# Bachelor of Science in Biochemistry – CHEM Associate Degree for Transfer Roadmap

This is a sample pathway for students who transfer to San Francisco State University in the current Bulletin year with an AS-T in Chemistry. Thirty-four units in the major (CHEM 115/CHEM 215/CHEM 216, CHEM 233/CHEM 234, CHEM 335/CHEM 336, MATH 226/MATH 227, required PHYS sequence) and 33 units of lower division GE have been satisfied. Check with a major advisor about the most appropriate course sequence for you. **Degree completion guaranteed in 60 units; see the Associate Degree for Transfer (ADT) section for more information**.

## Course Title | Units
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**First Semester**
BIOL 230 | Introductory Biology I | 5
CHEM 340 | Biochemistry I | 3
GE Area A: Written English Communication II (A4) or University Elective if A4 met in transfer | 3
GE Area C: Arts (C1) or Humanities (C2) or Humanities: Literature (C3) | 3
**University Elective** | 1
**Units** | 15
**Second Semester**
CHEM 321 | Quantitative Chemical Analysis | 3
CHEM 341 | Biochemistry II | 3
CHEM 343 | Biochemistry I Laboratory | 3
GE Area D: Social Sciences (D1) or U.S. History (D2) or U.S. and California Government (D3) | 3
GE Area UD-B: Upper-Division Physical and/or Life Sciences (Consider SF State Studies Course) | 3
**Units** | 15
**Third Semester**
CHEM 300 | General Physical Chemistry I | 3
US History (bulletin.sfsu.edu/undergraduate-education/graduation-requirements/#USHaGR) | 3
GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course) or University Elective if US History met before transfer | 3
**Major Upper Division Elective** | 3-4
**University Elective** | 2
**Units** | 15
**Fourth Semester**
CHEM 301 | General Physical Chemistry II | 3
**Major Upper Division Electives – Take Three** | 9

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**To Do at SF State:**

Enough total units to reach 120 minimum for graduation; 40 units minimum at the upper division level; to include the following:

**University-Wide Requirements: 15–21 Units**
- ENG 214 or equivalent A4 course (0–3 units) if not taken before transfer
- American Institutions (0–6 units): US History, US Government, California State and Local Government requirements if not taken before transfer. See next two bullets.
- Lower division GE (6 units) – Area C (3 units in any subarea) and Area D3 (3 units; choose this area if US/CA Government requirement not completed before transfer).
- Upper division GE, areas B, C and D (9 units) – check for courses in UD GE C or D that also fulfill U.S. History if not completed before transfer.
- Students entering the major with the AS-T in Chemistry are not required to fulfill SF State Studies or Complementary Studies requirements.

**Biochemistry B.S.: 38 Units**

Completed: CHEM 115/CHEM 215/CHEM 216, CHEM 233/CHEM 234, CHEM 335/CHEM 336, MATH 226/MATH 227, required PHYS sequence.

- Major Lower Division Requirements (5 units) – BIOL 230
- Major Upper Division Requirements (18 units)
- Major Upper Division Electives (15 units) - including
  1. at least one course with a CHEM prefix
  2. at least one course with GW suffix (fulfills University GWAR requirement)
  3. at least three laboratory courses.

Note that many BIOL electives require BIOL 240 as a prerequisite; enrollment without this prereq in BIOL 350, BIOL 355 and BIOL 612 may be permitted, but students must consult with a department advisor prior to registering for these courses.

**University Electives: One Unit or More**

Depends on course choices made at the community college, how transferred units are applied to the requirements above, and course choices at SF State. Some courses may meet more than one requirement, e.g. UD GE and the major.