MOLECULAR & CELL BIOLOGY (B.S.)

Program Mission

The B.S. in Molecular and Cell Biology provides students with a broad understanding of biological systems at the molecular, cellular, and organismal levels. This program is dedicated to advancing students' scientific understanding while fostering their sense of responsibility to contribute positively to society and the environment. Majors will use experimental evidence to explore and communicate the complexities of life. This program promotes critical thinking, compassion, and a commitment to lifelong learning, preparing graduates to enter graduate and professional schools or the work force.

Program Outcomes

1. Graduates will demonstrate content knowledge of cell biology, molecular biology, and genetics.
2. Graduates will apply the techniques of the scientific method.
3. Graduates will use effective oral and written language skills to communicate scientific data and ideas.
4. Graduates will be prepared to engage a diverse world by applying ethical principles and practices to biological issues.

Code	Title	Hours
BIOL-1121	General Biology I	4
BIOL-1122	General Biology II	4
BIOL-3370	Genetics	4
BIOL-3310	Biology III- Mechanisms of Evolution	3
BIOL-4475	Molecular & Cell Biology	4
THEO-3940	Christian Bioethics	3
BIOL-COMP	Senior Comprehensive Exam	NULL
Five 4-credit-hour advanced biology courses		**20**
4 of 5 Advanced Biology courses must come from this list:		
BIOL-3345	Developmental Biology	
BIOL-3346	Comparative Vertebrate Anatomy	
BIOL-3360	Microbiology	
BIOL-4410	Cancer Biology	
BIOL-4476	Immunology	
BIOL-4482	Animal Physiology	
BIOL-4484	Human Physiology & Disease	
CHEM-3510 & CHEM-3511	Biochemistry II and Biochemistry II Lab	
Chemistry minor required. For additional courses take CHEM-2210 & CHEM-2211 and CHEM-3500 & CHEM-3510 [1]		**20**
Required Supporting Courses		
Select one of the following:		4
MATH-1300	Calculus I (recommended)	
MATH-1250	Pre-Calculus	
Select one of the following:		4
BIOL-3305	Biological Statistics (recommended)	
MATH-1220	Introductory Statistics	
Select one of the following options		8
Option 1		
PHYS-2000	College Physics I	
PHYS-2101	Introductory Physics Laborartory I	
PHYS-2010	College Physics II	
PHYS-2111	Introductory Physics Lab II	
Option 2		
PHYS-2100	Classical Physics I	
PHYS-2111	Introductory Physics Lab II	
PHYS-2110	Classical Physics II	
PHYS-2111	Introductory Physics Lab II	
Total Hours		**78**

[1] Students need to declare and complete the Chemistry minor.

Suggested Sequence of Courses for a Bachelor of Science Degree in Molecular and Cell Biology

Course	Title	Hours
Freshman Year		
First Semester		
ENGL-1010	English Composition	3
MATH-1300	Calculus I	4
BIOL-1121	General Biology I	4
CHEM-1200	General Chemistry I Lecture	3
CHEM-1201	General Chemistry I Lab	1
	Hours	**15**
Second Semester		
CHEM-1210	General Chemistry II Lecture	3
CHEM-1211	General Chemistry II Lab	1
THEO-1100	Introduction to Theology	3
BIOL-1122	General Biology II	4
Historical Inquiry Foundation		3
Person and Community Foundation		3
	Hours	**17**
Sophomore Year		
First Semester		
CHEM-2200	Organic Chemistry I Lecture	3
CHEM-2201	Organic Chemistry I Lab	1
BIOL-3370	Genetics	4
PHIL-2100	Principles of Nature	3
EXSC-1115	Wellness for Life	1
Foreign Language		4
	Hours	**16**
Second Semester		
CHEM-2210	Organic Chemistry II Lecture	3
CHEM-2211	Organic Chem II Lab	1
BIOL-4475	Molecular & Cell Biology	4
EXSC Fitness Course		1
Foreign Language		4
Philosophical Inquiry Foundation		3
	Hours	**16**

Junior Year		
First Semester		
CHEM-3500	Biochemistry I	3
CHEM-3501	Biochemistry I Lab	1
PHYS-2000	College Physics I	3
PHYS-2101	Introductory Physics Laborartory I	1
Aesthetic Foundation		3
Faith Foundation		3
Historical Inquiry Foundation		3
	Hours	**17**
Second Semester		
PHYS-2010	College Physics II	3
PHYS-2111	Introductory Physics Lab II	1
BIOL-3305 or MATH-1220	Biological Statistics or Introductory Statistics	4
Elective		3
Advanced Biology		4
	Hours	**15**
Senior Year		
First Semester		
Advanced Biology		4
BIOL-3310	Biology III- Mechanisms of Evolution	3
Global Perspective		3
Philosophical Inquiry Foundation		3
Elective		3
	Hours	**16**
Second Semester		
Advanced Biology		4
Advanced Biology		4
THEO-3940	Christian Bioethics	3
BIOL-COMP	Senior Comprehensive Exam	NULL
Aesthetic Foundation		3
Elective		**2**
	Hours	**16**
	Total Hours	**128**