2018 - 2019
Annual Program Assessment Report

The Office of Academic Program Assessment
California State University, Sacramento

For more information visit our **website**
or **contact us** for more help.

This year OAPA has refined the annual assessment reporting process to make it simple, clear, and of high quality at the same time.

IMPORTANT REMINDER:
Please use the "Guidelines" and "Examples for Answering Open-Ended Questions" to answer each question in the template as you complete the report. Please provide and attach the following information:
1. PLO Assessed **(Q1.1, Q2.1)**
2. Definition of the PLO(s) **(Q2.1.1)**
3. Rubrics and Explicit Program (not class) Standards of Performance/Expectations **(Q2.3)**
4. Direct Measures **(Q3.3.2)**
5. Data Table(s) **(Q4.1)**
6. Curriculum Map **(Q21.1)**
7. Most Updated Assessment Plan **(Q20.2)**

Please provide only relevant information and limit all of your attachments to 30 pages.

Please save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.

DEADLINE TO SUBMIT: JULY 1, 2019.

Please begin by selecting your program name in the drop down.
If the program name is not listed, please enter it below:

BS Geology

OR enter program name:

Section 1: Report All of the Program Learning Outcomes Assessed

Question 1: All the Program Learning Outcomes Assessed

Q1.1.
Which of the following Program Learning Outcomes (PLOs) including Sac State Baccalaureate Learning Goals (BLGs)or emboldened Graduate Learning Goals (GLGs) **did you assess?** [**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, Competency, and Perspectives**
☐ 13. Ethical Reasoning
☐ 14. Foundations and Skills for Lifelong Learning
☐ 15. **Global Learning and Perspectives**
☐ 16. Integrative and Applied Learning
☐ 17. Overall Competencies for GE Knowledge
☑ 18. **Overall Disciplinary Knowledge**
☐ 19. **Professionalism**
☐ 20. **Research**
☐ 21A. Other, specify any assessed PLOs not included above:

a. [   ]

b. [   ]

c. [   ]

☐ 21B. **Check here if your program has not collected any data for any PLOs**. Please go directly to Q6 (skip Q1.3.a. to Q5.3.1.)

Q1.3.a.
Are your PLOs closely aligned with the mission and/or the strategic plan of the university?

◉ 1. Yes
○ 2. No
○ 3. Don't know

[Undo]

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

Section 2: Report One Learning Outcome in Detail

Question 2: Detailed Information for the Selected PLO

Q2.1.
Select **OR** type in **ONE(1)** PLO here as an example to illustrate how you conducted assessment (be sure you *checked the* **correct box** for this PLO in Q1.1):

Overall Disciplinary Knowledge

If your PLO is **not listed, please enter it here**:

[   ]

Q2.1.1.
Please provide the definition for this PLO (**See Appendix 15 Sample Answer to Q2.1.1**).

Students will master a set of fundamental geologic concepts essential to understanding and solving geologic problems.

Q2.2.

Has the program developed or adopted *explicit program standards of performance/expectations* for this PLO? (e.g. "We expect 80% of our students to achieve at least a score of 3 or higher in all dimensions of the Written Communication VALUE rubric.")

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

Undo

Q2.2.a.
Please provide the standards of performance/expectations for this PLO:

We expect at least 70% of seniors to correctly answer questions in each domain in our department's Student Kn...

Q2.3.
Please **provide and/or attach the rubric(s)** that you used to evaluate your assignment**(
[See Appendix 15 Sample Answer to Q2.3](#)):**

No rubric. See attached key to Student Knowledge Inventory.

📎 SKI 2018 key.pdf
261.61 KB   📎 Click here to attach a file

Q2.4. PLO	Q2.5. Stdrd	Q2.6. Rubric	Please indicate where you have published the **PLO**, the **standard (stdrd)** of performance, and the **rubric** that was used to measure the PLO:
☑	☐	☐	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
☐	☐	☐	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
☐	☐	☐	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

Q3.1.
Was assessment data/evidence **collected** for the selected PLO?

- ◉ 1. Yes
- ○ 2. No (skip to **Q6**)
- ○ 3. Don't know (skip to **Q6**)
- ○ 4. N/A (skip to **Q6**)

Undo

Q3.1.1.
How many assessment tools/methods/measures **in total** did you use to assess this PLO?

1

Q3.2.
Was the data **scored/evaluated** for this PLO?

