

ASSESSMENT PLAN: B.S. in Geology

Date prepared: Spring 2016

PROGRAM MISSION

CSUEB Missions, Commitments, and ILOs, 2012 version

CSUEB Geology B.S. Program Description

Geology is the science that explores global change, the evolution of life, earthquakes, volcanoes, landslides, minerals, rocks, mountains, petroleum, water, and their complex relationship to our planet. Classroom, laboratory and field work combine to provide Cal State East Bay students with a strong understanding of natural processes, deep geologic time, sustainability, and the human impact on the environment. Our location adjacent to a major, active plate boundary offers unique opportunities for collaborative research and field studies.

Field experiences are fundamental to all degree programs and take advantage of the diverse geology, active tectonics, and environmental issues in the bay area and in California. The B.S. program in Geology is the primary professional degree program in Geology offered by the department, and serves as preparation for employment in the field, usually in a technical capacity. The B.A. program offers the student a greater degree of flexibility, addresses California next generation science standards, and is a path to a teaching credential. Students planning an academic or industry career or wishing to do original geologic research should plan on graduate study.

PROGRAM STUDENT LEARNING OUTCOMES (PLOs)

Students graduating with a B.S. in Geology will be able to:

<i>PLO 1</i> <i>ILO 1, 4,6</i>	Develop foundational knowledge in geologic Materials, Processes & Time (Knowledge), Processes & Time (Knowledge)
<i>PLO 2</i>	Develop fundamental geological field and laboratory skills and computer competence

PROGRAM MISSION

<i>ILO 1, 3,4,5,6</i>	(Skills)
<i>PLO 3 ILO 1,4,5,6</i>	Integrate and analyze geologic information through synthesis & critical thinking (Analysis)
<i>PLO 4 ILO 1,2,3,4,5,6</i>	Develop oral and written communication, and collaborative skills (Communication)
<i>PLO 5 ILO 1,2,3,4,5</i>	Understand the impact of the Earth Sciences on local-to-global sustainability and their role as an ethical scientist (Global)

Year 1: 2018-2019

1. Which PLO(s) to assess	PLO2 (Skills), PLO3 (Analysis)
2. Is it aligned with an ILO?	Yes
3. If yes, list ILO.	ILO1: Critical Thinking (361) ILO2: Communication (381)
4. Course name and number	GEOL 361 - Igneous & Metamorphic Petrology GEOL 381 - Structural Geology
5. SLO's from course	GEOL 361: Identify and interpret important minerals and textures in both hand samples and thin sections. GEOL 381: Analyze planar & linear field data by orthographic & stereographic methods, and 3-point problems.
6. Assessment Activity	Data analysis & Final Project
7. Assessment Instrument	Department Rubric
8. How data will be reported	Quantitative, report to include proportion of students in each level 1-5 (5 mastered)
9. Responsible person(s)	Bruce Pauly, Jose Rosario
10. Ways of closing the loop	Reports first to the Chair and then to the entire faculty for comment & discussion. An end-of-year meeting will be devoted to evaluating assessment results and "closing the loop." Identified "areas for improvement" will be incorporated into modified/updated core courses for future majors. Issues with the Thesis process will be discussed and acted upon.

Year 2: 2019-2020

1. Which PLO(s) to assess	PLO1 (Knowledge)
2. Is it aligned with an ILO?	Yes
3. If yes, list ILO.	ILO6: Specialized Knowledge (360 & 371)
4. Course name and number	GEOL 360 - Mineralogy and Optical Crystallography GEOL 371 - Sedimentary Geology and Stratigraphy
5. SLO's from course	GEOL 360: Identify key minerals in thin section using a petrographic microscope. GEOL 371: Collect lithostratigraphic data from field sites to construct cross-sections and stratigraphic columns.
6. Assessment Activity	Practicum; Final Project
7. Assessment Instrument	Department Rubric
8. How data will be reported	Quantitative, report to include proportion of students in each level 1-5 (5 mastered)
9. Responsible person(s)	Bruce Pauly, Gita Dunhill
10. Ways of closing the loop	Reports first to the Chair and then to the entire faculty for comment & discussion. An end-of-year meeting will be devoted to evaluating assessment results and "closing the loop." Identified "areas for improvement" will be incorporated into modified/updated core courses for future majors. Issues with the Thesis process will be discussed and acted upon.

