# BACHELOR OF SCIENCE IN EARTH SCIENCES: GEOLOGY EMPHASIS – GEOL 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 Geology. Twenty-six units in the major (CHEM 115/CHEM 215/CHEM 216, ERTH 210, ERTH 500, ERTH 505, MATH 226, 2 elective units) and all lower-division GE requirements have been satisfied. Additional units in the major may have been satisfied. Check with a major advisor about the most appropriate course sequence. 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
- **ERTH 400** Earth Systems I (Major Core) 3
- **ERTH 420** Mineralogy and Petrology I (Major Emphasis) 4
- Select One Set of Courses (Science and Math Foundation): 1 4
  - **PHYS 111** & **PHYS 112** General Physics I and General Physics I Laboratory (B1, B3)
  - **PHYS 220** & **PHYS 222** General Physics with Calculus I and General Physics with Calculus I Laboratory (B1, B3) 2
  - **MATH 227** Calculus II (if selecting PHYS 220/PHYS 222) 4
- or University Elective if selecting PHYS 111/PHYS 112

### Second Semester
- **ERTH 205** Techniques in Earth Sciences (Major Core) 2
- **ERTH 600GW** Earth’s Climate History - GWAR (Major Core) 3
- Select One Set of Courses (Science and Math Foundation): 1 4
  - **PHYS 121** & **PHYS 122** General Physics II and General Physics II Laboratory

### Third Semester
- **ERTH 500** Structural Geology (Major Emphasis) 4
- **ERTH 505** Sedimentology and Stratigraphy (Major Emphasis) 4
- **ERTH 697** Undergraduate Research 2
- or University Elective
- Geology Emphasis Elective (9-10 units) - Take One 3 3
- GE Area UD-C: Upper-Division Arts and/or Humanities 3

### Units 15

### Fourth Semester
- **ERTH 620** Field Methods in Geology (Major Emphasis) 2
- **ERTH 690** Earth Sciences Capstone Presentation (Major Culminating Experience) 1
- **ERTH 695** Senior Project
- **ERTH 698** Senior Thesis
- Field Geology 5
- Geology Emphasis Elective (9-10 units) - Take One 3 3
- GE Area UD–B: Upper Division Physical and/or Life Sciences 6 3
- U.S. and California Government (bulletin.sfsu.edu/undergraduate-education/graduation-requirements/#usg) 3
- or University Elective if US/CA Government met before transfer

### Units 14-16

### Total Units 60-62

1. PHYS 111/PHYS 112 are prerequisites for PHYS 121/PHYS 122.
2. PHYS 220/PHYS 222 are prerequisites for PHYS 240/PHYS 242.
3. MATH 227 is a hidden corequisite for PHYS 220/PHYS 222.
Geology Emphasis Electives (9-10 units)
Select additional Geology emphasis elective courses upon advisement, subject to the constraints listed below. Electives plus emphasis requirements must total at least 34 units.

• Electives may be selected from among the following options:
  • Any ERTH course numbered 400 or higher
  • Up to 3 units of any of the following courses:
    • an Historical Geology course (or equivalent) from a community college
    • Any 300-level ERTH course
  • GEOG 312, GEOG 313, GEOG 314, GEOG 316, GEOG 317, GEOG 500GW, GEOG 602, GEOG 603, GEOG 606, GEOG 610, GEOG 611, GEOG 620, GEOG 621, GEOG 625, GEOG 629, or GEOG 642
  • Any BIOL, CHEM, CSC, ENGR, MATH, or PHYS course numbered 200 or higher, or ENGR 103
  • Any one, non-GE course not listed above, with the approval of a Department advisor

(When choosing electives, keep in mind that SF State requires all students to complete at least 40 units of upper-division coursework to graduate.)

Take ERTH 697 if selecting Honors Thesis as the Major Culminating Experience. Take University Elective if selecting either ERTH 695 - Senior Project or Field Geology as the Major Culminating Experience.

Four unit Field Geology option typically takes place during the summer following the 4th semester.

Consult with a department advisor about selection of ERTH course for UD-B.

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: 9-15 units
• American Institutions (0-6 units): US History, US Government, California State and Local Government requirements if not taken before transfer.
• Upper-Division GE (9 units): Courses required for the major may double-count if approved for UD GE.
• Students transferring with the AS-T in Geology are not required to fulfill SF State Studies or Complementary Studies requirements.

Earth Sciences Major (Emphasis in Geology): 39-44 units
CHEM 115/CHEM 215/CHEM 216, MATH 226, ERTH 210, ERTH 500, ERTH 505, and 2 units of Geology emphasis electives, 1 unit of 4 units of Historical Geology, and 1 unit of 4 units of Calculus II in the Geology AS-T met in transfer.

• Basic Science & Math Foundation (8 units in PHYS): If some or all PHYS completed before transfer, consult with a major advisor about appropriate course choices.
• Earth Sciences Core/GWAR (8 units): Three of the 4 units of Historical Geology in the AS-T substitute for ERTH 500, and 3 of the 4 units of Calculus II in the Geology AS-T substitute for ERTH 505.
• Geology Emphasis (14 units)
• Electives (5-9 units): One unit of 4 units of Historical Geology and 1 unit of Calculus II in the Geology AS-T satisfy 2 units of the 11 unit elective requirement; if taken before transfer, Mineralogy satisfies 4 units of the elective requirement. If Mineralogy completed before transfer, consult with major advisor about appropriate course choices.
• Culminating Experience (4-5 units): Take ERTH 690 (1 unit) along with one of the following three options: Senior Honors Thesis (ERTH 697/ERTH 698 (2 units each); Senior Project (ERTH 695, 3 units); or Field Geology course (4 units) offered as a summer field camp, typically the summer following the 4th semester.

University Electives: 4 or more units
Depends on course choices made at the community college, how transferred units are applied to the requirements above, Culminating Experience option selected, and course choices at SF State - some courses may meet more than one requirement, e.g., both in UD GE and in the major.