



This course plan is a recommended sequence for this major. Courses designated as critical (!) may have a deadline for completion and/or affect time to graduation. Please see the Program Notes section for details regarding "critical courses" for this particular Program of Study.

Critical	Course Subject and Title	Credit Hours	Min. Grade ¹	Major GPA ²	Code	Prerequisites	Notes
Semester One (18 Credit Hours)							
!	ENGL 101 Critical Reading and Composition	3	C		CC-CMW		
	MATH 141 Calculus I ³	4	C		CC-ARP	C or better in MATH 112/115/116 or placement through the MAP	
	BIOL 101 Biological Principles I	3	C		MR		
	BIOL 101L Biological Principles I Lab	1	C		MR		
	CHEM 141 Principles of Chemistry I ⁴	3	C		MR	C or higher in MATH 111 or placement into MATH 115 or higher MATH; Prereq or Coreq: C or higher in CHEM 141L	
	CHEM 141L Principles of Chemistry I Laboratory ⁴	1	C		MR	C or higher in MATH 111 or placement into MATH 115 or higher MATH; Prereq or Coreq: C or higher in CHEM 141	
	Foreign language ⁵ or other Carolina Core Req. ⁶	3			CC-GFL		
Semester Two (18 Credit Hours)							
!	ENGL 102 Rhetoric and Composition	3	C		CC-CMW CC-INF	C or better in ENGL 101	
	MATH 142 Calculus II	4	C		CC-ARP	C or better in MATH 141	
	BIOL 102 Biological Principles II	3	C		MR	Coreq: BIOL 102L	
	BIOL 102L Biological Principles II Lab	1	C		MR	Coreq: BIOL 102	
	CHEM 142 Principles of Chemistry II ⁴	3	C		MR	C or higher in MATH 115 (or by placement score into MATH 141 or higher); C or higher in CHEM 141 or CHEM 112; Prereq or Coreq: C or higher in CHEM 142L	
	CHEM 142L Principles of Chemistry II Laboratory ⁴	1	C		MR	C or higher in MATH 115 (or by placement score into MATH 141 or higher); C or higher in CHEM 141 or CHEM 112; Prereq or Coreq: C or higher in CHEM 142	
	Foreign language ⁵ or other Carolina Core Req. ⁶	3			CC-GFL		
Semester Three (15 Credit Hours)							
	CHEM 333 Organic Chemistry I	3	C		MR	C or higher in CHEM 112 or 142	
	CHEM 331L Essentials of Org. Chem. Lab I ⁷	1	C		MR	C or better in CHEM 112L or CHEM 142L; Prereq or Coreq: C or higher in CHEM 333	
	CHEM 322 Analytical Chemistry	3	C		MR	C or higher in CHEM 112 or CHEM 142; C or higher in MATH 111 or higher (or placement in MATH 115 or higher); Coreq: C or higher in CHEM 332L	
	CHEM 322L Analytical Chemistry Lab	1	C		MR	C or higher in CHEM 112L or CHEM 142L; Pre/Coreq: C or higher in CHEM 322	
	PHYS 211 Essentials of Physics I	3	C		CC-SCI	C or better in MATH 141; Coreq: PHYS 211L	
	PHYS 211L Essentials of Physics I Lab	1	C		CC-SCI	Prereq/Coreq: C or better in PHYS 211	
	Foreign language ⁵ or Carolina Core Req. ⁶	3			CR/CC		
Semester Four (15 Credit Hours)							
	BIOL 302 Cell & Molecular Bio.	3	C		MR	C or better in BIOL 101 & in 102 or MSCI 311 & in CHEM 112 or 142	
	BIOL 302L Cell & Molecular Bio. Lab	1	C		MR	Prereq/Coreq: BIOL 302	
	CHEM 334 Organic Chemistry II	3	C		MR	C or higher in CHEM 333	
	CHEM 332L Essentials of Org. Chem. Lab II ⁷	1	C		MR	C or higher in CHEM 331L; Coreq: CHEM 334	
	PHYS 212 Essentials of Physics II	3	C		CC-SCI	C or better in PHYS 211 & MATH 142; Coreq: PHYS 212L	
	PHYS 212L Essentials of Physics II Lab	1	C		CC-SCI	Prereq/Coreq: C or better in PHYS 212	
	MATH 241 Vector Calculus	3	C		PR	C or better in MATH 142	
Semester Five (15 Credit Hours)							
	CHEM 555 Biochem./Molecular Biol. I (cross-listed BIOL 545)	3	C		MR	C or higher in CHEM 334	
	CHEM 550L Biochem. Lab (cross-listed: BIOL 541L)	1	C		MR	Prereq/Coreq: C or higher in CHEM 550 or BIOL 541 or CHEM 555 or BIOL 545	
	CHEM 541 Physical Chemistry I: Thermodynamics & Kinetics	3	C		MR	C or higher in CHEM 112 or CHEM 142; C or higher in MATH 241 or department permission; Prereq or Coreq: C or higher in PHYS 212	
	CHEM 541L Physical Chemistry Laboratory I: Thermodynamics & Kinetics	2	C		MR/CC-INT	C or higher in CHEM 321L or 322L, or departmental permission; Prereq or Coreq: CHEM 541	
	BIOL 303 Fundamental Genetics	3	C		MR	C or better in BIOL 101 & 102 or in MSCI 311	
	History ⁸	3			CR		

