

BA/BS MAJOR IN BIOLOGY

Requirements for a Bachelor of Arts or Bachelor of Science Degree with a Major in Biology

Additional Graduation Requirements (<https://catalog.una.edu/undergraduate/academic-procedures-requirements/graduation-requirements>)

Code	Title	Hours
General Education Component (https://catalog.una.edu/undergraduate/academic-procedures-requirements/general-education-component)		
Area I (Written Composition) ¹		6
Area II (Humanities and Fine Arts)		12
Area III (Natural Sciences and Mathematics)		11
BI 111	Principles of Biology	
& BI 112	and Principles of Biology	
Select one from the following:		
MA 112	Pre-Calculus Algebra	
MA 113	Pre-Calculus Trigonometry	
MA 115	Pre-Calculus Algebra and Trigonometry	
MA 125	Calculus I	
Area IV (History, Social and Behavioral Sciences)		12
Area V (https://www.una.edu/areav)		
Major Core Requirements in Biology		
BI 111	Principles of Biology ²	4
BI 112	Principles of Biology ²	4
BI 200W	Biological Literature	1
BI 305	Cell Biology	4
BI 306	Genetics	4
BI 307	Microbiology	4
BI 498	Senior Assessment Seminar	1
Prescribed Supporting Courses		
CH 111	General Chemistry	3
CH 111L	General Chemistry Laboratory	1
CH 112	General Chemistry	3
CH 112L	General Chemistry Laboratory	1
Major Concentration Requirements		
Select one from the following Options:		16-30
Option I: Professional Biology		
Option II: General Biology		
Option III: Environmental Biology		
Option IV: Cellular and Molecular Biology		
Minor		
A minor, second major or second degree in chemistry, earth science, 18-26 geography, geology, mathematics/computer science, physics, or psychology is recommended		
Option I: Professional Biology		
A minor in chemistry is required (https://catalog.una.edu/undergraduate/colleges-programs/arts-sciences/chemistry-industrial-hygiene/chemistry-minor)		
Option II: General Biology		

A minor, second major or second degree in some field is required for Option II (<https://catalog.una.edu/undergraduate/colleges-programs/arts-sciences/biology/#programsofferedtext>)

Option III: Environmental Biology

A minor is not required for this major

Option IV: Cellular and Molecular Biology

A minor in chemistry is required (<https://catalog.una.edu/undergraduate/colleges-programs/arts-sciences/chemistry-industrial-hygiene/chemistry-minor>)

General Electives

General Elective hours, if required, to bring total to 120 for Options I, II, and IV

Option III requires 122-124 hours

Total Hours 89

¹ For BA degree, select six hours of a required foreign language at the introductory level.

² These courses are required in the major or minor if not completed as part of the General Education Component.

Concentration Options

Option I: Professional Biology

Code	Title	Hours
Organismal Biology (Protistans, Fungi, Plants)		
Select one from the following:		3-4
BI 362	Non-Vascular Plants	
BI 363	Vascular Plants	
BI 429	Marine Botany	
BI 460	Plant Physiology	
BI 463	Plant Taxonomy	
Organismal Biology (Protistans, Animals)		
Select two from the following:		6-8
BI 310	Comparative Vertebrate Morphology	
BI 311	Animal Physiology	
BI 340	Invertebrate Zoology	
BI 341	Natural History of the Vertebrates	
BI 403	Marine Invertebrate Zoology	
BI 408	Marine Vertebrate Zoology	
BI 433	Embryology	
BI 451	Ornithology	
BI 452	Entomology	
BI 471	Parasitology	
BI 472	Histology	
Population Biology		
BI 312	Evolution	3
Select one from the following:		4
BI 411	Coastal Wetlands Ecology	
BI 412	Marine Ecology	
BI 413	Marine Behavioral Ecology	
BI 421	Ecology	
BI 423	Aquatic Ecology	
Total Hours		16-19

Prescribed Supporting Courses

Code	Title	Hours
CIS 125	Business Applications of Microcomputer Software ¹	3
Select one from the following:		3-4
MA 112	Pre-Calculus Algebra	
MA 113	Pre-Calculus Trigonometry	
MA 115	Pre-Calculus Algebra and Trigonometry	
MA 125	Calculus I	
Select one from the following:		4-6
MA 121 & MA 122	Calculus for Business and Life Sciences I and Calculus for Business and Life Sciences II	
MA 125	Calculus I ²	
MA 345	Applied Statistics I	3
Select one from the following:		8-10
PH 241 & PH 242	General Physics I and General Physics II ²	
PH 251 & PH 252	Technical Physics I and Technical Physics II	
Total Hours		6-26

¹ Or higher level computer science and computer information systems course.

² These courses are required in the major or minor if not completed as part of the General Education Component.

