

BS IN CHEMISTRY DEGREE

Suggested Course Sequence

- The BS Chemistry degree program is certified by the American Chemical Society (ACS) and provides outstanding preparation for a career in the chemical industry and preparation for post-graduate programs. Students are urged to consult with an advisor regarding their educational and career plans.
- Students are *required* to meet with a *Chem/Biochem advisor* each fall to discuss their progress towards their degree and their tentative class schedule for the next year.
- Students are *urged* to meet with a *General Education (GE) advisor* (Advising Center, ADM 211) to ensure that their course selections for GE Segments I, II, and III meet graduation requirements.
- Students should refer to the *SFSU Bulletin* for detailed information on *University policies and procedures, GE requirements, requirements for the major, and course descriptions and prerequisites.*

Freshman Year - Fall Semester

CHEM 115	General Chemistry I	5 units
MATH 226	Calculus I	4 units

Freshman Year - Spring Semester

CHEM 333	Organic Chemistry I	3 units
CHEM 334	Organic Chemistry I Lab	2 units
MATH 227	Calculus II	4 units
PHYS 220	Physics with Calculus I	3 units
PHYS 222	Physics with Calculus I Lab	1 unit

Sophomore Year - Fall Semester

CHEM 335	Organic Chemistry II	3 units
CHEM 336 ¹	Organic Chemistry II Lab	3 units
MATH 228 ²	Calculus III	4 units
PHYS 230	Physics with Calculus II	3 units
PHYS 232	Physics with Calculus II Lab	1 unit

Sophomore Year - Spring Semester

CHEM 215	General Chemistry II	3 units
CHEM 216	General Chemistry II Lab	2 units
PHYS 240 ²	Physics with Calculus III	3 units

Junior Year - Fall Semester

CHEM 320	Quantitative Analysis	4 units
CHEM 353 ³	Physical Chemistry II	3 units
CHEM 340	Biochemistry I	3 units

Junior Year - Spring Semester

CHEM 422	Instrumental Analysis	4 units
CHEM 351 ⁴	Physical Chemistry I	3 units

Senior Year - Fall Semester

CHEM 425 ³	Inorganic Chemistry	3 units
CHEM 451 ³	Physical Chemistry Lab	2 units
CHEM xxx ⁵	Chemistry Elective	3 units

Senior Year - Spring Semester

CHEM 426 ⁴	Inorganic Chemistry Lab	2 units
CHEM xxx ⁵	Chemistry Elective	3 units

Notes:

All courses required for the major must be completed with *grades of C or better with only one exception*

*This course is typically offered only once a year in this particular semester (i.e., fall or spring)

¹CHEM 338 may be substituted for CHEM 336

²CHEM 251 may be substituted for PHYS 240 and MATH 228

³This course typically offered Fall semesters only

⁴This course typically offered Spring semesters only

⁵**Students must complete 6 units selected from any of the following lists.** These lists are organized via emphases, which students can use to customize their degree program into specific specialization areas. Grad-level chem and biochem courses (numbers greater than 800) are acceptable electives with advisor approval. Students may substitute appropriate courses in biology, physics, geosciences, and computer science upon prior approval of a major advisor. Students should check course co- and pre-requisites before enrolling in these elective classes.

Research Courses:

CHEM 470	Research	3 or 6 units
CHEM 699	Special Study in Chemistry	1-3 units

Special Topics Courses:

CHEM 640	Advanced Topics in Biochemistry	1-3 units
CHEM 641	Advanced Topics in Chemistry	1-3 units
CHEM 800	Special Topics in Chemistry	1-3 units

Emphasis in Environmental Chemistry:

CHEM 420	Environmental Analysis	3 units
CHEM 821	Mass Spectrometry	3 units

Emphasis in Materials Chemistry:

CHEM 825	Theoretical Inorganic Chemistry	3 units
PHYS 450	Intro to Solid State Physics	3 units

Emphasis in Biochemistry:

CHEM 341	Biochemistry II	3 units
CHEM 343	Biochemistry I Lab	3 units

Emphasis in Bioorganic Chemistry:

CHEM 640	Intro to Medicinal Chemistry	3 units
CHEM 433	Advanced Organic Chemistry	3 units
CHEM 832	Organic Synthesis	3 units
CHEM 842	Bioorganic & Medicinal Chemistry	3 units

Emphasis in Computational Chemistry:

CHEM 370	Computer Applications in Chem & Biochem	3 units
MATH 309	Computation in Mathematics	3 units
CSC 210	Intro to Computer Programming	3 units
CHEM 850	Valency & Spectroscopy	3 units
BIO 835	Computer Simulations in Biology	4 units

Emphasis in Chemical Physics:

CHEM 850	Valency & Spectroscopy	3 units
CHEM 852	Statistical Mechanics	3 units
CHEM 820	NMR Applications & Techniques	3 units
MATH 374	Advanced Calculus	3 units
MATH 376	Ordinary Differential Equations I	3 units
PHYS 320	Modern Physics I	3 units
PHYS 370	Thermodynamics & Statistical Mechanics	3 units

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Flowchart and Tracking Sheet

- The tracking sheet is intended to illustrate *prerequisite and corequisites* for upper-division courses.
- Solid arrows indicate *prerequisite courses* (courses that must be completed *before* the course pointed to).
- Dashed arrows indicate *corequisite courses* (courses that must be completed *before or at the same time* as the course pointed to).
- Students should consult the course listings in the SFSU Bulletin to determine *entrance exam requirements* (if applicable) and the *minimum grade required for prerequisite courses*.
- Students may use the space provided next to each course to denote the grade they received, which will facilitate tracking their progress towards graduation.