- ◉ 1. Yes
- ○ 2. No (skip to **Q6**)
- ○ 3. Don't know (skip to **Q6**)
- ○ 4. N/A (skip to **Q6**)

Undo

Q3.2.1.
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:

The Student Knowledge Inventory was distributed at the start of the semester during the following classes:

2015-2016: administered in fall in GEOL 100 (30 juniors), GEOL 110A (25 seniors)

2018-2019: administered in the fall in GEOL 100 (29 juniors), in the spring in GEOL 110A (29 seniors)

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

Question 3A: Direct Measures (key assignments, projects, portfolios, etc.)

Q3.3.
Were direct measures (key assignments, projects, portfolios, course work, student tests, etc.) used to assess this PLO?

- ◉ 1. Yes
- ○ 2. No (skip to **Q3.7**)
- ○ 3. Don't know (skip to **Q3.7**)

Undo

Q3.3.1.
Which of the following direct measures (key assignments, projects, portfolios, course work, student tests, etc.) were used? [**Check all that apply**]

- ☐ 1. Capstone project (e.g. theses, senior theses), courses, or experiences
- ☐ 2. Key assignments from required classes in the program
- ☐ 3. Key assignments from elective classes
- ☐ 4. Classroom based performance assessment such as simulations, comprehensive exams, or critiques

☐ 5. External performance assessments such as internships or other community-based projects

☐ 6. E-Portfolios

☐ 7. Other Portfolios

☑ 8. Other, specify:

Student Knowledge Inventory given during required classes in the program (SKI is not connected to c...

Q3.3.2.
Please **attach the assignment instructions that the students received to complete the assignment (**
See Appendix 1 Sample Answer to Q3.3.2):

📎 **SKI 2018.pdf**
260.26 KB

📎 **SKI 2015.pdf**
68.13 KB

Q3.4.
What tool was used to evaluate the data?

◉ 1. **No** rubric is used to interpret the evidence (skip to **Q3.4.4.**)

○ 2. Used rubric developed/modified by the faculty who teaches the class (skip to **Q3.4.2.**)

○ 3. Used rubric developed/modified by a group of faculty (skip to **Q3.4.2.**)

○ 4. Used rubric pilot-tested and refined by a group of faculty (skip to **Q3.4.2.**)

○ 5. The VALUE rubric(s) (skip to **Q3.4.2.**)

○ 6. Modified VALUE rubric(s) (skip to **Q3.4.2.**)

○ 7. Used other means (Answer **Q3.4.1.**)

Undo

Q3.4.1.
If you used other means, which of the following measures was used? [**Check all that apply**]

☐ 1. National disciplinary exams or state/professional licensure exams (skip to **Q3.4.4.**)

☐ 2. General knowledge and skills measures (e.g. CLA, ETS PP, etc.) (skip to **Q3.4.4.**)

☐ 3. Other standardized knowledge and skill exams (e.g. ETC, GRE, etc.) (skip to **Q3.4.4.**)

☑ 4. Other, specify:

(skip to **Q3.4.4.**)

Q3.4.2.
Was the **rubric** aligned directly and explicitly **with the PLO**?

○ 1. Yes

○ 2. No

○ 3. Don't know

◉ 4. N/A

Undo

Q3.4.3.
Was the **direct measure** (e.g. assignment, thesis, etc.) aligned directly and explicitly **with the rubric**?

○ 1. Yes

○ 2. No

○ 3. Don't know

◉ 4. N/A

Undo

Q3.4.4.
Was the **direct measure** (e.g. assignment, thesis, etc.) aligned directly and explicitly **with the PLO**?

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

Q3.5.
Please enter the number (#) of faculty members who participated in planning the assessment data **collection** of the selected PLO?

3

Q3.5.1.
Please enter the number (#) of faculty members who participated in the **evaluation** of the assessment data for the selected PLO?

2

Q3.5.2.
If the data was evaluated by multiple scorers, was there a norming process (a procedure to make sure everyone was scoring similarly)?

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

Q3.6.
How did you **select** the sample of student work (papers, projects, portfolios, etc.)?

The Student Knowledge Inventory was written by Geology Department faculty and was designed to cover a broad range of basic geology topics that we would expect students to understand prior to graduating from our program.

Q3.6.1.
How did you **decide** how many samples of student work to review?

Samples were used from all students within a required class (GEOL 100 Mineralogy for juniors, GEOL 110A Structural Geology for seniors) in order to maximize the sample size and thus representativeness of the student performance.

