

Question 1: Program Learning Outcomes

Q1.1. Which of the following Program Learning Outcomes (PLOs) and Sac State Baccalaureate Learning Goals (BLGs) **did you assess in 2014-2015?**
[Check all that apply]

- 1. Critical thinking
- 2. Information literacy
- 3. Written communication
- 4. Oral communication
- 5. Quantitative literacy
- 6. Inquiry and analysis
- 7. Creative thinking
- 8. Reading
- 9. Team work
- 10. Problem solving
- 11. Civic knowledge and engagement
- 12. Intercultural knowledge and competency
- 13. Ethical reasoning
- 14. Foundations and skills for lifelong learning
- 15. Global learning
- 16. Integrative and applied learning
- 17. Overall competencies for GE Knowledge
- 18. Overall competencies in the major/discipline
- 19. Other, specify any PLOs that were assessed in 2014-2015 but not included above:
 - a.
 - b.
 - c.

Q1.3. Are your PLOs closely aligned with the mission of the university?

- 1. Yes
- 2. No
- 3. Don't know

Q1.4. Is your program externally accredited (other than through WASC)?

- 1. Yes
- 2. No (Go to **Q1.5**)
- 3. Don't know (Go to **Q1.5**)

Q1.4.1. If the answer to Q1.4 is yes, are your PLOs closely aligned with the mission/goals/outcomes of the accreditation agency?

- 1. Yes
- 2. No
- 3. Don't know

Q1.5. Did your program use the [Degree Qualification Profile](#) (DQP) to develop your PLO(s)?

- 1. Yes
- 2. No, but I know what the DQP is
- 3. No, I don't know what the DQP is.
- 4. Don't know

Q1.6. Did you use action verbs to make each PLO measurable (See Attachment I)? Yes

Q1.2. Please provide more detailed background information about **EACH PLO** you checked above and other information such as how your specific PLOs were **explicitly** linked to the Sac State BLGs:

This year we assessed three PLOs:

- 1. Students will master a set of fundamental concepts essential to understanding and solving geologic problems
- 2. Students will be proficient in solving geologic problems
- 3. Students will be proficient in understanding and producing geologic maps

Q1.2.1. Do you have rubrics for your PLOs?

- 1. Yes, for all PLOs
- 2. Yes, but for some PLOs
- 3. No rubrics for PLOs
- N/A, other (please specify):

IN QUESTIONS 2 THROUGH 5, REPORT IN DETAIL ON ONE PLO THAT YOU ASSESSED IN 2014-2015

Question 2: Standard of Performance for the selected PLO

Q 2.1. Specify one PLO here as an example to illustrate how you conducted assessment (be sure you checked the correct box for this PLO in Q1.1):

Students will be proficient in solving geologic problems.

We define problem solving in the context of geologic problem solving. For purposes of assessment, we have defined this as specific skills associated with geologic mapping: producing a map that accurately shows geologic content, interpreting that geologic content in a stratigraphic column and cross section, and writing a coherent geologic history based on that interpretation.

Q2.2. Has the program developed or adopted **explicit** standards of performance for this PLO?

1. Yes
 2. No
 3. Don't know
 4. N/A

Q2.3. Please provide the rubric(s) and standard of performance that you have developed for this PLO here or in the appendix: **[Word limit: 300]**

This year we used one measure – a geologic field report from our capstone class, Geology 188 – to measure two different PLOs (solving geologic problems, geologic mapping). The field report is scored using a grading rubric (Appendix I). We expect 70% of our students to score 70% or above on each item on the rubric.

Q2.4. Please indicate the category in which the selected PLO falls into.

