

BACHELOR OF ARTS IN CHEMISTRY ROADMAP – QUANTITATIVE REASONING CATEGORY III/IV

120 Total Units Required

Minimum Number of Units in the Major: 54

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

Course	Title	Units
First Semester		
MATH 197	Prelude to Calculus I (Prerequisite for CHEM 115 and MATH 226) ¹	3
GE Area 1: English Communication - Take Two		6
GE Area 3: Arts and Humanities		3
GE Area 4: Social and Behavioral Sciences ²		3
Units		15
Second Semester		
CHEM 115	General Chemistry I (Major Lower-Division)	4
MATH 198	Prelude to Calculus II (GE 2, Prerequisite for MATH 226) ¹	3
GE Area 1A: English Composition ³		3
GE Area 5B: Biological Science		3
GE Area 6: Ethnic Studies (https://bulletin.sfsu.edu/undergraduate-education/general-education/areasix/)		3
Units		16
Third Semester		
CHEM 215	General Chemistry II (Major Lower-Division)	4
MATH 226	Calculus I (Major Lower-Division, GE 2) ¹	4
GE Area 3: Arts and Humanities		3
GE Area 4: Social and Behavioral Sciences ²		3
Units		14
Fourth Semester		
CHEM 233 & CHEM 234	Organic Chemistry I and Organic Chemistry I Laboratory (Major Lower-Division)	5
MATH 227	Calculus II (Major Lower-Division)	4
Select One Set of Courses (Major Lower-Division, GE 5A, GE 5C): ⁴		4
PHYS 111 & PHYS 112	General Physics I and General Physics I Laboratory	
PHYS 220 & PHYS 222	General Physics with Calculus I and General Physics with Calculus I Laboratory	
U.S. and California Government (https://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg)		3
Units		16
Fifth Semester		
CHEM 235 & CHEM 236	Organic Chemistry II and Organic Chemistry II Laboratory (Major Lower-Division)	5

CHEM 390GW	Contemporary Chemistry and Biochemistry Research - GVAR (Major Upper-Division)	3
Select One Set of Courses (Major Lower-Division): ⁴		4
PHYS 121 & PHYS 122	General Physics II and General Physics II Laboratory	
PHYS 230 & PHYS 232	General Physics with Calculus II and General Physics with Calculus II Laboratory	
PHYS 240 & PHYS 242	General Physics with Calculus III and General Physics with Calculus III Laboratory	
SF State Studies or University Elective ⁵		3
Units		15
Sixth Semester		
Select One (Major Upper-Division):		3
CHEM 300	Physical Chemistry for Life Sciences I	
CHEM 351	Physical Chemistry I: Thermodynamics and Kinetics	
CHEM 321 & CHEM 322	Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory (Major Upper-Division)	5
Select One (Major Upper-Division):		3
CHEM 340	Biochemistry I	
CHEM 349	General Biochemistry	
GE Area 3UD: Upper-Division Arts or Humanities		3
Units		14
Seventh Semester		
CHEM 325	Inorganic Chemistry (Major Upper-Division)	3
GE Area 5UD or 2UD: Upper-Division Sciences or Upper-Division Mathematical Concepts		3
GE Area 4UD: Upper-Division Social and Behavioral Sciences		3
SF State Studies or University Elective - Take Two ⁵		6
Units		15
Eighth Semester		
Upper-Division Electives ⁶		3
SF State Studies or University Elective - Take Four ⁵		12
Units		15
Total Units		120

¹ Students should use their Pathway/Category (<https://gatorsmartstart.sfsu.edu/pathways/>) to determine the appropriate GE 2 course option. For directions on how to view your Pathway/Category, visit how to find your pathway (<https://gatorsmartstart.sfsu.edu/howtofindyourpathways/>).

Questions? Contact Gator Smart Start. (<https://gatorsmartstart.sfsu.edu/>)

² First-time freshmen must take one lower-division Area 4 course that meets US History (USH).

³ Students should use their Pathway/Category (<https://gatorsmartstart.sfsu.edu/pathways/>) to determine the appropriate GE 1A course option. For directions on how to view your Pathway/Category, visit how to find your pathway (<https://gatorsmartstart.sfsu.edu/howtofindyourpathways/>).

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⁴ PHYS 111 and PHYS 112 are prerequisites for PHYS 121 and PHYS 122. PHYS 220 and PHYS 222 are prerequisites for PHYS 240 and PHYS 242.

⁵ **Complementary Studies**

Students in the BA Chemistry program will satisfy the Complementary Studies requirement with the completion of courses in physics and mathematics that are required in the major.

⁶ **Upper-Division Electives (3 units minimum)**

A full list of courses that can fulfill this requirement can be found in the Degree Requirements (<https://bulletin.sfsu.edu/colleges/science-engineering/chemistry-biochemistry/ba-chemistry/#degreerequirementstext>).