

COLLEGE OF HEALTH AND NATURAL SCIENCE

Biology

Professors: Rhine Singleton, Jacques Veilleux

Associate Professor: Susan E. Arruda, Leila Jabbour

Assistant Professors: Thomas E. Bennett

A Bachelor of Arts and a Bachelor of Science degree are offered in Biology to traditional students.

A minor is offered in Biology.

The mission of the Biology Department is to develop students' breadth and depth of knowledge in the life sciences. We emphasize skill acquisition, including critical thinking, data analysis and interpretation, use of the primary literature, planning and execution of biological experiments and basic field/laboratory techniques. Students graduating from the Biology program will be able to communicate with biologists and non-biologists alike regarding current societal issues in the life sciences. Successful completion of the degree provides a solid foundation for specialized studies at the graduate level or a broad base of educational experience in preparation for career employment.

The Department of Biology offers a program of study leading to a Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) degree. The basic philosophy of the Department is that a sound undergraduate program should provide either a solid foundation for specialized studies at the graduate level or a broad base of educational experience in preparation for career employment. In keeping with this philosophy, course selection within the major is accorded sufficient flexibility to accomplish the objectives of students desiring to meet entrance requirements of graduate and professional schools, as well as those of students planning to end their formal studies with the Bachelor of Arts or Bachelor of Science Degree. The primary distinction between these two approaches is in the number and specificity of related courses in science and mathematics. In either case, the program provides students with the basic informational content of the life sciences and with the disciplined attitudes, methods, and experiences of biological investigation.

Students who intend to teach Biology in high school should refer to the School of Education for information on the Secondary Teacher Certification program.

Major Requirements

In addition to all graduation requirements, a minimum of 48 credits (Bachelor of Arts) or 56 credits (Bachelor of Science) in the major must be completed successfully.

All Biology majors take the following major requirements (29-30 credits):

BI101-102 Biology I and II (laboratory) (counts toward GLE core) 8 credits

BI211 Genetics (laboratory) 4 credits

BI319 Cellular Biology (laboratory) 4 credits or

BI325 Microbiology (laboratory) 4 credits

BI215 Biology and Health Sciences Seminar 3 credits

BI218 Ecology 4 credits or

BI241 Evolutionary Biology (laboratory) 4 credits

CH101 General Chemistry I (laboratory) 4 credits

CH102 General Chemistry II (laboratory) 4 credits

Two semesters of Math at the MT151 level or above 6-8 credits

(First semester counts as core requirement, second semester counts towards major)

BI460 Internship in Biology or

BI480 Senior Seminar in Biology/Health Sciences or

BI481 Invited Senior Research 3 credits

For the B.S. students must take the following additional 16 credits:

CH211-212 Organic Chemistry I and II (laboratory) 8 credits

PH101-102 General Physics I and II (laboratory) 8 credits

Note: Students wishing to complete the Secondary Teacher Certification should consult with a faculty advisor in the School of Education. These students may substitute ED487 Secondary Student Teaching Seminar (1 credit), and ED492 Secondary Student Teaching (14 credits), for Biology Seminar and Biology Thesis.

Biology Electives

In addition to the major requirements, students must choose Biology Electives from the Advising Guide. For the B.A. students must choose a total of six courses for a minimum of 20 credits; for the B.S. students must choose four courses for a minimum of 12 credits. For students interested in the field of Biotechnology, we recommend a minor in Chemistry.

Biology Major Advising Guide Course	General Electives	Ecology & Evolution Track
	B.A. or .B.S.	B.A. or .B.S.
BI319 Cellular Biology	x*	x*
BI217 Tropical Forest Ecology	x	x
BI218 Ecology	x	x
BI221 Entomology	x	x
BI231 Animal Behavior	x	x
BI235 Human Health and Nutrition	x	
BI241 Evolutionary Biology	x	x
BI250 Introduction to Plant Biology	x	x
BI260 Human Anatomy & Physiology I	x	
BI261 Human Anatomy & Physiology II	x	
BI312 Vertebrate Zoology	x	x
BI325 Microbiology	x*	x*
BI326 Parasitology	x	x
BI327 Principles of Immunology	x	
BI351 Endocrinology	x	
BI375 Mammalogy	x	x
BI400 Kinesiology	x	
BI402 Physiology of Exercise	x	
BI403 Assessment and Prescription of Fitness	x	
BI404 Strength and Conditioning	x	
BI430 Forest Ecology	x	x
ES320 Wetland Ecology and Protection	x	x
ES342 Wildlife Conservation and Management	x	x

