Selective 4		3		
	Total		13		

Note: All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

*For students interested in careers in industrial/biopharmaceutical microbiology, BIO 355: Biomedical Lab Techniques II may be replaced with PSC 320: Downstream Processing of Biopharmaceutical Products; and BIO 253: Scientific Communication with PSC 610G: Technical Writing for the Biopharmaceutical Industry upon consultation with their faculty advisor and program director

BS Microbiology/MS Molecular Biosciences CAPSTONE track

Year 1					
Fall semester			Spring Semester		
		Credits			Credits
BIO 111	General Biology I	4	BIO 121	General Biology II	4
CHE 111	General Chemistry I	4	CHE 121	General Chemistry II	4
ENG101	First Year Writing	3	HUM 1XX or 2XX	Humanities: Methods and Approaches Selective	3
HUM 115	Voice and Identity	3	MAT 121	Calculus I	4
MAT001	Pre-Calculus (if needed)	3		Elective 1	3
PBH102	First Year Experience	1			
	Total	15/18		Total	18

Year 2					
Fall semester			Spring Semester		
		Credits			Credits
BIO 210	Microbiology	4	BIO 346	Cell Biology	3
CHE 211	Organic Chemistry I	4	CHE 212	Organic Chemistry II	4
HUM 2XX	Science and Health through the Humanities Lenses Selective	3	MAT 145	Elementary Statistics	3
PHY 212	College Physics I	4	PHY 222	College Physics II	4
	Elective 2	3		Elective 3	3
	Total	18		Total	17

Year 3					
Fall semester			Spring Semester		
		Credits			Credits
BIO 350	Biomedical Lab Techniques I	3	BIO 340	Microbial Genetics	3
BIO 370	Microbial Physiology	3	BIO 349	Virology	3
CHE 311	Biochemistry	3	BIO 355	Biomedical Lab Techniques II*	3
PSC 315	Immunology	3		Elective 5	3
	Elective 4	3		Micro Selective 1 (Micro Focused)	3
	Total	15		Total	15

Year 4					
Fall semester			Spring Semester		
		Credits			Credits
BIO 253	Scientific Communication*	2	BIO 345	Journal Club (UG-2)	1
BIO 345	Journal Club (UG-1)	1	BIO 485	Micro. Capstone Experience II	3
BIO 480	Micro. Capstone Experience I	3	BIO 630G	Advanced Cell Biology (Grad req/UG Micro Selective 3)	3
BIO 625G	Advanced Molecular Biology (Grad req/ UG Micro Selective 2)	3	BIO650G	Research Design	1
MAT610	Statistical Interference and Modeling	3	ETH610G	Ethics in Research	1
	UG Elective 6	3		UG Elective 7	3
	Graduate Elective 1	3		UG Micro Selective 4/Grad Elective 2 (Micro Focused)	3
	Total	18		Total	15

Year 5					
Fall semester			Spring Semester		
BIO660G	Journal Club (G-1)	1	BIO 660G	Journal Club (G-2)	1
BIO 665G	Molecular Biosciences Capstone***	2	BIO 665G	Molecular Biosciences Capstone**	2
	Graduate Elective 3	3		Graduate Elective 5	3
	Graduate Elective 4	3			
	Total	9		Total	6

Total credits: 145 (122 BS + 32 MS – 9 double counted courses)

Note: All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

*For students interested in careers in industrial/biopharmaceutical microbiology, BIO 355: Biomedical Lab Techniques II may be replaced with PSC 320: Downstream Processing of Biopharmaceutical Products; and BIO 253: Scientific Communication with PSC 610G: Technical Writing for the Biopharmaceutical Industry upon consultation with their faculty advisor and program director

**Variable credit course, students may distribute the 4 credits of Molecular Biosciences Capstone across two semesters with consultation from their research advisor and program director

BS Microbiology/MS Molecular Biosciences THESIS track

Year 1					
Fall semester			Spring Semester		
BIO 111	General Biology I	4	BIO 121	General Biology II	4
CHE 111	General Chemistry I	4	CHE 121	General Chemistry II	4
ENG101	First Year Writing	3	HUM 1XX or 2XX	Humanities: Methods and Approaches Selective	3
HUM 115	Voice and Identity	3	MAT 121	Calculus I	4
MAT001	Pre-Calculus (if needed)	3		Elective 1	3
PBH102	First Year Experience	1			
	Total	15/18		Total	18

Year 2					
Fall semester			Spring Semester		
BIO 210	Microbiology	4	BIO 346	Cell Biology	3
CHE 211	Organic Chemistry I	4	CHE 212	Organic Chemistry II	4
HUM 2XX	Science and Health through the Humanities Lenses Selective	3	MAT 145	Elementary Statistics	3
PHY 212	College Physics I	4	PHY 222	College Physics II	4
	Elective 2	3		Elective 3	3
	Total	18		Total	17