- 1. Critical thinking
- 2. Information literacy
- 3. Written communication
- 4. Oral communication
- 5. Quantitative literacy
- 6. Inquiry and analysis
- 7. Creative thinking
- 8. Reading
- 9. Team work
- 10. Problem solving
- 11. Civic knowledge and engagement
- 12. Intercultural knowledge and competency
- 13. Ethical reasoning
- 14. Foundations and skills for lifelong learning
- 15. Global learning
- 16. Integrative and applied learning
- 17. Overall competencies for GE Knowledge
- 18. Overall competencies in the major/discipline
- 19. Other:

Please indicate where you have published the PLO, the standard of performance, and the rubric that measures the PLO:

	Q2.5	Q2.6	Q2.7
	(1) PLO	(2) Standards of Performance	(3) Rubrics
1. In SOME course syllabi/assignments in the program that address the PLO			
2. In ALL course syllabi/assignments in the program that address the PLO			X
3. In the student handbook/advising handbook			
4. In the university catalogue			

5. On the academic unit website or in newsletters			
6. In the assessment or program review reports, plans, resources or activities	X	X	X
7. In new course proposal forms in the department/college/university			
8. In the department/college/university's strategic plans and other planning documents			
9. In the department/college/university's budget plans and other resource allocation documents			
10. Other, specify:			

Question 3: Data Collection Methods and Evaluation of Data Quality for the Selected PLO

<p>Q3.1. Was assessment data/evidence collected for the selected PLO in 2014-2015?</p> <p><input checked="" type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No (Skip to Q6) <input type="checkbox"/> 3. Don't know (Skip to Q6) <input type="checkbox"/> 4. N/A (Skip to Q6)</p>	<p>Q3.2. If yes, was the data scored/evaluated for this PLO in 2014-2015?</p> <p><input checked="" type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No (Skip to Q6) <input type="checkbox"/> 3. Don't know (Skip to Q6) <input type="checkbox"/> 4. N/A (Skip to Q6)</p>
<p>Q3.1A. How many assessment tools/methods/measures in total did you use to assess this PLO?</p> <p>One measure (geologic field report) with several submeasures (rubric items).</p>	<p>Q3.2A Please describe how you collected the assessment data for the selected PLO. For example, in what course(s) or by what means were data collected (see Attachment II)? [Word limit: 300]</p> <p>The data were collected in Geology 188, Advanced Geologic Mapping, our senior capstone course. All BS students take this course. We used the results from all students in the class.</p>

Q3A: Direct Measures (key assignments, projects, portfolios)

<p>Q3.3. Were direct measures [key assignments, projects, portfolios, etc.] used to assess this PLO?</p> <p><input checked="" type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No (Go to Q3.7) <input type="checkbox"/> 3. Don't know (Go to Q3.7)</p>	<p>Q3.3.1. Which of the following direct measures were used? [Check all that apply]</p> <p><input checked="" type="checkbox"/> 1. Capstone projects (including theses, senior theses), courses, or experiences <input checked="" type="checkbox"/> 2. Key assignments from required classes in the program <input type="checkbox"/> 3. Key assignments from elective classes <input type="checkbox"/> 4. Classroom based performance assessments such as simulations, comprehensive exams, critiques <input type="checkbox"/> 5. External performance assessments such as internships or other community based projects <input type="checkbox"/> 6. E-Portfolios <input type="checkbox"/> 7. Other portfolios <input type="checkbox"/> 8. Other measure. Specify:</p>
<p>Q3.3.2. Please attach the direct measure you used to collect data.</p> <p>The course has several mapping projects. We sampled one specific project – the Poleta Folds project – because it included the most comprehensive set of measures of any of the projects in the class. The geologic field reports were scored using a scoring rubric designed by the instructor of the course.</p>	