PS304 Introduction to Neuroscience	x	
PS430 Introduction to Psychopharmacology	x	

Minor in Biology — Requirements

BI101-102 Biology I and II (laboratory) 8 credits

Two elective courses in Biology at the 200-level or above 6-8 credits

Two elective courses in Biology at the 300-level or above 6-8 credits

At least two of the four elective courses must be laboratory courses (4 credits or more).

Total 22-24 credits

Recommended Curriculum Guide – Bachelor of Arts - Biology

First Year					
<i>Fall Semester</i>		<i>Credits</i>	<i>Spring Semester</i>		<i>Credits</i>
BI101	Biology I (laboratory)	4	BI102	Biology II (laboratory)	4
CH101	General Chemistry I (laboratory)	4	CH102	General Chemistry II (laboratory)	4
GLE110	First-Year Composition	3	_____	GLE Elective	3
MT151 <u>or</u> MT260	College Algebra or Statistics	3	MT151 <u>or</u> MT260 <u>or</u> MT221	College Algebra or Statistics or Calculus I	3-4
GLE101	First-Year Inquiry Seminar	3			
	Total	17		Total	14
Second Year					
<i>Fall Semester</i>		<i>Credits</i>	<i>Spring Semester</i>		<i>Credits</i>
BI218 <u>or</u> BI211	Ecology (laboratory) <u>or</u> Genetics (laboratory)	4	BI211 <u>or</u> BI241	Genetics (laboratory) <u>or</u> Evolutionary Biology	4
BI215 <u>or</u> BI ____	Biology and Health Sciences Seminar <u>or</u> Biology Elective	3 or 4	BI215 <u>or</u> BI ____	Biology and Health Sciences Seminar <u>or</u> Biology Elective	3 or 4
_____	GLE Elective	3	GLE230	Second-Year Composition	3
_____	GLE Elective	3	_____	GLE Elective	3
_____	Elective	3	_____	Elective	3
	Total	16		Total	16
Third Year					
<i>Fall Semester</i>		<i>Credits</i>	<i>Spring Semester</i>		<i>Credits</i>

BI235 <u>or</u> BI319	Biology Elective <u>or</u> Cellular Biology (laboratory)	4	BI235 <u>or</u> BI319	Microbiology (laboratory) <u>or</u> Cellular Biology (laboratory)	4
_____	Biology Elective	4	_____	Biology Elective	4
_____	GLE Elective	3	_____	GLE Elective	3
_____	GLE Elective	3	_____	Elective*	3
_____	Elective*	3	_____	Elective	3
	Total	17		Total	17

Fourth Year

<i>Fall Semester</i>		<i>Credits</i>	<i>Spring Semester</i>		<i>Credits</i>
BI____	Internship in Biology/Health Sciences <u>or</u> Senior Seminar in Biology/Health Sciences <u>or</u> Invited Senior Research <u>or</u> Biology Elective	3-4	BI460 <u>or</u> BI480 <u>or</u> BI____	Internship in Biology/Health Sciences <u>or</u> Senior Seminar in Biology/Health Sciences <u>or</u> Invited Senior Research <u>or</u> Biology Elective	3-4
BI____	Biology Elective	4	BI____	Biology Elective	3
_____	Elective*	3	_____	Elective	3
_____	Elective	3	_____	Elective	3
	Total	13		Total	12
				Total Credits	122

Recommended Curriculum Guide – Bachelor of Science - Biology

First Year						
<i>Fall Semester</i>		<i>Credits</i>	<i>Spring Semester</i>			<i>Credits</i>
BI101	Biology I (laboratory)	4	BI102	Biology II (laboratory)	4	
CH101	General Chemistry I (laboratory)	4	CH102	General Chemistry II (laboratory)	4	
GLE110	First Year Composition	3	_____	GLE Elective	3	
MT151 <u>or</u> MT260	College Algebra <u>or</u> Statistics	3	MT151 <u>or</u> MT260 <u>or</u> MT221	College Algebra <u>or</u> Statistics <u>or</u> Calculus I	3 <u>or</u> 4	
GLE101	First Year Inquiry	3	_____	GLE Elective	3	

