South Dakota State University

Bachelor of Science
Major: Biochemistry
2026-2027 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 180	Introduction to Laboratory Safety		1	F	
CHEM 112/112L	General Chemistry I and Lab (SGR #6)	p. MATH 114	4	F	
BIOL 151/151L	General Biology I and Lab		4	F, S	
MATH 123	Calculus I (SGR #5)	Based on Placement	4		
		Total Credit Hours	14		

Spring

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 114/114L	General Chemistry II and Lab (SGR #6)	p. CHEM 112/112L and MATH 114	4	S	
BIOL 153/153L	General Biology II and Lab (Strongly Recommended)		4	F, S	
STAT 281	Introduction to Statistics	p. MATH 114	3		
SGR #3	Social Sciences - Civics Requirement	Choose 1: HIST 151, HIST 152, POLS 100, POLS 210, or CIV 100	3		
SGR #2	Oral Communication	CMST 101 Recommended	3		
		Total Credit Hours	17		

SECOND YEAR

Fall

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 237	Introduction to Research	p. CHEM 114/114L	1	F	
CHEM 326/326L	Organic Chemistry I and Lab	p. CHEM 114/114L	4	F	
PHYS 211/211L	University Physics I and Lab	p. MATH 123	5	F	
SGR #1	Written Communication	ENGL 201 recommended	3		
SGR #4	Arts and Humanities (from two different disciplines or a sequence of a foreign language)	See list in catalog	3		
		Total Credit Hours	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	
PHYS 213/213L	University Physics II and Lab	p. PHYS 211/211L and MATH 123	5	S	
SGR #4	Arts and Humanities (from two different disciplines or a sequence of a foreign language)	See list in catalog	3		
SGR #1	Written Communication	ENGL 101 Recommended	3		
		Total Credit Hours	15		

Information Subject to Change. This is not a contract.

p. = Course Prerequisite; c. = Course Co-requisite
Semester: F = Fall, S = Spring, SU = Summer

THIRD YEAR

Fall

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 464	Biochemistry I	p. CHEM 328/328L	3		
CHEM 498	Research (need 4 credits total over a minimum of two semesters for graduation)	p. CHEM 237	2		
Advanced Biological Science Elective	choose from list		3		
SGR #3	Social Sciences (from two different disciplines)	See list in catalog	3		
Advanced Chemistry Elective	choose from list		3		
		Total Credit Hours	14		

Spring

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 466	Laboratory Methods – Biochemistry	p. CHEM 464	1	S	
CHEM 465	Biochemistry II	p. CHEM 464	3	S	
CHEM 498	Research (need 4 credits total over a minimum of two semesters for graduation)	p. CHEM 237	2		
Advanced Biological Science Elective	choose from list		3		
General Elective			6		
		Total Credit Hours	15		

FOURTH YEAR

Fall

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 448/448L	Biophysical Chemistry and Lab	p. CHEM 464 and MATH 123	4	F	
Advanced Chemistry Elective	choose from list		3		
General Elective			7		
		Total Credit Hours	14		

Spring

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 490	Senior Seminar	p. CHEM 498	1	S	
Advanced Chemistry Elective	choose from list		3		
Advanced Biological Science Elective	choose from list		3		
General Elective		Taken as needed to reach 120 credits and 33 upper division credits	8		
		Total Credit Hours	15		

COMMENTS/NOTES

Students from all academic majors can pursue graduation with Fishback Honors College distinction. View the Honors program requirements.

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

- a minimum of 33 upper division credits (300-400 level courses)
- a capstone course in the major (CHEM 490)

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

Advanced Chemistry Electives (9 credits required)

Prefix + Number	Course Title	Prerequisites/Comments	Credits	Semester	Grade
CHEM 329	Organic Chemistry III	p. CHEM 328	2	F (odd)	
CHEM 329L	Organic Chemistry Lab III	p. CHEM 328L	2	F (odd)	
CHEM 332/332L	Analytical Chemistry I and Lab	p. CHEM 114/114L	4	F	
CHEM 343/L	Fundamentals of Chemical Thermodynamics and Lab	p. CHEM 114 and MATH 123	3	S	
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 467	Essentials of Glycobiology (can count for EITHER upper division chemistry elective OR upper division biology elective)	p. CHEM 464	3	S (even)	
CHEM 468	Chemical Biology (can count for EITHER upper division chemistry elective OR upper division biology elective)	p. CHEM 464	3	S (odd)	
CHEM 482	Environmental Chemistry	p. CHEM 114/114L	3	F (odd)	
CHEM 484	Chemical Toxicology	p. CHEM 464	3	F (even)	
PHYS 437	Foundations of Health Physics	p. MATH 123 and PHYS 213	3	S (even)	

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 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	Developmental Biology	p. BIOL 153/153L or BIOL 371	3		
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 467	Essentials of Glycobiology (can count for EITHER upper division chemistry elective OR upper division biology elective)	p. CHEM 464	3	S (even)	
CHEM 468	Chemical Biology (can count for EITHER upper division chemistry elective OR upper division biology elective)	p. CHEM 328	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 & 4 cr. 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 438L	Techniques in Molecular Biology Lab	p. MICR 448 or c. MICR 448	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		