Year 3: 2020-2021

1. Which PLO(s) to assess	PLO4 (<i>Communication</i>), PLO5 (<i>Global</i>)
2. Is it aligned with an ILO?	Yes
3. If yes, list ILO.	ILO5 Sustainability (381); ILO2: Communication (497)
4. Course name and number	GEOL 381 – Structural Geology GEOL 497 – Issues in Geosciences
5. SLO's from course	GEOL 381: Demonstrate knowledge of the various structural styles associated with plate boundaries and within continents and ocean basins. GEOL 487: Varies depending on topics covered
6. Assessment Activity	Precis & Oral Presentations; Final Project
7. Assessment Instrument	Department Rubric
8. How data will be reported	Quantitative, report to include proportion of students in each level 1-5 (5 mastered)
9. Responsible person(s)	Varies by Semester, Luther Strayer
10. Ways of closing the loop	Reports first to the Chair and then to the entire faculty for comment & discussion. An end-of-year meeting will be devoted to evaluating assessment results and “closing the loop.” Identified “areas for improvement” will be incorporated into modified/updated core courses for future majors. Issues with the Thesis process will be discussed and acted upon.

Year 4: 2021-2022

1. Which PLO(s) to assess	PLO2 (<i>Skills</i>), PLO3 (<i>Analysis</i>)
2. Is it aligned with an ILO?	Yes
3. If yes, list ILO.	ILO2 Communication (260); ILO1 Critical Thinking (297)
4. Course name and number	GEOL 260 – Intro. to GIS in Earth and Environmental Sciences GEOL 297 - Introductory Field Experience
5. SLO's from course	GEOL 260: Produce effective maps of analytical results that adhere to established cartographic standards. GEOL 297: Identify, measure and collect data from environmental systems using standard geologic and environmental tools and methods to construct basic surface distribution maps.
6. Assessment Activity	GIS Mapping Project; Field Mapping Project
7. Assessment Instrument	Department Rubric
8. How data will be reported	Quantitative, report to include proportion of students in each level 1-5 (5 mastered)
9. Responsible person(s)	Mitch Craig, Luther Strayer, Jean Moran, Jose Rosario
10. Ways of closing the loop	Reports first to the Chair and then to the entire faculty for comment & discussion. An end-of-year meeting will be devoted to evaluating assessment results and “closing the loop.” Identified “areas for improvement” will be incorporated into modified/updated core courses for future majors. Issues with the Thesis process will be discussed and acted upon.

Year 5: 2022-2023

1. Which PLO(s) to assess	PLO2 (<i>Skills</i>), PLO3 (<i>Analysis</i>)
2. Is it aligned with an ILO?	Yes
3. If yes, list ILO.	ILO1 Critical Thinking (361); ILO4 Collaboration (397);
4. Course name and number	GEOL 361 - Igneous and Metamorphic Petrology GEOL 397 - Adv. Field Experience Project
5. SLO's from course	GEOL 361: Understand field relationships between igneous, metamorphic, and sedimentary rocks. Interpret igneous rock phase diagrams and petrogenesis in terms of current models. GEOL 397: Compile and construct syntheses based on field observations, data, subsequent analysis, and peer/group interaction.
6. Assessment Activity	Final Project & Oral Presentations; Final Group Mapping Project
7. Assessment Instrument	Department Rubric
8. How data will be reported	Quantitative, report to include proportion of students in each level 1-5 (5 mastered)
9. Responsible person(s)	Bruce Pauley, Luther Strayer, Jean Moran, Jose Rosario, Mitch Craig
10. Ways of closing the loop	Reports first to the Chair and then to the entire faculty for comment & discussion. An end-of-year meeting will be devoted to evaluating assessment results and "closing the loop." Identified "areas for improvement" will be incorporated into modified/updated core courses for future majors. Issues with the Thesis process will be discussed and acted upon.