

BIOCHEMISTRY AND MOLECULAR BIOLOGY, B.S.

Degree Requirements (128 hours)

Program of Study

| Requirements | Credit Hours |
|-------------------------------|--------------|
| 1. Carolina Core Requirements | 34-46 |
| 2. College Requirements | 15-18 |
| 3. Program Requirements | 3-16 |
| 4. Major Requirements | 63-67 |

Founding Documents Requirement

All undergraduate students must take a 3-credit course or its equivalent with a passing grade in the subject areas of History, Political Science, or African American Studies that covers the founding documents including the United States Constitution, the Declaration of Independence, the Emancipation Proclamation and one or more documents that are foundational to the African American Freedom struggle, and a minimum of five essays from the Federalist papers. This course may count as a requirement in any part of the program of study including the Carolina Core, the major, minor or cognate, or as a general elective. Courses that meet this requirement are listed here (<https://academicbulletins.sc.edu/undergraduate/founding-document-courses/>).

1. Carolina Core Requirements (34-46 hours)

CMW – Effective, Engaged, and Persuasive Communication: Written (6 Hours)

must be passed with a grade of C or higher.

- any CC-CMW courses (<https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/>)

ARP – Analytical Reasoning and Problem Solving (8 hours)

must be passed with a grade of C or higher

- MATH 141*
- MATH 142*

SCI – Scientific Literacy (8 hours)

must be passed with a grade of C or higher

- PHYS 211* & PHYS 211L*
- PHYS 212* & PHYS 212L*

GFL – Global Citizenship and Multicultural Understanding: Foreign Language (0-6 hours)

Demonstration of proficiency in one foreign language equivalent to the minimal passing grade on the exit examination in the 122 course is required. Students can demonstrate this proficiency by successfully completing Phase II of the Proficiency Test or by successfully completing the 122 course, including the exit exam administered as part of that course. It is recommended that students complete the foreign language requirement with French, German, Japanese, Russian, or Spanish.

- CC-GFL courses (<https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/>)

It is strongly recommended that students continuing the study of a foreign language begin college-level study of that language in their first semester and continue in that language until their particular foreign language requirement is completed.

GHS – Global Citizenship and Multicultural Understanding: Historical Thinking (3 hours)

- any CC-GHS course (<https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/>)

GSS – Global Citizenship and Multicultural Understanding: Social Sciences (3 hours)

- any CC-GSS course (<https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/>)

AIU – Aesthetic and Interpretive Understanding (3 hours)

- any CC-AIU course (<https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/>)

CMS – Effective, Engaged, and Persuasive Communication: Spoken Component ¹ (0-3 hours)

- any overlay or stand-alone CC-CMS course (<https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/>)

INF – Information Literacy ¹ (0-3 hours)

- any overlay or stand-alone CC-INF course (<https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/>)

VSR – Values, Ethics, and Social Responsibility ¹ (0-3 hours)

- any overlay or stand-alone CC-VSR course (<https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/>)

¹ **Carolina Core Stand Alone or Overlay Eligible Requirements** – Overlay-approved courses offer students the option of meeting two Carolina Core components in a single course. A maximum of two overlays is allowed. The total Carolina Core credit hours must add up to a minimum of 31 hours. Some programs may have a higher number of minimum Carolina Core hours due to specified requirements.

2. College Requirements (15-18 hours)

Foreign Language (0-3 hours)

- only if needed to meet 122-level proficiency

Analytical Reasoning (6 hours)

| Course | Title | Credits |
|---------------------------|--------------------------------------|----------|
| CSCE 102 | General Applications Programming (*) | 3 |
| STAT 201 | Elementary Statistics (*) | 3 |
| Total Credit Hours | | 6 |

History (3 hours)

The College of Arts and Sciences requires one additional GHS course beyond the Carolina Core GHS requirement.

- If the Carolina Core GHS requirement is fulfilled by a **U.S. history** course, the College of Arts and Sciences history requirement must be fulfilled by a **non-U.S. history** course.
- If the Carolina Core GHS requirement is fulfilled by a **non-U.S. history** course, the College of Arts and Sciences history requirement must be fulfilled by a **U.S. history** course.

Please select the College of Arts and Sciences history requirement from the approved list of U.S. and non-U.S. history courses (<https://academicbulletins.sc.edu/undergraduate/arts-sciences/history-requirement/>).