Option II: General Biology

Code	Title	Hours
Organismal Biology (Protistans, Fungi, Plants)		
Select one from the following:		3-4
BI 362	Non-Vascular Plants	
BI 363	Vascular Plants	
BI 429	Marine Botany	
BI 460	Plant Physiology	
BI 463	Plant Taxonomy	
Organismal Biology (Protistans, Animals)		
Select two from the following:		6-8
BI 310	Comparative Vertebrate Morphology	
BI 311	Animal Physiology	
BI 340	Invertebrate Zoology	
BI 341	Natural History of the Vertebrates	
BI 403	Marine Invertebrate Zoology	
BI 408	Marine Vertebrate Zoology	
BI 433	Embryology	
BI 451	Ornithology	
BI 452	Entomology	
BI 471	Parasitology	
BI 472	Histology	
Population Biology		
BI 312	Evolution	3
Select one from the following:		4
BI 411	Coastal Wetlands Ecology	
BI 412	Marine Ecology	
BI 413	Marine Behavioral Ecology	

BI 421	Ecology	
BI 423	Aquatic Ecology	
Total Hours		16-19

Prescribed Supporting Courses

Code	Title	Hours
CIS 125	Business Applications of Microcomputer Software ¹	3
Select one from the following:		3-4
MA 112	Pre-Calculus Algebra ²	
MA 113	Pre-Calculus Trigonometry ²	
MA 115	Pre-Calculus Algebra and Trigonometry ²	
MA 125	Calculus I ²	
Total Hours		3-7

¹ Or higher level computer science and computer information system course.

² These courses are required in the major or minor if not completed as part of the General Education Component.

Option III: Environmental Biology

Code	Title	Hours
Organismal Biology (Protistans, Fungi, Plants)		
BI 463	Plant Taxonomy	3
Organismal Biology (Protistans, Animals)		
BI 311	Animal Physiology	4
BI 341	Natural History of the Vertebrates	4
Population Biology		
BI 421	Ecology	4
BI 423	Aquatic Ecology	4
Total Hours		19

Prescribed Supporting Courses

Code	Title	Hours
CH 311 & 311L	Organic Chemistry and Organic Chemistry Laboratory	5
Select one from the following:		5
CH 321 & 321LW	Quantitative Analysis and Quantitative Analysis Laboratory	
CH 322/322LW	Instrumental Analysis	
CH 465	Environmental Regulations	3
CIS 125	Business Applications of Microcomputer Software ¹	3
ES 131	Earth Science/Physical Geology	4
ES 488	Hydrogeology	3
Select one from the following:		3-4
MA 112	Pre-Calculus Algebra ²	
MA 113	Pre-Calculus Trigonometry ²	
MA 115	Pre-Calculus Algebra and Trigonometry ²	
MA 125	Calculus I ²	
MA 345	Applied Statistics I	3
Select one block of courses, Geography or Earth Science, from the following:		14-16
Certificate in Geographic Information Systems:		
GE 184	Digital Earth	

GE 325	Cartography
GE 384	Geographic Information Systems
GE 484	Applied Geospatial Analysis
GE 487	Geography Capstone Project
Earth Science:	
ES 330	Meteorology
ES 375	Technology and the Environment
ES 431	Structural Geology
ES 431L	Structural Geology Lab
ES 445	Mineralogy
Total Hours	40-46

¹ Or higher level computer science and computer information system course.

² These courses are required in the major or minor if not completed as a part of the General Education component.

Option IV: Cellular and Molecular Biology

Code	Title	Hours
Organismal Biology (Plants)		
Select one from the following:		3-4
BI 362	Non-Vascular Plants	
BI 363	Vascular Plants	
BI 460	Plant Physiology	
BI 463	Plant Taxonomy	
Organismal Biology (Protistans, Animals)		
Select one from the following:		4
BI 310	Comparative Vertebrate Morphology	
BI 311	Animal Physiology	
BI 340	Invertebrate Zoology	
BI 433	Embryology	
BI 471	Parasitology	
BI 472	Histology	
Population Biology		
BI 312	Evolution	3
Select one from the following Biology courses:		4
BI 411	Coastal Wetlands Ecology	
BI 412	Marine Ecology	
BI 413	Marine Behavioral Ecology	
BI 421	Ecology	
BI 423	Aquatic Ecology	
Cellular/Molecular Biology		
BI 415	Molecular Biology	4
BI 441	Biochemistry	3
Select a minimum of eight hours from the following:		8
BI 407	Applied Bacteriology	
BI 409	Immunology	
BI 455W	Paleobiology	
BI 495	Research/Internship	
BI 499	Special Topics in Biology	
CH 321 & 321LW	Quantitative Analysis and Quantitative Analysis Laboratory	

CH 322 & 322L	Instrumental Analysis and
Total Hours	29

Prescribed Supporting Courses

Code	Title	Hours
CIS 125	Business Applications of Microcomputer Software	3 ¹
Select one option from the following:		8-10
Option I:		
MA 112	Pre-Calculus Algebra	
MA 121	Calculus for Business and Life Sciences I	
MA 122	Calculus for Business and Life Sciences II	
Option II:		
MA 112	Pre-Calculus Algebra	
MA 113	Pre-Calculus Trigonometry	
MA 125	Calculus I	
Option III:		
MA 115	Pre-Calculus Algebra and Trigonometry	
MA 125	Calculus I	
MA 345	Applied Statistics I	3
Select one from the following:		8-10
PH 241 & PH 242	General Physics I and General Physics II ²	
PH 251 & PH 252	Technical Physics I and Technical Physics II	
CH 311	Organic Chemistry	4
CH 311L	Organic Chemistry Laboratory	1
CH 312	Organic Chemistry	4
CH 312L	Organic Chemistry Laboratory	1
Total Hours		32-36

¹ Or higher level computer science and computer information system course.

² These courses are required in the major and minor if not completed as part of the General Education component.