

This roadmap is a **suggested** semester-by-semester planning guide for this major. It is a model four-year plan, not a guaranteed sequence or contract. Course availability may vary from semester to semester. Roadmaps are not meant to cover every possibility. They are intended to provide guidance in planning your academic path. **Roadmaps should be reviewed in consultation with your advisor.**

### KEY

<b>Course Subject and Number:</b>	Lists the course subject and number (ex. MATH 111; ARTH 101).		
<b>Credit Hrs:</b>	Lists how many credit hours the course is worth. Courses listed with a range of credit hours depend on course selection.		
<b>Min. Grade:</b>	Lists if the major has a minimum grade requirement for this course.		
<b>Critical:</b>	TIME = Timing. This course must be completed in the semester listed to ensure a timely graduation.		
<b>GenEd</b>	Indicates whether or not this major course can also fulfill a general education requirement.		
	ENGL: GenEd First Year Writing	HUMS: GenEd Humanities	SOSCI: GenEd Social Science
	FLANG: GenEd Foreign Language	MATH: GenEd Math	
	HIST: GenEd History	NATSCI: GenEd Natural Science	
<b>Course Notes:</b>	Lists important information about the course or the timing of the course.		

### General Education Requirement

<b>First-Year Writing:</b> Complete English (ENGL) 110, Introduction to Academic Writing, or one of the approved course credit combinations satisfying the first-year writing general education requirement.	<b>Math/Logic:</b> Completion of MATH 120 or HONS 115 or transfer credit for any one of MATH 220, MATH 221, MATH 323 (any of which requires the comprehension of the content of MATH 120/HONS 115); or 6 credit hours from the remaining list of approved courses satisfying the math/logic general education requirement.
<b>Foreign Language:</b> Complete the 202-level or its equivalent or demonstrate proficiency at that level of an approved course satisfying the foreign language general education requirement.	<b>Natural Science:</b> Complete 8 credit hours of an introductory or higher sequence (of which 2 credit hours must be earned in the accompanying laboratories) from the list of approved course sequences satisfying the natural science general education requirement.
<b>History:</b> Complete one course in pre-modern history and one course in modern history from the list of approved courses satisfying the history general education requirement (6 credit hours). The two courses do not have to be taken from the same department or in sequence.	<b>Social Sciences:</b> Complete 6 credit hours from the list of approved courses satisfying the social science general education requirement.
<b>Humanities:</b> Complete 12 credit hours from the list of approved courses satisfying the humanities general education requirement with no more than 6 credit hours with the same acronym.	<b>General Education Resources:</b> Approved course listings for each requirement can be found in the Undergraduate Catalog ( <a href="http://catalog.cofc.edu/">http://catalog.cofc.edu/</a> ).

### Degree Requirements

Minimum GPA		Minimum Credit Hours
Major	Cumulative	122 credit hours
2.00	2.00	Additional hours are required for earning more than one degree. Consult your <a href="#">academic catalog</a>

For additional information on course descriptions, pre-requisites and degree requirements for this major, please consult your [Undergraduate Catalog](#).

## First Year

### Semester One

Course Subject and Number	Credit Hrs.	Min. Grade	Critical	GenEd	Course Notes
CHEM 111/111L	4			NATSCI	Recommended minimum grade before proceeding to CHEM 112 is a C
MATH 111	4			MATH	Pre-calculus
General Education Requirement	3-4				Recommend to select course that counts towards Gen Ed requirement too
General Education Requirement	3-4				English 110 or foreign language recommended

### Semester Two

Course Subject and Number	Credit Hrs.	Min. Grade	Critical	GenEd	Course Notes
CHEM 112/112L	4			NATSCI	
MATH 120	4			MATH	
General Education Requirement	3-4				English or foreign language recommended
General Education Requirement	3-4				English or foreign language recommended
General Elective	3-4				

### First Year Notes

Note 1: The General Education First-Year Writing requirement should be completed within the first or second semester.

Note 2: First-Year Experience Requirement: All entering students with less than one year of college experience are required to complete a [First-Year Experience](#) (First-Year Seminar (FYSM), a Learning Community (LC), or an Honors College First-Year Experience course) within their first three consecutive academic terms.

A great selection for FYE requirement for a biochemistry major is the Chem-Bio learning community. This LC couples Chem 111 and Bio 111.

