

## ACADEMIC ROADMAP

BS in Biology

Spring 2026

### Freshman Year (30 credits)

#### FIRST SEMESTER

Course Title	Catalog Number	Prerequisite(s)
College Writing I	CWP 101	
Foundations of Biology	BIO 111 ("C" or better)	
Functions & Modeling	MAT 114 ("C" or better)	
GE23	recommended CHE100 or other GE23 Nat Sci	
GE23	recommended COM 100 or a course toward a minor or certificate	

#### SECOND SEMESTER

Course Title	Catalog Number	Prerequisite(s)
Argumentation and Research	CWP 102	CWP 101
200-level Bio Major's Course	BIO211 or BIO213	BIO 111 ("C" or better)
Fundamentals of Chemistry I	CHE 111 + CHE 113 (lab)	MAT 114 ("C" or better)
Biology Seminar	BIO361 (1 cr)	
GE23	recommended EXE100 or a course toward a minor or certificate	

### Notes and recommendations:

Attend at least one faculty office hour, visit Academic Excellence Center (math, writing, and general tutoring), and view degree audit sheet in Degree Works this year.

Adding a Minor or Certificate does not require extra time or coursework beyond the 120 credits required to graduate. Elective credits are focused in an area of interest helping define student strengths, allowing in-depth learning and contributing more credits of upper division coursework. Common minors and certificates for students in the Biology BA include Anthropology, Technical Writing, Chemistry, Geology, Environmental Science & Society, and Psychology. Students also minor in Africana Studies, Astronomy, Design, Philosophy, Spanish and other fields.

**Sophomore Year (60 credits)**

## THIRD SEMESTER

Course Title	Catalog Number	Prerequisite(s)
200-level Bio Major's Course	BIO 211 or BIO 213	BIO 111 ("C" or better)
Fundamentals of Chemistry II	CHE 112 + CHE 114 (lab)	CHE 111/113
BIO 361	Biology Seminar (1 cr)	
GE 23	Recommended PSY 101 or a course toward a minor or certificate	
All College Elective or course in the minor		

## FOURTH SEMESTER

Course Title	Catalog Number	Prerequisite(s)
Required course toward the BS in Biology (3-4 cr)	BIO303 Genetics (Fall)	BIO 111 ("C" or better), 211 & 213, CHE 111/113, CHE 112/114
Select one	BIO314 Advanced Cell Biology (Spring)	BIO 111 ("C" or better), 211, 213 & CHE 111/113, CHE 112/114, CHE 201
	BIO316 Microbiology (Spring)	BIO 111 ("C" or better), 211 & 213, CHE 111/113
	BIO440 Applic in Biotechnology (Fall)	BIO 111("C" or better), 211, 213, CHE 111/113, CHE 112/114
Organic Chem I with lab (4 cr)	CHE201/203	CHE112
GE 23 (3 cr)	Recommended PHI 111 or a course toward a minor or certificate	
All College Elective or course in the minor (3-4 cr)		
Project, Research, Internship or seminar (flexible credit options to bring to 15 credits)	BIO488 Internship, BIO495 Independent Project, BIO498 Honors Research, BIO499 Independent Study, BIO361 Seminar	

**Notes and recommendations:**

If students haven't selected a minor or certificate program in Year 1, they should consider doing so in Year 2.

Consult Degree Works or seek advisement to select upper division courses appropriate for Biology majors. Some but not all 300 level courses with BIO prefix count toward the major.

Information about projects, research and internships obtained through advisement, or by visiting the Biology Department Office SAMC166 (716 878 5203)

A few upper division biology courses list CHE201/202 as prerequisites.

**Junior Year (90 credits)**

## FIFTH SEMESTER

Course Title	Catalog Number	Prerequisite(s)
Required course toward the BS in Biology (3-4 cr)	BIO303 Genetics (Fall)	BIO 111 ("C" or better), 211 & 213, CHE 111/113, CHE 112/114
Select one	BIO314 Advanced Cell Biology (Spring)	BIO 111 ("C" or better), 211, 213 & CHE 111/113, CHE 112/114, CHE 201
	BIO316 Microbiology (Spring)	BIO 111 ("C" or better), 211 & 213, CHE 111/113
	BIO440 Applic in Biotechnology (Fall)	BIO 111("C" or better), 211, 213, CHE 111/113, CHE 112/114
Required Bio Course (4 cr)	BIO 333 (fall only)	BIO111 and BIO211 and BIO213
GE23	Selected through advisement	
Organic Chem II with lab (4 cr)	CHE202/204	CHE 201
Project, Research, Internship (flexible credit options to bring to 15 credits)	BIO488 Internship, BIO495 Independent Project, BIO498 Honors Research, BIO499 Independent Study, BIO361 Seminar	