Q3.6.2a.
Please enter the number (#) of students *__from ONLY your program__* that were assessed for this program learning outcome (not all students in the class).

58

Q3.6.3a.
Please enter the number (#) of samples of student work *__from ONLY your program__* that were evaluated for this program learning outcome.

58

Q3.6.4.
Was the sample size of student work for this program assessment adequate for assessing this program learning outcome?

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

Undo

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

Question 3B: Indirect Measures (surveys, focus groups, interviews, etc.)

Q3.7.
Were indirect measures used to assess the PLO?

- ◯ 1. Yes
- ⦿ 2. No (skip to **Q3.8**)
- ◯ 3. Don't Know (skip to **Q3.8**)

Undo

Q3.7.1.
Which of the following indirect measures were used? [**Check all that apply**]

- ☐ 1. National student surveys (e.g. NSSE)
- ☐ 2. University conducted student surveys (e.g. OIR)
- ☐ 3. College/department/program student surveys or focus groups
- ☐ 4. Alumni surveys, focus groups, or interviews
- ☐ 5. Employer surveys, focus groups, or interviews
- ☐ 6. Advisory board surveys, focus groups, or interviews
- ☐ 7. Other, specify:

Q3.7.1.1.
Please explain and attach the indirect measure you used to collect data:

📎 **Click here to attach a file**   📎 **Click here to attach a file**

Q3.7.2.
If surveys were used, how was the sample size **decided**?

Q3.7.3.
If surveys were used, how did you **select** your sample:

Q3.7.4.
If surveys were used, please enter the response rate:

Question 3C: 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?

○ 1. Yes
◉ 2. No (skip to **Q3.8.2**)
○ 3. Don't Know (skip to **Q3.8.2**)

Undo

Q3.8.1.
Which of the following measures was used? [**Check all that apply**]

☐ 1. National disciplinary exams or state/professional licensure exams
☐ 2. General knowledge and skills measures (e.g. CLA, ETS PP, etc.)
☐ 3. Other standardized knowledge and skill exams (e.g. ETC, GRE, etc.)
☐ 4. Other, specify:

Q3.8.2.
Were other measures used to assess the PLO?

○ 1. Yes
◉ 2. No (skip to **Q4.1**)
○ 3. Don't know (skip to **Q4.1**)

Undo

Q3.8.3.
If other measures were used, please specify:

📎 Click here to attach a file   📎 Click here to attach a file

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

Question 4: Data, Findings, and Conclusions

Q4.1.
Please provide tables and/or graphs to summarize the assessment data, findings, and conclusions for the selected PLO in **Q2.1** (see Appendix 12 in our Feedback Packet Example.) Please do **NOT** include student names and other confidential information. This is going to be a **PUBLIC** document:

📎 SKI results graph.pdf
84.27 KB   📎 Results table.pdf
202.08 KB

Q4.2.
Are students doing well and meeting the program standard? **If not**, how will the program work to improve student performance of the selected PLO (**See Appendix 15 Sample Answers to Q4.1-Q4.3**)?

Overall disciplinary knowledge

The areas in which students are consistently scoring at or above the performance standard as seniors are basic chemistry, basic plate tectonics, and classification as rock, mineral or element. The areas in which senior students may score above the performance standard are the fold problem, sedimentary rock environments, and metamorphic rock classification. The areas in which senior students are consistently scoring below the performance standard are the Geologic Timescale and Igneous Rock classification. A detailed analysis of each topic and suggestions for improving student performance are given below.

<u>Topics in which we are meeting performance standards:</u>

Basic Chemistry (bonding, isotopes)

Both juniors and seniors are consistently performing above the performance standard for chemical bonding. This suggests that GEOL 10 Physical Geology is sufficiently preparing students for study in geology by providing them with an understanding of fundamental chemical processes.

Plate Tectonics and Rock, Mineral or Element classification

Juniors perform close to or above the performance standard for basic plate tectonics and rock, mineral, or element classification, suggesting that GEOL 10 provides a decent knowledge base for these topics. Seniors consistently perform above the performance standard for both of these topics, suggesting that upper division geology coursework builds on the knowledge gained from lower division courses in a way that students are able to understand and retain.