Year 3					
Fall semester			Spring Semester		
BIO 350	Biomedical Lab Techniques I	3	BIO 340	Microbial Genetics	3
BIO 370	Microbial Physiology	3	BIO 349	Virology	3
CHE 311	Biochemistry	3	BIO 355	Biomedical Lab Techniques II*	3
PSC 315	Immunology	3		Elective 5	3
	Elective 4	3		Micro Selective 1 (Micro Focused)	3
	Total	15		Total	15

Year 4					
Fall semester			Spring Semester		
		Credits			Credits
BIO 253	Scientific Communication*	2	BIO 345	Journal Club (UG-2)	1
BIO 345	Journal Club (UG-1)	1	BIO 485	Micro. Capstone Experience II	3
BIO 480	Micro. Capstone Experience I	3	BIO 630G	Advanced Cell Biology (Grad req/UG Micro Selective 3)	3
BIO 625G	Advanced Molecular Biology (Grad req/ UG Micro Selective 2)	3	BIO650G	Research Design	1
BIO670G	Research Rotation	2	ETH610G	Ethics in Research	1
MAT610	Statistical Interference and Modeling	3		UG Elective 7	3
	UG Elective 6	3		UG Micro Selective 4/Grad Elective 1 (Micro Focused)	3
	Total	17		Total	15

Year 5					
Fall semester			Spring Semester		
		Credits			Credits
BIO701G	Thesis Research	3	BIO 702G	Thesis Research	3
BIO660G	Journal Club (G-1)	1		Graduate Elective 3	3
	Graduate Elective 2	3		Graduate Elective 4	3
	Total	7		Total	9

Total credits: 145 (122 BS + 32 MS – 9 double counted courses)

Note: All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.

*For students interested in careers in industrial/biopharmaceutical microbiology, BIO 355: Biomedical Lab Techniques II may be replaced with PSC 320: Downstream Processing of Biopharmaceutical Products; and BIO 253: Scientific Communication with PSC 610G: Technical Writing for the Biopharmaceutical Industry upon consultation with their faculty advisor and program director

BS IN MICROBIOLOGY REQUIRED COURSES

CORE CURRICULUM

Basic Sciences: 39 required credits

BIO 111 and 121: General Biology I and II (4, 4)

CHE 111 and CHE 121: General Chemistry I and II (4, 4)

CHE 201 and 202: Organic Chemistry I and II (4, 4)

PHY 212 and 222: College Physics I and II (4, 4)

MAT 121: Calculus I (4)

MAT 145: Elementary Statistics (3)

Humanities and Communication: 14 required credits

HUM 115: Voice and Identity (3)

HUMXXX: Humanities: Methods and Approaches Selective (3)

HUMXXX: Science and Health through the Humanities Lenses Selective (3)

ENG101: First Year Writing (3) or COM115: Principles of Communication

BIO 253: Scientific Communications (2) [or other comparable course(s)]

Microbiology: 36 required credits

BIO 210: Microbiology (4)

PSC 315: Immunology (3)

PSC 311: Biochemistry (3)

BIO 346: Cell Biology (3)

BIO 340: Microbial Genetics (3)

BIO 349: Virology (3)

BIO 370: Microbial Physiology (3)

BIO 350 and 355: Biomedical Laboratory Techniques I and II (3, 3)

BIO 345: Microbiology Journal Club (1+1) – course is taken twice

BIO 380: Microbiology Seminar (0)- every semester.

BIO 480 and BIO 485: Microbiology Capstone Experience I and II (3, 3)

The plan for the Capstone Experience should be developed by the student in conjunction with the faculty adviser and Program Director and approved in spring of the Junior Year.

Micro Selectives: 12 credits**At least 6 credits must be from the following Microbe-focused courses:**

BIO 365: Medical Mycology and Parasitology (3)

BIO 680G: Bacterial Pathogenesis (3)

BIO 690G: Viral Pathogenesis (3)

BIO 615G: Public Health Microbiology (3)

BIO 348/BIO 648G: Microbial Fermentation (3)

BIO 410/BIO 665G: Biopharmaceutical Microbiology (3)

The remainder may come from the following courses:

BIO 213: Anatomy & Physiology I (3) or PSC 321: Physiology/Pathophysiology I (3)

BIO 215: Anatomy & Physiology II (3) or PSC 322: Physiology/Pathophysiology II (3)

BIO 325: Genetics (3)

BIO 331/BIO 631G: Mammalian Cell Culture (3)

BIO 625G: Advanced Molecular Biology (3)

BIO 630G: Advanced Cell Biology (3)

BHS 745G: Molecular Diagnostics (3)

CLS 610: Clinical Microbiology I (3)

CLS 620: Clinical Microbiology II (3)

PBH 350: Epidemiology (3) or PAD 693: Epidemiology I (3)

PSC 324/PSC 624G: Pharmaceuticals and Biopharmaceuticals Industry Entrepreneurship (3)

PSC 625G: Clinical Biochemistry (3)

PSC 646G: Regulatory Science (3)

Electives: 21 credits

At least 9 credits must be in the humanities or social sciences.

TOTAL CREDITS: 122 CREDITS

*All students will register for BIO 380 Microbiology Seminar (0 credits) every semester.