	Total	17		Total	17	
Second Year						
Fall Semester		Credits	Spring Semester			Credits
BI218 or BI211	Ecology or Genetics (laboratory)	3 or 4	BI215 or BI____	Genetics (laboratory) or Evolutionary Biology (laboratory)	3 or 4	
BI215 or BI____	Biology and Health Sciences Seminar or Biology Elective	3 or 4	BI215 or BI____	Biology and Health Sciences Seminar or Biology Elective	3 or 4	
CH211	Organic Chemistry I (laboratory)	4	BI____	Biology Elective	3	
_____	Biology elective	3	GLE230	Second-Year Composition	3	
	Total	13		Total	12	
Third Year						
Fall Semester		Credits	Spring Semester			Credits
BI319 or BI____	Cellular Biology or Biology Elective	4	BI235 or BI319	Microbiology (laboratory) or Cellular Biology (laboratory)	4	
PH101	General Physics I (laboratory)	4	PH102	General Physics II (laboratory)	4	
_____	GLE Elective	4	_____	GLE Elective	3	
_____	GLE Elective	3	_____	GLE Elective	3	
_____	Elective	3	_____	Elective	3	
	Total	18		Total	17	
Fourth Year						
Fall Semester		Credits	Spring Semester			Credits
BI460 or BI480 or BI____	Internship in Biology/ Health Sciences or Senior Seminar in Biology/ Health Sciences or	3 or 4	BI460 or BI480 or BI____	Internship in Biology/ Health Sciences or Senior Seminar in Biology/ Health Sciences or	3 or 4	

	Invited Senior Research or Biology Elective			Invited Senior Research or Biology Elective		
_____	GLE Elective	3	BI____	Biology Elective	3	
_____	Elective	3	_____	Elective	3	
_____	Elective	3	_____	Elective	3	
_____	Elective	3				
	Total	15		Total	12	
				Total Credits	121	

*One or more additional electives may be needed to fulfill general education requirements. See *General and Liberal Education (GLE)*.

Program Courses

Course Code	Course Name
BI101	Biology I
BI102	Biology II
BI211	Genetics Lab
BI215	Biology Hlth Sci Seminar
BI217	Tropical Forest Ecology
BI218	Ecology Laboratory
BI221	Entomology Laboratory
BI229	Special Topics in Biology
BI231	Animal Behavior Lab
BI235	Human Health & Nutrition
BI241	Evolutionary Biology Lab
BI250	Plant Biology Laboratory
BI260	Human Ana & Phys I Lab
BI261	Human Ana & Phys II Lab
BI299	Independent Study
BI302	Food Production
BI312	Vertebrate Zoology Lab
BI319	Cellular Biology
BI325	Microbiology Laboratory
BI326	Parasitology
BI327	Principles of Immunology
BI329	Special Topics in Biology
BI351	Endocrinology

Course Code	Course Name
BI353	Intro to Pharmacology
BI355	Ecophysiology Laboratory
BI370	Medical Terminology
BI375	Mammalogy Laboratory
BI399	Independent Study
BI400	Kinesiology - lab
BI402	Exercise Physiology lab
BI403	Assess Presript Fitness
BI404	Strength & Conditioning
BI429	Special Topics in Biology
BI430	Forest Ecology Laboratory
BI460	Internship in BI/ HS
BI480	Senior Seminar in Biology
BI481	Senior Thesis
BI499	Independent Study
CH101	General Chemistry I Lab
CH102	General Chemistry II Lab
ES320	Wetland Ecology & Protect
ES342	Wildlife Conserv & Mgmt
MT151	College Algebra
MT211	Discrete Mathematics
MT221	Calculus I
MT222	Calculus II
MT260	Statistics I
MT311	Linear Algebra
MT315	College Geometry
MT321	Calculus III
MT330	Intro to Differ Equations
MT373	Prob & Math Stats
MT375	Intro Operations Research
PS304	Intro to Neuroscience
PS430	Intro Psychopharmacology