

UNDERGRADUATE MAJOR: *B. S. Biology: General Biology Concentration*
2021/22

CREDITS REQUIRED IN MAJOR: 69

A grade of C- or higher is required for all courses for the major.

FOUNDATION/REQUIRED MAJOR COURSES

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES	OFFERED	Online
BIO 105	Biological Principles I: Cellular Biology	3	Grade of C or higher in any 100-level or higher MAT course, or appropriate placement test score.	Fall, Spring, Summer	
BIO 106	Biological Principles I Laboratory	1.5	BIO 105 with a minimum grade of C- or concurrent enrollment	Fall, Spring, Summer	
BIO 107	Biological Principles II: Evolution, Biodiversity, and Ecology	4.5	Grades of C- or higher in BIO 105 and BIO 106.	Fall, Spring	
BIO 109	Biological Principles III: Functional Biology	3	Grade of C- or higher in BIO 107.	Fall, Spring	
BIO 201	Genetics	3	Grade of C- or higher in BIO 105 or BIO 111, or permission of instructor.	Fall	
BIO 203	Ecology	3	Grade of C- or higher in BIO 107.	Spring	
BIO 217	Evolution	3	Grades of C- or higher in BIO 107 and BIO 201, or permission of instructor.	Spring	

SELECT One lecture/laboratory combination from each of the following three areas (9-12 credits):

AREA 1: Organismal Biology

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES	OFFERED	Online
BIO 231	Botany	4.5	Grade of C- or higher in BIO 107 or permission of instructor.	Fall (even years)	
BIO 291	Ornithology	4.5	Grade of C- or higher in BIO 107 or permission of instructor.	Summer (odd years)	

BIO 309	Comparative Vertebrate Anatomy	4.5	Grade of C- or higher in BIO 109 or BIO 223.	Spring (even years)	
BIO 335	Entomology	3	Grade of C- or higher in BIO 107.	Fall (odd years)	
BIO 351	Invertebrate Zoology	5	Grade of C- or higher in BIO 107.	Fall (odd years)	
BIO 353	Vertebrate Zoology	5	Grade of C- or higher in BIO 109.	Spring (variable)	
BIO 361	Parasitology	2	Grade of C- or higher in BIO 107.	Spring (variable)	
BIO 362	Parasitology Laboratory	2	BIO 361 or concurrently.	Spring (variable)	
BIO 405	Animal Behavior	3	Grade of C- or higher in BIO 107 or BIO 113, or permission of instructor.	Spring (variable)	
BIO 406	Animal Behavior Laboratory	2	Grade of C- or higher or concurrent enrollment in BIO 405.	Spring (variable)	

AREA 2: Ecology

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES	OFFERED	Online
BIO 337	Marine Ecology	5	Grade of C- or higher in BIO 203 or ESP 125.	Fall (even years)	
BIO 383	Plant Ecology	5	Grade of C- or higher in BIO 203 or ESP 125.	Fall (odd years)	
BIO 415	Microbial Ecology	3	Grade of C- or higher in BIO 203 or ESP 125, and BIO 311 or equivalent, or permission of instructor.	Spring (odd years)	
BIO 416	Microbial Ecology Laboratory	2	Grade of C- or higher in BIO 415 (or equivalent) or concurrent enrollment, or permission of instructor.	Spring (odd years)	

ESP303	Wetlands Ecology	3	ESP 125 or BIO 203, and one semester of chemistry lecture/lab, or permission of instructor.	Spring (even years)	
ESP304	Wetlands Ecology Laboratory	2	Prior or concurrent registration in ESP304.	Spring (even years)	
ESP 341	Limnology	4	ESP 125 or BIO 203, and one semester of chemistry lecture/lab, or permission of instructor.	Fall (odd years)	
ESP 412	Field System Ecology	4	ESP 125/126 or BIO203, or permission of instructor.	Fall (even years)	

AREA 3: Cellular and Functional Biology

COURSE NUMBER	COURSE NAME	CREDIT S	PREREQUISITES	OFFERE D	Online
BIO 305	Developmental Biology	3	Grade of C- or higher in BIO 107	Fall	
BIO 306	Developmental Biology Laboratory	2	Prior or concurrent registration in BIO 305.	Fall	
BIO 311	Microbiology	3	CHY 115 and grade of C- or higher in BIO 107 or BIO 113; or permission of instructor.	Spring	
BIO 282	Microbiology Laboratory	2	Grade of C- or higher or concurrent enrollment in BIO 281 or BIO 311; or permission of instructor.	Spring	
BIO 321	Neurobiology	3	Grade of C- or higher in BIO 109, BIO 111, or BIO 221, or permission of instructor.	Fall	
BIO 322	Neurobiology Laboratory	2	Prior or concurrent registration in BIO 321.	Fall	
BIO 401	Animal Physiology	3	CHY 115, either PHY 111 or PHY 121, and grade of C- or higher in either BIO 107 or BIO 113; or permission of instructor.	Spring (variable)	

