

# Applied Biology - Bachelor of Science

Biology is the study of all living organisms, from the microscopic to macroscopic. The biology faculty at the Regionals offer a wide range of courses that provide a solid background in two primary concentrations for the BS in Applied Biology: 1) Environmental Biology and 2) Human Biology & Health Sciences. Each concentration trains students in critical thinking, scientific inquiry, and the application of science to societal issues. The course of study for either concentration within Applied Biology will prepare students to formulate questions, make meaningful observations, analyze and interpret data, and arrive at conclusions. Development of these skills will enable students to recognize, address, and solve problems while gaining scientific literacy and a broad knowledge of biology. During their training as biologists students will learn how living organisms function, evolve, and interact with one another and their environment. Students majoring in Applied Biology may not major in Biology or Zoology.

## Program Requirements

### Environmental Biology Concentration

Code	Title	Credit Hours
<b>Required Courses</b>		
BIO 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	4
BIO 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	4
BIO 206	Evolutionary Biology	3
BIO 209	Fundamentals of Ecology	3
BIO 342	Genetics	3
BSC 292	Applied Biology Sophomore Seminar: Planning Your Future in Applied Biology (Seminar I)	1
BSC 492	Applied Biology Senior Seminar: Becoming a Professional Biologist (Seminar II)	1
Select three of the following:		12
BIO 205	Dendrology	
BIO 311	Vertebrate Zoology	
BIO 312	Invertebrate Zoology	
BIO 314	Plant Diversity	
BSC 313	Microbial Diversity	
<b>Professional Courses</b>		
Select two of the following: (1 required at the 400-level)		6-7
BIO 351	Environmental Education: Focus on Natural History	
BIO 467	Conservation Biology	
BSC 321	Research in Applied Biology <sup>1</sup>	
or BSC 340	Internship	
BSC 415	Approaches to Problem Solving and Research in Applied Biology Capstone	
BSC 475	Capstone in Environmental Biology	
<b>Related Hours</b>		

CHM 141	College Chemistry	3-4
or CHM 141R	College Chemistry	
CHM 142	College Chemistry	3
CHM 144	College Chemistry Laboratory	2
CHM 145	College Chemistry Laboratory	2
ECO 201	Principles of Microeconomics	3
or POL 241	American Political System	
GLG 115L	Understanding the Earth	1
GLG 121	Environmental Geology	3
GLG 244	Oceanography	3
or GLG 307	Water and Society	
STA 261	Statistics	4
or MTH 151	Calculus I	

<b>Earn 1 Tool</b>	<b>18-21</b>
Applied Social Research Minor	
Commerce Minor	
Data Intelligence Minor	
Forensic Investigation Minor	
GIS Certificate	
Psychological Science Minor	
Self-Designed Tool (department approval required)	
<b>52 hours at the 200-level or above</b>	
<b>Total Credit Hours</b>	<b>79-84</b>

<sup>1</sup> Limits of 3 hours total of BSC 321 or BSC 340 to count for the degree.

### Human Biology and Health Sciences Concentration

Code	Title	Credit Hours
<b>Required Courses</b>		
BIO 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	4
BIO 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	4
BIO 201	Human Anatomy	4
BIO 203	Introduction to Cell Biology	3
BIO 206	Evolutionary Biology	3
or BIO 209	Fundamentals of Ecology	
BIO 305	Human Physiology	4
BIO 342	Genetics	3
BSC 292	Applied Biology Sophomore Seminar: Planning Your Future in Applied Biology (Seminar I)	1
BSC 492	Applied Biology Senior Seminar: Becoming a Professional Biologist (Seminar II)	1
<b>Professional Courses</b>		
Select three of the following: (1 required at the 400-level)		9
BIO 464	Laboratory in Cell and Molecular Biology	

BSC 313	Microbial Diversity	
BSC 321 or BSC 340	Research in Applied Biology <sup>1</sup> Internship	
BSC 415	Approaches to Problem Solving and Research in Applied Biology Capstone	
BSC 416	Applications of Biotechnology to Human Health: Concepts and Issues	
MBI 361	Fundamentals of Epidemiology	
<b>Related Hours</b>		
CHM 141 or CHM 141R	College Chemistry College Chemistry	4
CHM 142	College Chemistry	3
CHM 144	College Chemistry Laboratory	2
CHM 145	College Chemistry Laboratory	2
CHM 241 & CHM 242 & CHM 244 & CHM 245 or CHM 231	Organic Chemistry and Organic Chemistry and Organic Chemistry Laboratory and Organic Chemistry Laboratory Fundamentals of Organic Chemistry	4-10
CHM 332 & 332L	Outlines of Biochemistry and Outlines of Biochemistry Lab	4
MTH 151 or STA 261	Calculus I Statistics	4-5
PHY 161	Physics for the Life Sciences with Laboratory I	4
<b>Earn 1 Tool</b>		<b>18-21</b>
Applied Social Research Minor		
Commerce Minor		
Data Intelligence Minor		
Forensic Investigation Minor		
GIS Certificate		
Psychological Science Minor		
Self-Designed Tool (department approval required)		
<b>52 hours at the 200-level or above</b>		
<b>Total Credit Hours</b>		<b>81-91</b>

<sup>1</sup> Limits of 3 hours total of BSC 321 or BSC 340 to count for the degree.