Semester Six (18 Credit Hours)						
CHEM 545 Physical Biochemistry	3	C		MR	C or higher in CHEM 541 & in 550 or 555	
CHEM 556 Biochem./Molecular Biol. II (<i>cross-listed: BIOL 546</i>)	3	C		MR	C or higher in BIOL 302	
STAT 201 Elementary Statistics ⁹	3			CR	C or better in MATH 111 or higher or in STAT 110 or 112; or placement through the MAP	
Ugrad. Research (CHEM 496, 497, 498, or 499) ¹⁰	3	C		MR		
Social Science	3			CR		
Carolina Core Requirement ⁶	3			CC		
Semester Seven (16 Credit Hours)						
BIOL 550 Bacteriology	3	C		MR	BIOL 302 or MSCI 311; Coreq: BIOL 550L	
BIOL 550L Bacteriology Lab	1	C		MR	Coreq: BIOL 550	
Ugrad. Research (CHEM 496, 497, 498, or 499) ¹⁰	3	C		MR		
CHEM 511 Inorganic Chemistry	3	C		MR	C or higher in CHEM 334, PHYS 212, & MATH 241	
Humanities or Fine Arts	3			CR		
Carolina Core Requirement ⁶	3			CC		
Semester Eight (13 Credit Hours)						
CHEM 621 Instrumental Analysis	3	C		MR	C or higher in CHEM 321 or 322	
CHEM 621L Instrumental Analysis Lab	1	C		MR	Coreq: CHEM 621	
CSCE 102 Web Design & Development using AI Tools	3			CR		
Carolina Core Req. ⁶ or Elective ¹¹	3			CC/PR		
Carolina Core Req. ⁶ or Elective ¹¹	3			CC/PR		

Graduation Requirements Summary

Minimum Total Hours	Minimum Major Requirements Hours	College & Program Requirements Hours	Carolina Core Hours	Minimum Institutional GPA
128	67	18-27	34-43	2.000

- Regardless of individual course grades, students must maintain a minimum 2.000 cumulative GPA.
- Some colleges require a minimum GPA for major courses. Courses indicated in this column are included in the major GPA for this program of study.
- Students who do not place into MATH 141 will be required to successfully complete MATH 115 before taking MATH 141.
- CHEM 111 and 111L may be taken in place of CHEM 141 and 141L, and CHEM 112 and 112L may be taken in place of CHEM 142 and 142L.
- Students in the McCausland College of Arts and Sciences are required to demonstrate proficiency in one foreign language equivalent to the 122 course through course credit or the corresponding foreign language placement score.
- The [Carolina Core](#) provides the common core of knowledge, skill and academic experience for all Carolina undergraduate students.
- CHEM 333L and CHEM 334L are also accepted in place of CHEM 331L and CHEM 332L, respectively.
- The McCausland College of Arts and Sciences requires one U.S. History and one non-U.S. History course, both of which must be chosen from the approved Carolina Core GHS courses. Whichever is not fulfilled through the Carolina Core GHS requirement must be fulfilled through this college requirement.
- If CHEM 111, 112, 322, and 322L are all completed at USC, STAT 201 is not required. Also, if CHEM 621 and 621L are completed, STAT 201 is not required. Students who exempt STAT 201 through this process will be required to take an approved elective to reach minimum hours for graduation.
- Students are encouraged to start undergraduate research as early as possible to allow for participation in long-term projects. No more than 3 hours of research (BIOL 399 or CHEM 496) can be used to satisfy the elective requirement. Extramural Research opportunities, such as REU's may qualify for CHEM 496 credit; however, a request form must be submitted and preapproved by the Department of Chemistry.
- The Biochemistry and Molecular Biology Major requires electives only if needed to meet 128 credit hours. No courses of a remedial, developmental, skill-acquiring, or vocational nature may apply as credit toward degrees in the McCausland College of Arts and Sciences. The McCausland College of Arts and Sciences allows the use of the Pass-Fail option on elective courses. Further clarification on inapplicable courses can be obtained from the McCausland College of Arts and Sciences.

Program Notes:

- ENGL 101 and ENGL 102 must be completed in the student's first 60 semester hours of work in order for these courses to be credited toward graduation.
- All undergraduate students must take a 3-credit course or its equivalent with a passing grade that covers the founding documents. This course may fulfill any requirement in the program of study. Courses that meet this requirement are listed in the academic [bulletin](#).
- Biochemistry and Molecular Biology majors may enroll in a biology or chemistry course a **maximum of twice** to earn the required grade of C or higher.
- A Biochemistry and Molecular Biology major must receive a grade of C or higher in any major, college, or program requirement course in order for it to serve as the required prerequisite for any higher-level course.
- The last 30 credit hours toward your degree must be earned in residence at the University of South Carolina-Columbia.

University Requirements: Bachelor's degree-seeking students must meet Carolina Core (general education) requirements. For more information regarding these requirements, please visit the [Carolina Core](#) page on the University website.

Codes:			
CC	Carolina Core	CC-INF	Carolina Core – Information Literacy
CC-AIU	Carolina Core-Aesthetic and Interpretive Understanding	CC-INT	Carolina Core – Integrative Course
CC-ARP	Carolina Core-Analytical Reasoning and Problem-Solving	CC-SCI	Carolina Core – Scientific Literacy
CC-CMS	Carolina Core-Effective, Engaged, and Persuasive Communication: Spoken Component	CC-VSR	Carolina Core – Values, Ethics, and Social Responsibility
CC-CMW	Effective, Engaged, and Persuasive Communication: Written Component	CR	College Requirement
CC-GFL	Carolina Core-Global Citizenship and Multicultural Understanding: Foreign Language	MR	Major Requirement
CC-GHS	Carolina Core – Historical Thinking	PR	Program Requirement
CC-GSS	Carolina Core – Social Sciences		

Disclaimer: Major maps are only a suggested or recommended sequence of courses required in a program of study. Please contact your academic advisor for assistance in the application of specific coursework to a program of study and course selection and planning for upcoming semesters.