## Second Year

### Semester Three

Course Subject and Number	Credit Hrs.	Min. Grade	Critical	GenEd	Course Notes
CHEM 220/220L	5				Quantitative Analysis; 221L is a six hour lab; this class is offered both Spring and Fall terms
CHEM 231/231L	4				Organic Chemistry I; this class is offered both Spring and Fall terms
BIOL 111/111L	4			NATSCI	Completion of Physics prior to CHEM 341/CHEM 342 is recommended
General Education Requirement	3-4				

### Semester Four

Course Subject and Number	Credit Hrs.	Min. Grade	Critical	GenEd	Course Notes
CHEM 232/232L	4				Note: recommended grade from 231 before proceeding to 232 is a C; this class is offered both Spring and Fall terms
BIOL 112/112L	4				
MATH 229	5			MATH	course needs to be completed prior to taking CHEM 341/CHEM 342
General Education Requirement	3-4				

### Second Year Notes

Math 229 and Chem 220 can be reversed. Both are needed before taking Chem 341/Chem 342

Note: Math 120-Math 220-Math 221 is an alternative math requirement option for chemistry and biochemistry majors and is the recommended pathway for math or physics double majors or minors

## Third Year

### Semester Five

Course Subject and Number	Credit Hrs.	Min. Grade	Critical	GenEd	Course Notes
PHYS 111/111L	4				
CHEM 351	3				Biochemistry I; This class does not have an associated lab though students can opt to take Chem 354 with Chem 351. CHEM 351 is offered both Spring and Fall terms; CHEM 232 is a pre-req
General Education Requirement	3-4				
General Education Requirement	3-4				
CHEM Lab hours elective	2				Chem 481---Research is recommended; student must arrange to work with a faculty mentor; individual enrollment course; other options are available to fulfill this requirement
	2-3				

### Semester Six

Course Subject and Number	Credit Hrs.	Min. Grade	Critical	GenEd	Course Notes
CHEM 352	3				Second semester of Biochemistry
General Education Requirement	3-4				
General Education Requirement	3-4				
CHEM Lab hours elective	2				Chem 482 Research is recommended; student must arrange to work with a faculty mentor; individual enrollment course; other options are available to fulfill this requirement
Physics 112/112L	4				
CHEM 354					Biochemistry Lab---CHEM 351 is a co-requisite or a pre-requisite

### Third Year Notes

Note 1: Research can be taken for credit at CofC if the work is done at MUSC; Student must arrange for a faculty member to oversee the requirements of the courses

**For Biochemistry Lab Elective Hours, select two of the following courses for a minimum of three lab credit hours:**

CHEM 312L	Inorganic Chemistry Laboratory (1) CO: CHEM 311 (Spring offering)
CHEM 355	Research Methods in Biochemistry (2) PR: CHEM 354L (fall offering)
CHEM 371	Chemical Synthesis Character (3) PR: CHEM 220, CHEM 220L, CHEM 232, CHEM 232L (fall offering)
CHEM 481	Introductory Research (2) PR: Instructor permission (either semester)
CHEM 482	Introductory Research II (2) PR: Instructor permission (either semester)
CHEM 421L	Instrumental Lab (1) CO: CHEM 421 (spring offering)

## Fourth Year

## Semester Seven

Course Subject and Number	Credit Hrs.	Min. Grade	Critical	GenEd	Course Notes
CHEM 341/341L	4				Physical Chemistry---Thermodynamics and Statistical Mechanics
Molecular Biology	4				Note: Bio 211 and Math 250 pre-req can be waived for biochemistry major
General Education Requirement	3-4				
CHEM 490	1		TIME		Guest seminar format; can be repeated
CHEM 499	3				Optional: Continuation of research towards Bachelor's Essay (recommended)
CHEM lecture elective	3				Chemical Biology, recommended in the fall

## Semester Eight

Course Subject and Number	Credit Hrs.	Min. Grade	Critical	GenEd	Course Notes
CHEM 342/342L	4				Physical Chemistry---Quantum Mechanics.
CHEM 311	3				Inorganic Chemistry is only offered in the spring; Chem 312L is optional for biochemistry majors
General Education Requirement	3-4				
CHEM 492	1		TIME		
CHEM 499	3				
General Education Requirement	3-4				

## Fourth Year Notes

**Note 1:** If student wants to continue research without writing a Bachelor's Essay, CHEM 397 is a zero credit research course that is graded either Satisfactory or Unsatisfactory.

**Note 2:** Don't forget to apply to graduate in MyCharleston!

**Note 3:** 341 is no longer a pre-requisite for Chem 342. 342 can be taken prior to Chem 341 if that works better for a student's schedule. In both cases, Math 229 must be completed.

**Note 4:** 341/341L is only offered in the Fall and 342/342L is only offered in the spring

**Note 5:** Biochemistry BS majors fulfill all the requirements of the Chemistry BA majors. To receive both degrees, students must have earned 153 credit hours total.

**Several options exist for Chemistry Lecture Elective:**

CHEM 353	Chemical Biology (3) PR: CHEM 351 (fall offering)
CHEM 356	Biochemical Basis of Disease (2) PR: CHEM 351 (spring offering)
CHEM 421	Instrumental Methods of Analysis (3) PR: CHEM 220, CHEM 220L; CO: CHEM 421L (spring offering)
CHEM 422	Environmental Chemistry (3) PR: CHEM 220, CHEM 220L (not offered on a regular schedule)
CHEM 431	Advanced Organic Chemistry (3) PR: CHEM 232, CHEM 232L (not offered on a regular schedule)

**Note 6:** Chem 490 is only offered in the Fall and Chem 492 is only offered in the Spring.