Social Science and Fine Arts or Humanities (6 hours)

- **Social Science (3 hours)**
 - The College of Arts and Science requires one 3- hour Social Science Course (<https://academicbulletins.sc.edu/undergraduate/arts-sciences/courses-acceptable-social-science/>)
- **Fine Arts/Humanities (3 Hours)**
 - A Bachelor of Science from the College of Arts and Sciences requires one 3-hour Fine Arts/Humanities Course (<https://academicbulletins.sc.edu/undergraduate/arts-sciences/courses-acceptable-fine-arts-humanities/>)

3. Program Requirements (3-16 hours)

Supporting Courses (3 hours)

must be passed with a grade of C or higher

- MATH 241*

Cognate or Minor (0-18 hours)

This major does not require a cognate or minor.

An optional minor may be added to a student's program of study. A minor is intended to develop a coherent basic preparation in a second area of study. Courses applied toward general education requirements cannot be counted toward the minor. No course may satisfy both major and minor requirements. All minor courses must be passed with a grade of C or higher. At least half of the courses in the minor must be completed in residence at the University. A list of minor programs of study can be found at Programs A-Z. An optional additional major may also be added to a student's program of study. **Additional majors must include all major courses as well as any prescribed courses noted (*) in the bulletin.** Prescribed courses noted in the bulletin may be shared with Carolina Core, College requirements, and Program requirements in the primary program.

A list of minor programs of study can be found at Programs A-Z (<https://academicbulletins.sc.edu/undergraduate/programs-az/>).

Electives (0-13 hours)

The Biochemistry and Molecular Biology Major requires electives only if needed to meet 128 credit hours.

120 (or 128) degree applicable credits are required to complete any degree at UofSC. After the cognate, minor or second major is complete, any additional credits needed to reach 120 (or 128) total credits can be fulfilled by electives. 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.

4. Major Requirements (63-67 hours)

a minimum grade of C is required in all major courses

Major Courses (54 hours)

| Course | Title | Credits |
|---------------------------|---|-----------|
| BIOL 101 | Biological Principles I | 3 |
| BIOL 101L | Biological Principles I Laboratory | 1 |
| BIOL 102 | Biological Principles II | 3 |
| BIOL 102L | Biological Principles II Laboratory | 1 |
| BIOL 302 | Cell and Molecular Biology | 3 |
| BIOL 302L | Cell and Molecular Biology Laboratory | 1 |
| BIOL 303 | Fundamental Genetics | 3 |
| BIOL 550 | Bacteriology | 3 |
| BIOL 550L | Bacteriology Laboratory | 1 |
| CHEM 141 | Principles of Chemistry I | 4 |
| CHEM 142 | Principles of Chemistry II | 4 |
| CHEM 322 | Analytical Chemistry | 3 |
| CHEM 322L | Analytical Chemistry Laboratory | 1 |
| CHEM 333 | Organic Chemistry I | 3 |
| CHEM 331L | Essentials of Organic Chemistry Laboratory I | 1 |
| CHEM 334 | Organic Chemistry II | 3 |
| CHEM 332L | Essentials of Organic Chemistry Laboratory II | 1 |
| CHEM 541 | Physical Chemistry | 3 |
| CHEM 541L | Physical Chemistry Laboratory | 2 |
| CHEM 545 | Physical Biochemistry | 3 |
| CHEM 555 | Biochemistry/Molecular Biology I | 3 |
| or BIOL 545 | Biochemistry/Molecular Biology I | |
| CHEM 556 | Biochemistry/Molecular Biology II | 3 |
| or BIOL 546 | Biochemistry/Molecular Biology II | |
| CHEM 550L | Biochemistry Laboratory | 1 |
| or BIOL 541L | Biochemistry Laboratory | |
| Total Credit Hours | | 54 |

Note: Students transferring in to the major can substitute CHEM 111/CHEM 111L (or transfer equivalent) for CHEM 141 and CHEM 112/CHEM 112L (or transfer equivalent) for CHEM 142.

Major Electives (9 hours)

Select 9 hours from 400-600 level electives in Biology or Chemistry.

Note: No more than 3 credits of research (BIOL 399 or CHEM 496) can be used to satisfy the elective requirement.

American Chemical Society Certification Concentration (13 hours) *Optional*

Students may choose to complete the American Chemical Society Certification Concentration in place of the Major Electives for an additional 4 credit hours and a total of 67 major requirements hours.

| Course | Title | Credits |
|-----------|---------------------------|---------|
| CHEM 511 | Inorganic Chemistry | 3 |
| CHEM 621 | Instrumental Analysis | 3 |
| CHEM 621L | Instrumental Analysis Lab | 1 |

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|----------------------------------|-----------|
| Select 6 hours of the following: | 6 |
| CHEM 496 Undergraduate Research | |
| CHEM 497 Undergraduate Research | |
| CHEM 498 Undergraduate Research | |
| CHEM 499 Undergraduate Research | |
| Total Credit Hours | 13 |