



Bachelor of Science in Natural Sciences

Major: Biochemistry

2019-2020 Sample 4-Year Plan

Total Degree Requirements: 120 credits

Student _____ Student ID# _____ Student Phone # _____

Advisor _____ Minimum GPA 2.0 Minor/Career Interest(s) _____

Students are not limited to this plan; it is meant to be used as a guide for planning purposes in consultation with your advisor. The sample schedule is one possible path to completing your degree within four years. For official program requirements, please refer to the [Undergraduate Catalog](#).

First Year

Fall

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 119	First Year Seminar		1	F	
CHEM 112/112L	General Chemistry I and Lab (SGR #6)	p. MATH 114 or higher	4	F, S, SU	
BIOL 151/151L	General Biology I and Lab (SGR #6)		4	F, S	
ENGL 101	Composition I (SGR #1)	Based on Placement	3	F, S, SU	
MATH 123	Calculus I (SGR #5)	Based on Placement	4	F, S, SU	
Total Credit Hours			16		

Spring

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 114/114L	General Chemistry II and Lab	p. CHEM 112/112L and MATH 114	4	F, S, SU	
MATH 125	Calculus II (SGR #5)	p. MATH 123	4	F, S, SU	
BIOL 153/153L	General Biology II and Lab	p. BIOL 151/151L	4	F, S	
AHSS 111	Intro to Global Citizenship and Diversity		3	F, S	
Total Credit Hours			15		

Second Year

Fall

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 326/326L	Organic Chemistry I and Lab	p. CHEM 114/114L	4	F	
CHEM 237	Intermediate Lab Investigations		1	F	
ENGL 201	Composition II (SGR #1)	p. ENGL 101	3	F, S, SU	
SGR #4	Arts and Humanities/Diversity	SGR #4 satisfied by coursework from 2 different disciplines or 2 courses from one modern language sequence	3		
Advanced Biology Elective		Choose from the list below	3		
Total Credit Hours			14		

Spring

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 328/328L	Organic Chemistry II and Lab	p. CHEM 326/326L	4	S	
CHEM 237	Intermediate Lab Investigations	c. CHEM 326/326L	2	S	
SGR #3	Social Science Elective (from two different disciplines)	SGR #3 satisfied by course from 2 different disciplines	3		
SPCM 101	Fundamentals of Speech (SGR #2)		3	F, S, SU	
STAT 381	Introduction to Probability and Statistics	p. MATH 125	3	F, S, SU	
Total Credit Hours			15		

Information Subject to Change. This is not a contract.

p. = Course Prerequisite
Semester: F = Fall, S = Spring, SU = Summer



Third Year

Fall

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 360	Chemistry of Biological Macromolecules	p. CHEM 328/328L	3	F	
PHYS 211/211L	University Physics I and Lab	p. MATH 123	4	F, S	
Minor/2 nd Major Course			3		
SGR #4	Arts and Humanities/Diversity	SGR #4 satisfied by coursework from 2 different disciplines or 2 courses from one modern language sequence	3		
Advanced Biology Elective		Choose from list below	3		
Total Credit Hours			16		

Spring

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 361	Chemistry of Biological Macromolecules Laboratory	p. CHEM 328L and CHEM 360	1	S	
CHEM 465	Biochemistry II	p. CHEM 464 or CHEM 360	3	S	
CHEM 498	Undergraduate Research/Scholarship		3	S	
PHYS 213/213L	University Physics II and Lab	p. PHYS 211/211L	4	F, S	
Advanced Biology Elective		Choose from list below	3		
Advanced Chemistry Elective		Choose from list below	3		
Total Credit Hours			17		

Fourth Year

Fall

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 448/448L	Biophysical Chemistry and Lab	p. MATH 125 and CHEM 360 or CHEM 464	4	F	
Advanced Chemistry Elective		Choose from list below	3		
Minor/2 nd Major Course			6		
Total Credit Hours			13		

Spring

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
Advanced Chemistry Elective		Choose from list below	3		
Minor/2 nd Major Course			9		
SGR #3	Social Science Elective (from two different disciplines)	SGR #3 satisfied by course from 2 different disciplines	3		
Total Credit Hours			15		

Comments/Notes

Students from all academic majors can pursue graduation with Fishback Honors College distinction. View the [Honors program requirements](#).

Advanced Chemistry Electives (9 credits)

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 329	Organic Chemistry III	p. CHEM 229 or CHEM 328	2	S (even)	
CHEM 329L	Organic Chemistry Lab III	p. CHEM 229L or 328L	2	S (even)	
CHEM 332/332L	Analytical Chemistry I and Lab	p. CHEM 114 or CHEM 116 or CHEM 127	4	F	
CHEM 432	Analytical Chemistry II	p. CHEM 332/332L	2	S (odd)	

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p. = Course Prerequisite
Semester: F = Fall, S = Spring, SU = Summer



Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 433	Bioanalytical Chemistry	p. CHEM 332/332L and CHEM 464	2	S (even)	
CHEM 452/452L	Inorganic Chemistry and Lab	p. CHEM 326 or CHEM 332 or CHEM 352 or CHEM 442	4	F (even)	
CHEM 482	Environmental Chemistry	p. CHEM 114 or CHEM 127 or CHEM 326	3	F (odd)	
CHEM 484	Chemical Toxicology	p. CHEM 360 of CHEM 464	3	F (even)	

Advanced Biology Electives (9 credits)

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
BIOL 325/325L	Physiology and Lab	p. (BIOL 151-151L or BIOL 153-153L or BIOL 221-221L) and (CHEM 106-106L or CHEM 112-112L)	4		
BIOL 371	Genetics	p. BIOL 101-101L or BIOL 151-151L.	3		
BIOL 373	Evolution	p. BIOL 151-151L or BIOL 153-153L	3		
BIOL 383	Bioethics		4		
BIOL 466	Environmental Toxicology and Contaminants	p. BIOL 151-151L or BIOL 153-153L	3		
BIOL 470	Cancer Biology	p. BIOL 202 or BIOL 204 or BIOL 371 or BIOL 446 or instructor consent	3		
BIOL 483	Developmental Biology	p. (BIOL 151-151L and BIOL 153-153L) or BIOL 371 or BIOL 471	3		
BOT 327/327L	Plant Physiology and Lab	p. BIOL 101 and BIOL 103; or BIOL 151 and BIOL 153; or BOT 201 and BIOL 101; or BOT 201 and BIOL 151	4		
MICR 231/231L	General Microbiology and Lab	p. CHEM 106 or 112	4		
MICR 332	Microbial Physiology	p. MICR 231/231L or MICR 233/233L	2		
MICR 332L	Microbial Physiology Lab		2		
MICR 424	Medical and Veterinary Virology	p. AS 332 or BIOL 204	3		
MICR 438L	Techniques in Molecular Biology Lab	p. MICR 448 or Co-Requisite	2		
MICR 439	Medical and Veterinary Immunology	p. MICR 231 and BIOL 204	3		
MICR 448	Molecular and Microbial Genetics	p. BIOL 204 or BIOL 371	4		
MICR 450	Applied Microbiology and Biotechnology	p. MICR 231/231L or MICR 233/233L	3		
STAT 435	Applied Bioinformatics		3		

As part of the Department of Chemistry and Biochemistry, students in this program must complete:

- a minimum of 33 upper division credits (300-400 level courses)
- a capstone course in the major (CHEM 498)
- a designated diversity, equity, and inclusion course – AHSS 111 (or AIS 211 for teaching specialization students only)
- minor, second major, or teaching specialization

A grade of “C” or better is required in all courses required for the major.