



**Bachelor of Science  
Major: Biochemistry  
2021-2022 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	p. MATH 114	4	F	
BIOL 151/151L	General Biology I and Lab		4	F	
ENGL 101	Composition I		3	F, S, SU	
MATH 123	Calculus I	Based on Placement	4	F, S, SU	
<b>Total Credit Hours</b>			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	S	
MATH 125	Calculus II	p. MATH 123	4	F, S, SU	
BIOL 153/153L	General Biology II and Lab (Recommended)	p. BIOL 151/151L	4	S	
AHSS 111	Intro to Global Citizenship and Diversity		3	F, S	
<b>Total Credit Hours</b>			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	p. CHEM 114/114L	1	F	
ENGL 201	Composition II	p. ENGL 101	3	F, S, SU	
SGR #4	Humanities Elective (from two different disciplines)		3		
Advanced Biological Science Elective (choose from list below)			3		
Minor/2 <sup>nd</sup> Major Course			2		
<b>Total Credit Hours</b>			16		

**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 498	Undergraduate Research/Scholarship (need 4 credits total over a minimum of two semesters for graduation)	p. CHEM 237	1-3	S, F, SU	
CMST 101	Fundamentals of Speech		3	F, S, SU	
SGR #3	Social Science Elective (from two different disciplines)		3		
STAT 381	Introduction to Probability and Statistics	p. MATH 125	3	F, S, SU	

**Information Subject to Change. This is not a contract.**

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



Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
<b>Total Credit Hours</b>			14-16		

**Third Year**

**Fall**

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 464	Biochemistry I	p. CHEM 328/328L	3	F, S	
PHYS 211/211L	University Physics I and Lab	p. MATH 123	4	F, S	
Minor/2 <sup>nd</sup> Major Course			3		
SGR #4	Humanities Elective (from two different disciplines)		3		
Advanced Biological Science Elective (choose from list below)			3		
<b>Total Credit Hours</b>			16		

**Spring**

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 466	Laboratory Methods – Biochemistry	p. CHEM 464	1	F, S	
CHEM 465	Biochemistry II	p. CHEM 464	3	S	
CHEM 498	Undergraduate Research/Scholarship (need 4 credits total over a minimum of two semesters for graduation)	p. CHEM 237	1-3	F, S, SU	
PHYS 213/213L	University Physics II and Lab	p. PHYS 211/211L c. MATH 125	4	F, S	
Advanced Biological Science Electives (choose from list below)			3		
Advanced Chemistry Elective (choose from list below)			3		
<b>Total Credit Hours</b>			15-17		

**Fourth Year**

**Fall**

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 448/448L	Biophysical Chemistry and Lab	p. MATH 125 and CHEM 464	4	F	
Advanced Chemistry Elective (choose from list below)			3		
Minor/2 <sup>nd</sup> Major Course			3		
Minor/2 <sup>nd</sup> Major Course			3		
<b>Total Credit Hours</b>			13		

**Spring**

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 490	Senior Seminar	p. CHEM 498	1	F, S	
Advanced Chemistry Elective (choose from list below)			3		
Minor/2 <sup>nd</sup> Major Course			3		
Minor/2 <sup>nd</sup> Major Course			4		
SGR #3	Social Science Elective (from two different disciplines)		3		
<b>Total Credit Hours</b>			14		

Information Subject to Change. This is not a contract.

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



**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 328	2	S (even)	
CHEM 329L	Organic Chemistry Lab III	p. CHEM 328L	2	S (even)	
CHEM 332/332L	Analytical Chemistry I and Lab	p. CHEM 114/114L	4	F	
CHEM 432	Analytical Chemistry II	p. CHEM 332/332L	2	S (odd)	
CHEM 433	Bioanalytical Chemistry	p. CHEM 332/332L and CHEM 464	2	S (even)	
CHEM 452/452L	Inorganic Chemistry and Lab	p. CHEM 332/332L or CHEM 326/326L	4	F (even)	
CHEM 482	Environmental Chemistry	p. CHEM 114/114L	3	F (odd)	
CHEM 484	Chemical Toxicology	p. CHEM 464	3	F (even)	
CHEM 492	Essentials of Glycobiology (can count for EITHER upper division chemistry credit OR upper division biology elective)	p. CHEM 464	3	S (odd)	

**Advanced Biological Science Electives (9 credits)**

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
BIOL 325/325L	Physiology and Lab	p. BIOL 221/221L or BIOL 151/151L or BIOL 153/153L and CHEM 112/112L	4		
BIOL 371	Genetics	p. BIOL 101/101L or BIOL 151/151L	3		
BIOL 373	Evolution	p. BIOL 151/151L	3		
BIOL 383	Bioethics		4		
BIOL 453	Advanced Genetics	p. BIOL 202, 204, or 371	3		
BIOL 466	Environmental Toxicology and Contaminants	p. BIOL 151/151L	3		
BIOL 470	Cancer Biology	p. BIOL 202 or BIOL 204 or BIOL 371	3		
BIOL 483/483L	Developmental Biology and Lab	p. BIOL 153/153L or BIOL 371	4		
BOT 327/327L	Plant Physiology and Lab	p. BIOL 101/101L and BIOL 103/103L or BIOL 151/151L and 153/153L or BOT 201/201L and BIOL 101/101L or BOT 201/201L and BIOL 151/151L	4		
CHEM 492	Essentials of Glycobiology (can count for EITHER upper division chemistry credit OR upper division biology elective)	p. CHEM 464	3	S (odd)	
MICR 231/231L or MICR 233/233L	General Microbiology and Lab or Introductory Microbiology and Lab	p. CHEM 112/112L or p. BIOL 151/151L and 6 credits of chemistry	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 204/204L	3		
MICR 433	Medical Microbiology	p. CHEM 112/112L and MICR 231/231L or MICR 233/233L	3		
MICR 438L	Techniques in Molecular Biology Lab	p. MICR 436 or Co-Requisite	2		
MICR 439	Medical and Veterinary Immunology	p. MICR 231/231L and BIOL 204/204L	3		
MICR 448	Molecular and Microbial Genetics	p. BIOL 204/204L 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)

**Information Subject to Change. This is not a contract.**

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



- a capstone course in the major (CHEM 490)
- 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.