<p>Q3.4. How was the data evaluated? [Select only one]</p> <p><input type="checkbox"/> 1. No rubric is used to interpret the evidence (Go to Q3.5)</p> <p><input checked="" type="checkbox"/> 2. Used rubric developed/modified by the faculty who teaches the class</p> <p><input type="checkbox"/> 3. Used rubric developed/modified by a group of faculty</p> <p><input type="checkbox"/> 4. Used rubric pilot-tested and refined by a group of faculty</p> <p><input type="checkbox"/> 5. The VALUE rubric(s)</p> <p><input type="checkbox"/> 6. Modified VALUE rubric(s)</p> <p><input type="checkbox"/> 7. Used other means. Specify:</p>		
<p>Q3.4.1. Was the direct measure (e.g. assignment, thesis, etc.) aligned directly and explicitly with the PLO?</p> <p><input checked="" type="checkbox"/> 1. Yes</p> <p><input type="checkbox"/> 2. No</p> <p><input type="checkbox"/> 3. Don't know</p> <p><input type="checkbox"/> 4. N/A</p>	<p>Q3.4.2. Was the direct measure (e.g. assignment, thesis, etc.) aligned directly and explicitly with the rubric?</p> <p><input checked="" type="checkbox"/> 1. Yes</p> <p><input type="checkbox"/> 2. No</p> <p><input type="checkbox"/> 3. Don't know</p> <p><input type="checkbox"/> 4. N/A</p>	<p>Q3.4.3. Was the rubric aligned directly and explicitly with the PLO?</p> <p><input checked="" type="checkbox"/> 1. Yes</p> <p><input type="checkbox"/> 2. No</p> <p><input type="checkbox"/> 3. Don't know</p> <p><input type="checkbox"/> 4. N/A</p>
<p>Q3.5. How many faculty members participated in planning the assessment data collection of the selected PLO?</p> <p>4</p>	<p>Q3.5.1. If the data was evaluated by multiple scorers, was there a norming process (a procedure to make sure everyone was scoring similarly)?</p> <p><input type="checkbox"/> 1. Yes</p> <p><input type="checkbox"/> 2. No</p> <p><input type="checkbox"/> 3. Don't know</p>	
<p>Q3.6. How did you select the sample of student work [papers, projects, portfolios, etc.]?</p> <p>Reports from all the students in the class were included (n = 23)</p>	<p>Q3.6.1. How did you decide how many samples of student work to review?</p> <p>Reports from all the students in the class were included (n = 23)</p>	
<p>Q3.6.2. How many students were in the class or program?</p> <p>23</p>	<p>Q3.6.3. How many samples of student work did you evaluate?</p> <p>23</p>	<p>Q3.6.4. Was the sample size of student work for the direct measure adequate?</p> <p><input checked="" type="checkbox"/> 1. Yes</p> <p><input type="checkbox"/> 2. No</p> <p><input type="checkbox"/> 3. Don't know</p>
<p>Q3B: Indirect Measures (surveys, focus groups, interviews, etc.)</p>		
<p>Q3.7. Were indirect measures used to assess the PLO?</p> <p><input type="checkbox"/> 1. Yes</p> <p><input checked="" type="checkbox"/> 2. No (Skip to Q3.8)</p> <p><input type="checkbox"/> 3. Don't know</p>	<p>Q3.7.1. Which of the following indirect measures were used? [Check all that apply]</p> <p><input type="checkbox"/> 1. National student surveys (e.g., NSSE)</p> <p><input type="checkbox"/> 2. University conducted student surveys (e.g. OIR)</p> <p><input type="checkbox"/> 3. College/Department/program student surveys</p>	
<p>Q3.7.2 If surveys were used, how was the sample size decided?</p>		

	<input type="checkbox"/> 4. Alumni surveys, focus groups, or interviews <input type="checkbox"/> 5. Employer surveys, focus groups, or interviews <input type="checkbox"/> 6. Advisory board surveys, focus groups, or interviews <input type="checkbox"/> 7. Other, specify:
Q3.7.3. If surveys were used, briefly specify how you selected your sample.	Q3.7.4. If surveys were used, what was the response rate?

Q3C: Other Measures (external benchmarking, licensing exams, standardized tests, etc.)

Q3.8. Were external benchmarking data such as licensing exams or standardized tests used to assess the PLO? <input type="checkbox"/> 1. Yes <input checked="" type="checkbox"/> 2. No (Go to Q3.8.2) <input type="checkbox"/> 3. Don't know	Q3.8.1. Which of the following measures were used? <input type="checkbox"/> 1. National disciplinary exams or state/professional licensure exams <input type="checkbox"/> 2. General knowledge and skills measures (e.g., CLA, CAAP, ETS PP, etc.) <input type="checkbox"/> 3. Other standardized knowledge and skill exams (e.g., ETS, GRE, etc.) <input type="checkbox"/> 4. Other, specify:
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Q3.8.2. Were other measures used to assess the PLO? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No (Go to Q3.9) <input type="checkbox"/> 3. Don't know (Go to Q3.9)	Q3.8.3. If other measures were used, please specify:
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Q3D: Alignment and Quality

