BS in Biological Sciences
Professional Biology Concentration
(Effective Fall 2025)

DSU It All Matters.

Freshman Fall Semester				Freshman Spring Semester			
Course	Course Name	Cr	Grade	Course	Course Name	Cr	Grade
BIOL-101	General Biology I	4		BIOL-102	General Biology II	4	
CHEM-101	General Chemistry I	4		CHEM-102	General Chemistry II	4	
ENGL-101	**English Comp I**	3		**ENGL 102**	**English Comp II**	3	
SCCJ XXX	**Social Science**	2		**MTSC-122**	**Trigonometry**	3	
UNIV-191	**University Seminar I**	1		**ARTxxx**	**Arts & Humanities**	3	
	Total Credits	15			Total Credits	17	
Sophomore Fall Semester				**Sophomore Spring Semester**			
Course	Course Name	Cr	Grade	Course	Course Name	Cr	Grade
BIOL-215	Cell Biology	4		BIOL-210	Genetics*	4	
CHEM-210	Organic Chemistry I	4		CHEM-211	Organic Chemistry II	4	
MTSC-251	Calculus I	4			**Literature#**	3	
UNIV-291	**Braven**	3		**PSYC XXX**	Psychology	3	
				BIOL XXX	Biology seminar	1	
	Total Credits	15			Total Credits	15	
	Summer Research / Clinical Experience						
Junior Fall Semester				**Junior Spring Semester**			
Course	Course Name	Cr	Grade	Course	Course Name	Cr	Grade
BIOL-310	Molecular Biology*	4		CHEM-403	Biochemistry **OR**	--	
BIOL XXX	Systems Biology Elective	4		BIOL-422	Biochemical Mechanisms	4	
PHYS-211	Fundamentals of Physics I	4		PHYS-212	Fundamentals of Physics II	4	
BIOL-321	Biostatistics	3		BIOL-xxx	Research Biology Elective	4	
				BIOL-301	Capstone I (research/internship)**	2	
	Total Credits	15			Total Credits	14	
	Summer Research / Clinical Experience						
Senior Fall Semester				**Senior Spring Semester**			
Course	Course Name	Cr	Grade	Course	Course Name	Cr	Grade
GLOB 395	**Global Societies**	3		**PHIL-xxx**	**Philosophy course (Humanities)**	3	
BIOL-xxx	Biology Elective	4		BIOL-xxx	Biology Elective	4	
BIOL-xxx	Biology Elective	4		XXX-XXX	Open Elective	4	
HIST-xxx	**History#**	3		BIOL-499	Senior Seminar (**Capstone** II)$	1	
KINE-212	Medical Terminology	3				1	
	Total Credits	17			Total Credits	12	

Total Credits: 120

** Pre-requisite (not co-requisite) for BIOL 499.

One of these courses must be used to meet the African American Experience requirement and at least one of the others must meet the Multicultural Experience requirement

$ Registration for BIOL 499 requires approval of Chair of the Undergraduate Academics Committee, Department Chair, and Instructor.

General Note: The minimum University requirement for graduation is 120 hours; in Biology you will usually complete between 121-125 hours depending on selections.

SPECIAL NOTES: For all programs and concentrations in the Department of Biological Sciences, a grade of "C" or better is required for all courses.

Revised Fall 2023

REQUIREMENTS: Students must take each of the five biology core courses (101, 102, 215, 210 and 310) in order and earn a "C" or higher before progressing to 300 or 400 level Biology courses.

BIOLOGY SEMINAR: Seminars grant students the opportunity to apply their knowledge in biology to a specific, applied setting. All Biology majors must complete one seminar course as part of their curricula. The approved courses include, but are not limited to:

BIOL 194 Introduction to Biology Professions
BIOL 196 Interdisciplinary Science Seminar
BIOL 297 Frontiers in Neuroscience
BIOL 298 History of Biology
BIOL 299 Applied Scientific Writing
BIOL 399 Professional Scientific Writing

SYSTEMS BIOLOGY ELECTIVE: Students may fulfil this requirement with:

BIOL 200 Invertebrate Zoology
BIOL 302 Comparative Vertebrate Anatomy
BIOL 303 Developmental Biology
BIOL 307 Principles of Physiology
BIOL 370 Human Anatomy

BIOL 207 and BIOL 208, together, may be used as a substitute for either BIOL 307 or BIOL 370.

