



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 (18-19 Credit Hours) | | | | | | | |
| ! | ENGL 101 Critical Reading and Composition | 3 | C | | CC-CMW | | |
| | MATH 141 Calculus 1 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 | Coreq: BIOL 101L | |
| | BIOL 101L Biological Principles I Lab | 1 | C | | MR | Coreq: BIOL 101 | |
| | CHEM 141 Principles of Chemistry I ⁴ | 4 | C | | MR | C or better in MATH 141 or higher math (or by MAP score into MATH 142 or higher) | |
| | Foreign language ⁵ or other Carolina Core Req. ⁶ | 3-4 | | | 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 | 4 | C | | MR | C or better in CHEM 141 | |
| | 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 better in CHEM 112 or CHEM 142 | |
| | CHEM 331L Essentials of Organic Chem. Lab I ⁷ | 1 | C | | MR | Prereq/Coreq: CHEM 333 | |
| | CHEM 322 Analytical Chemistry | 3 | C | | MR | C or better in CHEM 112 & 112L (or CHEM 142) & MATH 141; Coreq: CHEM 322L | |
| | CHEM 322L Analytical Chemistry Lab | 1 | C | | MR | Coreq: 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: 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 & either BIOL 102 or MSCI 311; Prereq: CHEM 112 or CHEM 142 | |
| | BIOL 302L Cell & Molecular Bio. Lab | 1 | C | | MR | Prereq/Coreq: BIOL 302 | |
| | CHEM 334 Organic Chemistry II | 3 | C | | MR | C or better in CHEM 333 | |
| | CHEM 332L Essentials of Organic Chem. Lab II ⁷ | 1 | C | | MR | CHEM 331L; Prereq/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: 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 better 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 | 3 | C | | MR | C or better in CHEM 112 (or CHEM 142) & MATH 241; Prereq/Coreq: PHYS 212 | |
| | CHEM 541L Physical Chemistry Lab | 2 | C | | MR/CC-INT | CHEM 321L or 322L; Prereq/Coreq: CHEM 541 | |
| | BIOL 303 Fundamental Genetics | 3 | C | | MR | C or better in BIOL 101 & 102 or MSCI 311 | |
| | History ⁸ | 3 | | | CR | | |
| Semester Six (15 Credit Hours) | | | | | | | |
| | CHEM 545 Physical Biochemistry | 3 | C | | MR | C or better in CHEM 541 & 550 or 555 | |
| | CHEM 556 Biochem./Molecular Biol. II (cross-listed: BIOL 546) | 3 | C | | MR | C or better in BIOL 302 | |
| | STAT 201 Elementary Statistics ⁹ | 3 | | | CR | C or better in MATH 111 or higher; or placement through the MAP | |
| | 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 | |
| | BIOL/CHEM Elective (400-600 level) ¹⁰ | 3 | C | | MR | See Bulletin listing | |
| | BIOL/CHEM Elective (400-600 level) ¹⁰ | 3 | C | | MR | See Bulletin listing | |
| | Humanities or Fine Arts | 3 | | | CR | | |
| | Carolina Core Requirement ⁶ | 3 | | | CC | | |

| Semester Eight (16 Credit Hours) | | | | | | |
|----------------------------------|---|---|---|--|-------|----------------------|
| | BIOL/CHEM Elective (400-600 level) ¹⁰ | 3 | C | | MR | See Bulletin listing |
| | CSC 102 General Applications Programming | 3 | | | CR | |
| | Carolina Core Req. ⁶ or Elective ¹¹ | 3 | | | CC/PR | |
| | Carolina Core Req. ⁶ or Elective ¹¹ | 3 | | | CC/PR | |
| | Carolina Core Req. ⁶ or Elective ¹¹ | 3 | | | CC/PR | |
| | Elective ¹¹ | 1 | | | PR | |

Graduation Requirements Summary

| Minimum Total Hours | Minimum Major Requirements Hours | College & Program Requirements Hours | Carolina Core Hours | Minimum Institutional GPA |
|---------------------|----------------------------------|--------------------------------------|---------------------|---------------------------|
| 128 | 63 | 19-31 | 34-46 | 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 CHEM 112 and 112L may be taken in place of CHEM 142.
- Students in the 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 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 College of Arts and Sciences. The 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 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.
- Any Chemistry or Biochemistry and Molecular Biology major can qualify for ACS certification by taking additional courses as listed: CHEM 511, CHEM 621, CHEM 621L, and 6 credits of undergraduate research, CHEM 496-499.
- 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.