Q3.9. Did the data, including the direct measures, from all the different assessment tools/measures/methods directly align with the PLO? <input checked="" type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. Don't know	Q3.9.1. Were ALL the assessment tools/measures/methods that were used good measures for the PLO? <input checked="" type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. Don't know
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Question 4: Data, Findings and Conclusions

Q4.1. Please provide simple tables and/or graphs to summarize the assessment data, findings, and conclusions: (see Attachment III) [Word limit: 600 for selected PLO]

Our results are shown in the table below:

Skill/Performance level	50%	60%	70%	80%	90%
Map Drafting	87	78	41	14	8
Map Explanation	100	100	90	80	41
Map Format	100	100	100	62	60
Map Geologic Content	100	82	79	40	8
Geologic History	62	20	17	6	0
Overall Map	100	82	60	10	0
Strat Column	100	100	100	50	3
Map Structure Content	100	82	60	20	0
Structure Overlay	100	90	90	62	58
Cross section Drafting	80	73	62	46	0
Cross section Explanation	100	75	75	52	30
Cross section Geologic Content	100	83	62	30	10

The table shows the percentage of students performing at various levels of performance: 50%, 60%, 70%, 80% and 90% of maximum score.

The yellow rows are technical skills, the blue rows are problem-solving and mapping skills, and the orange rows are summative scores that include both technical and problem-solving elements. We discuss the technical skills as well as the problem-solving skills here for sake of completeness.

The items in the table are grouped by the elements in the project (a map, a geologic history, a stratigraphic column, a structure overlay, and a cross-section).

Q4.2. Are students doing well and meeting program standard? If not, how will the program work to improve student performance of the selected PLO?

Our performance standard is that 70% of students score 70% or above on all items in the scoring rubric.

Our judgment is that students generally performed above expectations in the simplest technical skills: the format and explanations on the map and cross-section, and the structure overlay, which is tracing from data on the map. They performed below expectation in drafting, though not far below – over 70% of the students scored at a 60% level on all technical skills.

Students performed well on the stratigraphic column – far above the standard, with 100% of the students scoring above 70%, and 50% scoring above 80%. The current scoring system for the stratigraphic column does not allow us to tease out the technical component and the problem-solving component of producing a stratigraphic column, but given the students' high scores, we are satisfied with this mixed measure as an indication of geologic problem solving..

The students turned in a mixed performance on the measures of geologic problem solving. The students performed above expectations on the geologic content of the map and on the structure overlay. They scored below expectations on the structure content of the map and the geologic content of the cross section, but not far below the expectation; 82% of the students achieved a 60% performance level on the structure content and

83% of the students achieved a 60% performance level on the cross section.

The most dismaying result is that only 17% of students achieved a 70% level of performance on the geologic history.

The faculty who teach field mapping at both the junior and senior level met to discuss results. We agreed that our first priority is to improve student performance on geologic histories. We concluded that there may be two factors at work:

1. The current geologic history portion of the report asks students to both write their own interpretations of the geologic history of the rocks under study, and to integrate information from published histories of the region. It is thus difficult to identify which part of this task students are struggling with in the current grading scheme. We discussed separating these two tasks into separate parts of the report.
2. We also talked about the challenges students are having with geologic histories at all levels, from sophomore course to senior courses. We devised some instructional techniques to give students more practice with geologic histories during all of their mapping courses.

We also noted that while the performance on geologic cross sections is not quite where we want it, we see an enormous improvement from the last time we looked at cross sections two years ago. At that time we identified a number of potential problems in our field mapping courses that could be preventing students from getting adequate practice and feedback. Those changes have been implemented and we are heartened by the resulting increase in student performance.

Q4.3. For **selected** PLO, the student performance:

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> | 1. Exceeded expectation/standard |
| <input type="checkbox"/> | 2. Met expectation/standard |
| <input checked="" type="checkbox"/> | 3. Partially met expectation/standard |
| <input type="checkbox"/> | 4. Did not met expectation/standard |
| <input type="checkbox"/> | 5. No expectation or standard has been specified |
| <input type="checkbox"/> | 6. Don't know |

Question 5: Use of Assessment Data (Closing the Loop)

Q5.1. As a result of the **assessment effort in 2014-2015** and based on the prior feedback from OAPA, do you anticipate making any changes for your program (e.g., course structure, course content, or modification of PLOs)?