RESEARCH BIOLOGY ELECTIVE: Students may fulfil this requirement with:

BIOL 311 Advanced Neuroscience
BIOL 322 Microbiology
BIOL 352 Histology
BIOL 410 Advanced Molecular Biology
BIOL 415 Advanced Cell Biology
BIOL 421 Microbial Physiology and Ecology
BIOL 470 Biotechnological Techniques

BIOLOGY ELECTIVES: In addition to the aforementioned **Systems Biology Elective** and **Research Biology Elective**, students must earn a minimum of sixteen (12) credits of Biology courses from the course elective list below. These are the only ones that can satisfy the Biology elective requirement for this concentration. Substitutions may be requested, under special circumstances, but require written approval of advisor and Chair in advance. Students may substitute **one biology elective** with a STEM elective from another department (e.g. CHEM, AGNR, PSYCH, PUBH). Intro courses, or Survey courses, are not considered electives. Nursing courses may not serve as substitutes for Biology electives.

Approved Biology electives

BIOL 211 Principles of Neuroscience
BIOL 302 Comparative Vertebrate Anatomy
BIOL 311 Advanced Neuroscience
BIOL 315 Behavior
BIOL 316 Physiology of Reproduction and Development
BIOL 317 Principles of Virology
BIOL 322 Microbiology*
BIOL 325 Medical Microbiology
BIOL 348 Health Disparities in America
BIOL 349 Biology in the Media
BIOL 352 Histology *
BIOL 375 Molecular Genetics and Genomics
BIOL 407 Biology of Cancer
BIOl 408 Pathophysiology
BIOL 410 Advanced Molecular Biology*
BIOL 411 Pharmacology
BIOL 415 Advanced Cell Biology*
BIOL 420 Immunology
BIOL 421 Microbial Physiology and Ecology*
BIOL 442 Biology of Aging
BIOL 464 Toxicology
BIOL 470 Biotechnological Techniques*

*May be an acceptable substitute for Capstone 1, with instructor approval and completion of a research-based project within the course.

Open electives: Any department outside of Biology, although a list of recommended/approved Open electives is below. Must be a 300-level or higher, or 200 level with permission of the Department Chair. **Introductory, Survey, and / or Fundamentals courses do not serve as open electives. Non-STEM majors courses (e.g. BIOL 103, 107, 111) will not fulfil the biology elective or open elective requirement.**

Approved Open Electives

CHEM 203 Water Chemistry
CHEM 306 Instrumental Analysis
CHEM 310 Environmental Chemistry
PUBH 215 Introduction to Epidemiology
PUBH 234 Global Health
PUBH 236 Substance Use and Abuse
PUBH 330 Introduction to Chronic Diseases
PUBH 339 Human Sexuality
PUBH 349 Health Disparities
PUBH 402 Environmental Health
PSYC 208 Health Psychology
PSYC 300 Neuropsychology
PSYC 316 Developmental Psychology
PSYC 402 Abnormal Psychology
KINE 302 Fundamentals of Kinesiology
KINE 319 Biomechanics
NTRS 261 Aquaculture
NTRS 309 Aquatic Ecology
NTRS 311 Mammalogy
NTRS 312 Ornithology
NTRS 313 Limnology
NTRS 314 Ichthyology

Senior Capstone: All biology majors on the **General Biology concentration** must complete Capstone 1 (either BIOL 301 or BIOL 451) and Capstone 2 (BIOL 499). All Biology majors on the **Professional Biology concentration** must complete Capstone 1 (BIOL 301); which entails completion of a research-based or approved experiential learning internship, and Capstone 2 (BIOL 499). No waivers or substitutions. BIOL 454 (Comprehensive Capstone) is for students who are graduating over the summer and need both Capstone 1 and Capstone 2. Capstone 1 and 2 may not be taken concurrently.