## SIXTH SEMESTER

Course Title	Catalog Number	Prerequisite(s)
Required course toward the BS in Biology (3-4 cr)	BIO303 Genetics (Fall)	BIO 111 ("C" or better), 211 & 213, CHE 111/113, CHE 112/114
Select one	BIO314 Advanced Cell Biology (Spring)	BIO 111 ("C" or better), 211, 213 & CHE 111/113, CHE 112/114, CHE 201
	BIO316 Microbiology (Spring)	BIO 111 ("C" or better), 211 & 213, CHE 111/113
	BIO440 Applic in Biotechnology (Fall)	BIO 111("C" or better), 211, 213, CHE 111/113, CHE 112/114
Statistics (3-4 cr)	BIO300 or MAT311	Upper Div Bio Status or MAT114
Biology Elective (3-4 cr)	BIO for majors at 300- 400- level	Upper Div Bio Status
All college elective or course in the minor (3-4 cr)		
Physics I (required for BS) (4 cr)	Physics 107	

**Notes and recommendations:**

\*Consult Degree Works or seek advisement to select upper division courses appropriate for Biology majors and for which prerequisite courses are in place. Many 300 level BIO courses can be used as Biology electives, but not all. All 400 level Bio courses can be used as Biology electives. Some require chemistry prerequisites (CHE111/113, CHE112/114, or CHE201) in addition to the requirement for BIO111 and BIO211 and BIO213.

Information about projects, research and internships obtained through advisement, or by visiting the Biology Department Office SAMC166 (716 878 5203)

To meet the requirement for 45 upper division credits, 5 of the courses designated GE 23, all college electives or courses within a Minor, must be upper division (300-400 level).

Visit the Career & Professional Education Center (<https://cape.buffalostate.edu/>) to discuss appropriate career options.

**Senior Year (120 credits)**

## SEVENTH SEMESTER

Course Title	Catalog Number	Prerequisite(s)
Required course toward the BS in Biology (3-4 cr)	BIO303 Genetics (Fall)	BIO 111 ("C" or better), 211 & 213, CHE 111/113, CHE 112/114
Select one	BIO314 Advanced Cell Biology (Spring)	BIO 111 ("C" or better), 211, 213 & CHE 111/113, CHE 112/114, CHE 201
	BIO316 Microbiology (Spring)	BIO 111 ("C" or better), 211 & 213, CHE 111/113
	BIO440 Applic in Biotechnology (Fall)	BIO 111("C" or better), 211, 213, CHE 111/113, CHE 112/114
BIO BS Elective Category (3-4 cr)	BIO301 Cell Physiology	BIO211, BIO213, CHE111/113 and CHE112/114
Select one	BIO305 Molecular Biology	BIO 211, BIO 213, CHE 111/113, CHE112/114 and CHE 201
	BIO425 Cancer Biology CHE 470 Biochemistry	BIO 211, BIO 213, CHE 112/114 CHE 202
Physics II (required for BS) (4 cr)	Physics 108	Physics 107
Upper division course in minor or elective category		
Project, Research, Internship (flexible credit options to bring to 15 credits)		

## EIGHTH SEMESTER

Course Title	Catalog Number	Prerequisite(s)
BIO BS Elective Category (3-4 cr)	BIO301 Cell Physiology	BIO211, BIO213, CHE111/113 and CHE112/114
Select one	BIO305 Molecular Biology	BIO 211, BIO 213, CHE 111/113, CHE112/114 and CHE 201
	BIO425 Cancer Biology CHE 470 Biochemistry	BIO 211, BIO 213, CHE 112/114 CHE 202
GE23 (3 cr)		
GE23 (3 cr)		
Upper division course in minor or elective category (3-4 cr)		
Project, Research, Internship (flexible credit options to bring to 15 credits)		

**Notes and recommendations:**

Information about projects, research and internships obtained through advisement, or by visiting the Biology Department Office SAMC166 (716 878 5203)

To meet the requirement for 45 upper division credits, 5 of the courses designated GE 23, all college electives or courses within a Minor, must be upper division (300-400 level).

Apply for graduation; apply to graduate school, if applicable; visit the Career & Professional Education Center (<https://cape.buffalostate.edu/>) to have your resume reviewed.