1. Yes
 2. No (Go to **Q6**)
 3. Don't know (Go to **Q6**)

Q5.1.2. Do you have a plan to assess the impact of the changes that you anticipate making?

1. Yes
 2. No
 3. Don't know

Q5.1.1. Please describe what changes you plan to make in your program as a result of your assessment of this PLO. Include a description of how you plan to assess the impact of these changes. **[Word limit: 300 words]**

See Q4.2 for discussion of instructional changes.

We will continue to collect grading rubrics from Geology 188 to see longitudinal changes in student scores.

Q5.2. How have the assessment data from last year (**2013 - 2014**) been used so far? **[Check all that apply]**

	(1) Very Much	(2) Quite a Bit	(3) Some	(4) Not at all	(8) N/A
1. Improving specific courses	X				
2. Modifying curriculum			X		
3. Improving advising and mentoring					X
4. Revising learning outcomes/goals				X	
5. Revising rubrics and/or expectations			X		
6. Developing/updating assessment plan			X		
7. Annual assessment reports	X				
8. Program review					X
9. Prospective student and family information				X	
10. Alumni communication				X	
11. WASC accreditation (regional accreditation)					X
12. Program accreditation					X
13. External accountability reporting requirement					X
14. Trustee/Governing Board deliberations					X
15. Strategic planning			X		
16. Institutional benchmarking					X
17. Academic policy development or modification				X	
18. Institutional Improvement					X
19. Resource allocation and budgeting				X	
20. New faculty hiring			X		
21. Professional development for faculty and staff				X	
22. Recruitment of new students				X	

23. Other Specify:

Q5.2.1. Please provide a detailed example of how you used the assessment data above.

We administered the SKI instrument last year and analyzed the results. We discussed integrating activities into more courses to help improve student scores. For example, we included more ways for students to engage the geologic time scale, and applied these methods in more courses

Additional Assessment Activities

Q6. Many academic units have collected assessment data on aspects of a program that are not related to PLOs (i.e., impacts of an advising center, etc.). **If** your program/academic unit has collected data on the program elements, please briefly report your results here. **[Word limit: 300]**

N/A

Q7. What PLO(s) do you plan to assess next year?

- 1. Critical thinking
- 2. Information literacy
- 3. Written communication
- 4. Oral communication
- 5. Quantitative literacy
- 6. Inquiry and analysis
- 7. Creative thinking
- 8. Reading
- 9. Team work
- 10. Problem solving
- 11. Civic knowledge and engagement
- 12. Intercultural knowledge and competency
- 13. Ethical reasoning
- 14. Foundations and skills for lifelong learning
- 15. Global learning
- 16. Integrative and applied learning
- 17. Overall competencies for GE Knowledge
- 18. Overall competencies in the major/discipline
- 19. Other, specify any PLOs that were assessed in 2014-2015 but not included above:
 - a.
 - b.
 - c.

Q8. Have you attached any appendices? If yes, please list them all here:

Appendix I: Grading Rubric for Geology 188

Program Information

<p>P1. Program/Concentration Name(s): Geology BS</p> <p>P1.1. Report Authors: Judi Kusnick, Tim Horner</p>	<p>P2. Program Director:</p> <p>P2.1. Department Chair: Tim Horner</p>
<p>P3. Academic unit: Department, Program, or College: Geology</p>	<p>P4. College: NSM</p>
<p>P5. Fall 2014 enrollment for Academic unit (See Department Fact Book 2014 by the Office of Institutional Research for fall 2014 enrollment: 105</p>	<p>P6. Program Type: [Select only one]</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 1. Undergraduate baccalaureate major <input type="checkbox"/> 2. Credential <input type="checkbox"/> 3. Master's degree <input type="checkbox"/> 4. Doctorate (Ph.D./Ed.d)

