

BACHELOR OF ARTS IN CHEMISTRY ROADMAP – QUANTITATIVE REASONING CATEGORY 1/2

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 your Degree Planner (<https://registrar.sfsu.edu/degreeplanner/>) and an advisor for further guidance.

To avoid taking additional units, it is recommended that you meet the **SF State Studies** (AERM, GP, ESCA, SJ) requirements within your GE or major.

Course	Title	Units
First Semester		
CHEM 115	General Chemistry I (Major Lower-Division)	4
MATH 226	Calculus I (Major Lower-Division, GE 2) ¹	4
GE Area 1: English Communication - Take Two		6
Units		14
Second Semester		
CHEM 215	General Chemistry II (Major Lower-Division)	4
MATH 227	Calculus II (Major Lower-Division)	4
Select One Set of Courses (Major Lower-Division, GE 5A, GE 5C): ²		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	
GE Area 1A: English Composition ³		3
Units		15
Third Semester		
CHEM 233 & CHEM 234	Organic Chemistry I and Organic Chemistry I Laboratory (Major Lower-Division)	5
CHEM 321 & CHEM 322	Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory (Major Upper-Division)	5
GE Area 3: Arts and Humanities		3
GE Area 4: Social and Behavioral Sciences ⁴		3
Units		16
Fourth Semester		
CHEM 235 & CHEM 236	Organic Chemistry II and Organic Chemistry II Laboratory (Major Lower-Division)	5
Select One Set of Courses (Major Lower-Division): ²		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	
GE Area 3: Arts and Humanities		3
GE Area 5B: Biological Science		3
Units		15
Fifth Semester		
CHEM 390GW	Contemporary Chemistry and Biochemistry Research - GEAR (Major Upper-Division)	3
GE Area 4: Social and Behavioral Sciences ⁴		3
GE Area 6: Ethnic Studies (https://bulletin.sfsu.edu/undergraduate-education/general-education/areasix/)		3
SF State Studies or University Elective - Take Two ⁵		6
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	
Select One (Major Upper-Division):		3
CHEM 340	Biochemistry I	
CHEM 349	General Biochemistry	
GE Area 3UD: Upper-Division Arts or Humanities		3
U.S. and California Government (https://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg)		3
SF State Studies or University Elective ⁵		3
Units		15
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 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.

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

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

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/#degree requirementstext>).