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 2017–2018 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 (http://bulletin.sfsu.edu/undergraduate-admissions/transfer-students).

### Course Title Units

**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

**Second Semester**
- CHEM 321 Quantitative Chemical Analysis 3
- CHEM 341 Biochemistry II 3
- CHEM 343 Biochemistry I Laboratory 3
- Upper Division GE: UD-B, UD-C, or UD-D 3
- GE Area D: Social Sciences (D1) or U.S. History (D2) or U.S. and California Government (D3) 3

**Third Semester**
- CHEM 300 General Physical Chemistry I 3
- CHEM 390GW Contemporary Chemistry and Biochemistry Research - GWAR 3
- Upper Division GE: UD-B, UD-C, or UD-D 3
- US History (bulletin.sfsu.edu/undergraduate-education/graduation-requirements/#USHaGR) or University Elective if US History met before transfer 3
- Major Upper Division Elective 3

**Fourth Semester**
- CHEM 301 General Physical Chemistry II 3
- Upper Division GE: UD-B, UD-C, or UD-D 3
- Major Upper Division Elective – Take Three 9

**Total Units** 60

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1 Choose area D3 if US/CA Government not met before transfer.

**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/GWAR (33 units) - includes 12 elective units. Elective units must include at least one course with a CHEM prefix and 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.