		5. Other. Please specify:									
Undergraduate Degree Program(s): P7. Number of undergraduate degree programs the academic unit has: 3 P7.1. List all the name(s): Geology BS, Geology BA, Earth Science BA P7.2. How many concentrations appear on the diploma for this undergraduate program? 0		Master Degree Program(s): P8. Number of Master's degree programs the academic unit has: 1 P8.1. List all the name(s): Geology MS P8.2. How many concentrations appear on the diploma for this master program? 0									
Credential Program(s): P9. Number of credential programs the academic unit has: 0 P9.1. List all the names:		Doctorate Program(s) P10. Number of doctorate degree programs the academic unit has: 0 P10.1. List all the name(s):									
When was your assessment plan?		1. Before 2007-08	2. 2007-08	3. 2008-09	4. 2009-10	5. 2010-11	6. 2011-12	7. 2012-13	8. 2013-14	9. 2014-15	10. No formal plan
P11. Developed		X									
P12. Last updated								X			
									1. Yes	2. No	3. Don't Know
P13. Have you developed a curriculum map for this program?									X		
P14. Has the program indicated explicitly where the assessment of student learning occurs in the curriculum?									X		
P15. Does the program have any capstone class?									X		
P16. Does the program have ANY capstone project?									X		

Assessing Other Program Learning Outcomes (Optional)

If your program assessed PLOs not reported above, please summarize your assessment activities in the table below. If you completed part of the assessment process, but not the full process (for example, you revised a PLO and developed a new rubric for measuring it), then put N/A in any boxes that do not apply.

Report Assessment Activities on Additional PLOs Here

Q1: Program Learning Outcome (PLO)

Students will be proficient in understanding and producing geologic maps

Q2: Standard of Performance/ Target Expectation

70% of students will score at least 70% on scoring rubric

Q3: Methods/ Measures (Assignments)

Geologic map from Poleta Folds project in Geology 188

Q4: Data/Findings/ Conclusions

Students performed above expectations in some technical areas (explanation, format) but below expectations in drafting. Students exceeded expectations in the geologic content of the maps. Overall, they did not quite meet expectations

Q5: Use of Assessment Data/ Closing the Loop

We plan to have students use their field notebooks to do more predictions of what they expect to find during the mapping process, more sketches of the geologic structure, and more hypothesized geologic histories during mapping instead of just summatively.

Appendix I: Field Project Grading Sheet

Poleta Folds 2014 Grade Sheet		Name	Total Points: /100
Geologic Map		Comments	Pts/40
category 1: geologic content			
correct location and detail of contacts (5)			
detail of structures (4)			
correct assignment of units (3)			
correct designation of contact type (3); unit symbols well distributed (2)			/17
category 2: structure content			
number/correctness of S/D & various structural symbols (4)			
faults and fold axes shown correctly (5)			/9
category 2B: Structure Overlay - Plate 1B			/2
category 3: format			
title, N arrow, scale, author/date			/2
category 4: drafting			
drafting, neatness, appropriate colors			/5
category 5: explanation			
explain title, correct units/ages, stratig, symbols			/5
		Total	/40
Geologic Cross Section			Pts/20
category 1: geologic content			
section matches map (3); correct stratigraphy (2)			
dips shown correctly (match map) (2); fault slip matches map(2)			
projection of structure into Xsec reflected (2)			
ductile deformation/foliation reflected (1)			/12
category 2: drafting/format			
appropriate lith symbols, title, name, neatness, colors			/4
category 3: explanation			
explain title, correct units/ages, stratig, symbols			/4
		Total	/20
Stratigraphic Column			Pts/20
category 1: geologic content			
accuracy of info (thickness) (2)			
correct stratigraphy (1)			
technical detail (lith symbols) (3)			
complete/succinct descriptions (3)			
correct/eased weathering profile (2)			
unknown top/bottom unit thickness (1)			/12
category 2: format			
ages, formation, thickness, section, description			

title, author, date, scale bar		
explanation complete		/4
category 3: drafting		
drafting, neatness (2)		
graphics (2)		/4
	Total	/20
Bulleled Geologic History	Total	Pts/20
Per syllabus "events", p. 38		/20