<u>Topics in which we sometimes meet performance standards:</u>

Sedimentary Rock environments

Juniors consistently perform below the performance standard, scoring 55-60%. In 2015, seniors performed above the performance standard at 88%, while in 2018 seniors performed below the standard at 62%. This reduction in performance may be an artifact of the timing of the Student Knowledge Inventory exam. In 2015, students took the exam in the fall after having taken GEOL 103 Sedimentology and Stratigraphy in Spring 2015 so sedimentary environments were relatively fresh in their minds. In 2018, students took the SKI in Spring 2019, so more than a semester after having taken GEOL 103. This difference in performance suggests that while students are learning sedimentary rock topics sufficiently in GEOL 103, they are not retaining the information in the long term. Important sedimentary topics should be incorporated into senior level coursework so student knowledge is refreshed and students retain critical information beyond the semester in which they received instruction.

Metamorphic Rocks

Juniors consistently perform below the performance standard, scoring 54-38%. In 2015, seniors performed above the performance standard at 71%, while in 2018 seniors performed below the standard at 47%.   The decline in performance between 2015 and 2018 may have been due to different methodologies of scoring the question. The question stated there could be multiple correct answers, and it is hypothesized that the scorer in 2015 accepted one of the correct answers as correct, while the scorer in 2018 gave partial credit for only one of the correct answers. As a result, comparisons between years will not be attempted, but comparisons within years are still possible. In 2015 there was a 17% increase in performance between juniors and seniors, while in 2018 there was only an 9% increase in performance between juniors and seniors. The smaller increase in performance in 2018 is doubly surprising as those seniors took the Student Knowledge inventory in January 2019 after having taken GEOL 102 Igneous and Metamorphic Petrology in Fall 2018. (In Fall 2015, the seniors were just starting Geology 102, Igneous and Metamorphic Petrology). This suggests that GEOL 102 is not sufficiently preparing students for future work in metamorphic rocks. In order to raise student performance to the standard, GEOL 102 may need to be modified to increase its emphasis on metamorphic rocks.

📎 Click here to attach a file | 📎 Click here to attach a file

Q4.3.
For the selected PLO, the student performance:
○ 1. **Exceeded** expectation/standard
○ 2. **Met** expectation/standard
◉ 3. **Partially** met expectation/standard
○ 4. Did not meet expectation/standard
○ 5. No expectation/standard has been specified
○ 6. Don't know

Undo

Question 4A: Alignment and Quality

Q4.4.
Did the data, including the direct measures, from all the different assessment tools/measures/methods directly align with the PLO?
◉ 1. Yes
○ 2. No
○ 3. Don't know

Undo

Q4.5.
Were **all** the assessment tools/measures/methods that were used good measures of the PLO?
◉ 1. Yes
○ 2. No
○ 3. Don't know

Undo

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

Q5.1.
As a result of the assessment effort and based on 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 (skip to **Q5.2**)
○ 3. Don't know (skip to **Q5.2**)

Undo

Q5.1.1.
Please describe *what changes* you plan to make in your program as a result of your assessment of this PLO.

In GEOL 102, during and after instruction about more detailed classification of igneous rocks, instructors will reiterate concepts relating to the more common igneous rocks that students will typically see in their careers as geologists. There will also be an increased emphasis on parentage of metamorphic rocks.

In order to increase knowledge of the Geologic Timescale, we need to incorporate its use into upper division required classes in our program. Having students apply the geologic timescale on a repeated basis would both increase their familiarity with the timescale, and help students to see its applicability in their careers.

In order to improve retention of important sedimentary topics, these will be incorporated into senior level coursework so student knowledge is refreshed and students retain critical information beyond the semester in which they received instruction.

Q5.1.2.
Do you have a plan to assess the *impact of the changes* that you anticipate making?
◉ 1. Yes, describe your plan:

The Student Knowledge Inventory is given every year. Student performance on the SKI will be tracked and further adjustments made if performance does not rise to meet the performance standard.

Additonally, future SKIs will ask students to identify in which Geology Department program they are majoring (BS Geology, BA Geology, BA Earth Science) so student performance can be separated by program. Students in all programs take many of the same required classes that should prepare them to meet performance standards on the SKI, but future assessment will determine if that is actually the case.

○ 2. No
○ 3. Don't know
[Undo]

Q5.2.