BIO 402	Animal Physiology Laboratory	2	BIO 401 or concurrently; MAT 220.	Spring (variable)	
BIO 409	Cell and Molecular Biology	3	CHY 115 and either grade of C- or higher in BIO 201 or concurrent enrollment in BIO 201.	Spring	
BIO 410	Cell and Molecular Biology Laboratory	2	BIO 409 or concurrently.	Spring	
BIO 431	Immunology	3	CHY 107 or CHY 115, junior standing, and grade of C- or higher in either BIO 107 or BIO 113; or permission of instructor.	Fall	
BIO 432	Immunology Laboratory	2	Grade of C- or higher or concurrent enrollment in BIO 431, or permission of the instructor.	Fall	

NON-MAJOR REQUIREMENTS: 32 CREDITS

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES	OFFERED	Online
CHY 113	Principles of Chemistry I	3	Pre- or co-requisite: MAT 108 (or concurrent) or MAT 140 (placement or concurrent) or MAT 152 (placement or concurrent) or permission.	Fall, Spring	
CHY 114	Laboratory Techniques I	1.5	CHY 113 (or concurrent)	Fall, Spring	
CHY 115	Principles of Chemistry II	3	Grade of C or better in CHY 113	Spring, Summer	
CHY 116	Laboratory Techniques II	1.5	Grade of C or better in CHY 114; CHY 115 (or concurrent)	Spring, Summer	
CHY 251	Organic Chemistry I	3	Grade of C or better in CHY 115	Fall, Summer	
CHY 252	Organic Chemistry Laboratory	2	Grade of C or better in CHY 116; CHY 251 (or concurrent)	Fall, Summer	
MAT 152	Calculus A	4	MAT 140 or appropriate placement test score.	Fall, Spring, Summer	Yes

MAT 220	Statistics for the Biological Sciences	4	MAT 152	Fall, Spring, Summer	Yes
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SELECT One of the following two sequences:

Sequence 1:

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES	OFFERED	Online
PHY 111	Elements of Physics I	4	Grade of C or higher, or concurrent enrollment in MAT 108 or MAT 140 or MAT 152, or permission of instructor.	Fall, Summer	
PHY 114	Introductory Physics Laboratory I	1	Co-requisite: PHY 111 or PHY 121	Fall, Summer	
PHY 112	Elements of Physics II	4	PHY 111 or equivalent. Co-requisite: PHY 116.	Spring, Summer	
PHY 116	Elements of Physics II Laboratory	1	Co-requisite: PHY 112 or 123.	Spring, Summer	

Sequence 2:

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES	OFFERED	Online
PHY 121	General Physics I	4	Prior completion of MAT 152 (highly recommended) or concurrent registration in MAT 152, or equivalent.	Fall, Spring, Summer	
PHY 114	Introductory Physics Laboratory I	1	Co-requisite: PHY 111 or PHY 121	Fall, Spring, Summer	
PHY 123	General Physics II	4	PHY 121 or equivalent and one semester of calculus	Fall, Spring, Summer	
PHY 116	Introductory Physics Laboratory II	1	Co-requisite: PHY 112 or PHY 123	Fall, Spring, Summer	

MAJOR ELECTIVES: 4-6 CREDITS

In addition to BIO 105, 106, 107, 109, 201, 203, 217, and one lecture/laboratory course from each of the three stipulated areas, biology majors are required to take either two additional biology lecture courses or one biology lecture/laboratory course, with prefix numbers of 200 or above.

CAPSTONE: 2-3 CREDITS

Students must fulfill the University Core curriculum requirements, including a Capstone course in the biology major (course varies by term).

MAJOR COURSES OVERLAPPING IN THE CORE:

CORE AREA	COURSE NUMBER	COURSE NAME	REQUIRED BY MAJOR?
SE	BIO 107	Biological Principles II: Evolution, Biodiversity, Ecology	Yes
QR	MAT 152	Calculus A	Yes
SE	PHY 121	General Physics I	Must select either PHY 121 or PHY 111
SE	PHY 111	Elements of Physics	Must select either PHY 121 or PHY 111
SE	PHY 114	Introductory Physics Laboratory I	Yes (co-requisite with PHY 121 or PHY 111)
SE	CHY 113 CHY 114	Principles of Chemistry I Laboratory Techniques I	Yes
EL	BIO 441	Problems in Biology	No
EL	BIO 442	Honors Thesis in Biology	No
EL	BIO 443	Internship	No
EL	CHY 113	Principles of Chemistry I	Yes
EL	CHY 252	Organic Chemistry Lab I	Yes
CAP	BIO ____	Varies	Yes (see biology department)

CORE CURRICULUM CODES

WRI 1 – Writing, Reading, & Inquiry 1 (ENG 100)

WRI 2 – Writing, Reading, & Inquiry 2 (ENG 102)

WRI 3 – Writing, Reading, & Inquiry 3 (SOC 210)

QR – Quantitative Reasoning

CE – Creative Expression

SCA – Socio-cultural Analysis

CI – Cultural Interpretation

SE – Science Exploration

EISRC – Ethical Inquiry, Social Responsibility, & Citizenship

DIV – Diversity

INT – International

EL – Engaged Learning

CAP – Capstone