To what extent did you apply **previous assessment results** collected through your program in the following areas? [Undo 1-12] [Undo 12-23]	1. Very Much	2. Quite a Bit	3. Some	4. Not at All	5. N/A
1. Improved specific courses	○	◉	○	○	○
2. Modified curriculum	○	○	◉	○	○
3. Improved advising and mentoring	○	○	◉	○	○
4. Revised learning outcomes/goals	○	◉	○	○	○
5. Revised rubrics and/or expectations	○	○	◉	○	○
6. Developed/updated assessment plan	○	◉	○	○	○
7. Annual assessment reports	○	◉	○	○	○
8. Program review	○	◉	○	○	○
9. Prospective student and family information	○	○	○	◉	○
10. Alumni communication	○	○	○	◉	○
11. WSCUC accreditation (regional accreditation)	○	○	○	○	◉

	1.	2.	3.	4.	5.
12. Program accreditation	○	○	○	○	◉
13. External accountability reporting requirement	○	○	○	○	◉
14. Trustee/Governing Board deliberations	○	○	○	○	◉
15. Strategic planning	○	○	◉	○	○
16. Institutional benchmarking	○	○	○	○	◉
17. Academic policy development or modifications	○	○	○	◉	○
18. Institutional improvement	○	○	○	◉	○
19. Resource allocation and budgeting	○	○	◉	○	○
20. New faculty hiring	○	◉	○	○	○
21. Professional development for faculty and staff	○	○	◉	○	○
22. Recruitment of new students	○	○	○	◉	○
23. Other, specify:	○	○	○	○	○

Q5.2.1.

Please provide a detailed example of how you used the assessment data above:

Assessment during prior years indicated students required additional feedback in their field instruction. As a result, during faculty hiring we prioritized a field geologist in our hiring request so there will be a consistent faculty member teaching our introductory field methods course.

Q5.3.

To what extent did you apply **previous assessment feedback** from the Office of Academic Program Assessment in the following areas?

Undo 1-9

	1. Very Much	2. Quite a bit	3. Some	4. Not at All	5. N/A
1. Program Learning Outcomes	○	○	◉	○	○
2. Standards of Performance	○	○	◉	○	○
3. Measures	○	○	◉	○	○
4. Rubrics	○	◉	○	○	○
5. Alignment	○	○	◉	○	○
6. Data Collection	○	○	◉	○	○
7. Data Analysis and Presentation	○	○	◉	○	○
8. Use of Assessment Data	○	○	◉	○	○
9. Other, please specify:	○	○	○	○	○

Q5.3.1.

Please share with us an example of how you applied **previous feedback** from the Office of Academic Program Assessment in any of the areas above:

We had one faculty member score the Student Knowledge Inventory in order to avoid disparate scoring between faculty (2015 SKI were scored by one faculty member, 2018 SKI were scored by one faculty member - unfortunately, due to retirement they could not be the same faculty member).

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

Section 3: Report Other Assessment Activities

Other Assessment Activities

Q6.
If your program/academic unit conducted assessment activities that are **not directly related to the PLOs** for this year (i.e. impacts of an advising center, etc.), please provide those activities and results here:

📎 Click here to attach a file   📎 Click here to attach a file

Q6.1.
Please explain how the assessment activities reported in **Q6** will be linked to any of your PLOs and/or PLO assessment in the future and to the mission, vision, and the strategic planning for the program and the university:

Q7.
What PLO(s) do you plan to assess next year? [**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, Competency, and Perspectives**
☐ 13. Ethical Reasoning
☐ 14. Foundations and Skills for Lifelong Learning
☐ 15. **Global Learning and Perspectives**
☐ 16. Integrative and Applied Learning
☐ 17. Overall Competencies for GE Knowledge
☑ 18. **Overall Disciplinary Knowledge**
☐ 19. **Professionalism**
☐ 20. **Research**
☐ 21. Other, specify any PLOs not included above:

a. [_____]

b. [_____]

c. [_____]

Q8.
Please explain how this year's assessment activities help you address recommendations from your department's
last program review?

[   ]

Q9. Please attach any additional files here:

| 📎 Click here to attach a file | 📎 Click here to attach a file |
| 📎 Click here to attach a file | 📎 Click here to attach a file |

Q9.1.
If you have attached **any** files to this form, please list **every** attached file here:

[   ]

Section 4: Background Information about the Program

Program Information (**Required**)

Program:

[   ]

(If you typed in your program name at the beginning, please skip to **Q11**)

Q10.

Program/Concentration Name: [skip if program name is already selected or appears above]

BS Geology

Q11.
Report Author(s):

Amelia Vankeuren

Q11.1.
Department Chair/Program Director:

Kevin Cornwell

Q11.2.
Assessment Coordinator:

Amelia Vankeuren

Q12.
Department/Division/Program of Academic Unit (select):

Geology

Q13.
College:

College of Natural Science & Mathematics

Q14.
What is the total enrollment (#) for Academic Unit during assessment (see Departmental Fact Book):

86

Q15.
Program Type:

- ⦿ 1. Undergraduate baccalaureate major
- ○ 2. Credential
- ○ 3. Master's Degree
- ○ 4. Doctorate (Ph.D./Ed.D./Ed.S./D.P.T./etc.)
- ○ 5. Other, specify:

Undo

Q16. Number of **undergraduate degree programs** the academic unit has?

3

Q16.1. List all the names:

BS Geology

BA Geology

BA Earth Science

Q16.2. How many concentrations appear on the diploma for this undergraduate program?

0

Q17. Number of **master's degree programs** the academic unit has?

1

Q17.1. List all the names:

MS Geology

Q17.2. How many concentrations appear on the diploma for this master's program?

0

Q18. Number of **credential programs** the academic unit has?

0

Q18.1. List all the names:

Q19. Number of **doctorate degree programs** the academic unit has?

0

Q19.1. List all the names:

When was your **Assessment Plan**...	1. Before 2012-13	2. 2013-14	3. 2014-15	4. 2015-16	5. 2016-17	6. 2017-18	7. No Plan	8. Don't know
Q20. Developed?	⦿	○	○	○	○	○	○	○
Q20.1. Last updated?	○	○	○	○	○	⦿	○	○

Undo

Q20.2. (Required)
Please **obtain** and **attach** your latest **assessment plan**:

📎 **Geology Assessment Plan 2019.pdf**
216.54 KB

Q21.
Has your program developed a **curriculum map? Please note: A curriculum map is not a roadmap. A roadmap is a graphical representation of the courses students must take to graduate. A curriculum map is the matrix that represents in which course a certain program learning outcome (PLO), student learning outcome (SLO), or course learning outcome (CLO) was introduced, developed, and/or mastered.**

⦿ 1. Yes
○ 2. No
○ 3. Don't know

Undo

Q21.1.
Please **obtain** and **attach** your latest **curriculum map**:

📎 Geology curriculum map.pdf
209.45 KB

Q22.
Has your program indicated explicitly in the curriculum map where assessment **of student learning** occurs?
- ◉ 1. Yes
- ○ 2. No
- ○ 3. Don't know

Undo

Q23.
Does your program have a capstone class?
- ◉ 1. Yes, specify:

GEOL 188 Advanced Field Mapping

- ○ 2. No
- ○ 3. Don't know

Undo

Q23.1.
Does your program have a capstone project(s)?
- ○ 1. Yes
- ◉ 2. No
- ○ 3. Don't know

Undo

Q24.
BEFORE YOU SUBMIT: Please **check** that you have included all of the following key evidences:
- ☑ 1. PLO Assessed **(Q1.1, Q2.1)**
- ☑ 2. Definition of the PLO(s) **(Q2.1.1)**
- ☑ 3. Rubrics and Explicit Program (not class) Standards of Performance/Expectations **(Q2.3)**
- ☑ 4. Direct Measures **(Q3.3.2)**
- ☑ 5. Data Table(s) **(Q4.1)**
- ☑ 6. Curriculum Map **(Q21.1)**
- ☑ 7. The Most Updated Assessment Plan **(Q20.2)**

Please do **NOT** include student names and other confidential information. This is going to be a **PUBLIC** document.

Save When Completed!
(**Remember**: **Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.**)

DEADLINE: July 1, 2019.

Thank you and have a great summer!

ver. 03.**11**.19

Student Knowledge Inventory   Name _____
2018

Circle the course in which you are taking this: Mineralogy   Structural Geology & Tectonics

Where did you take your Physical Geology course? _____

Where did you take your Historical Geology course? _____

Circle the correct answer (or answers where appropriate).

1. The periods of the Paleozoic include (mark all that apply)
    A. Triassic   D. Paleogene
    B. Permian   E. Oligocene
    C. Silurian

2. Different_____of an element are atoms containing the **same number** of protons but
    different numbers of neutrons.
    A. ions   D. isotopes
    B. classes   E. varieties
    C. particles

3. Normal faults occur where
    A. there is horizontal shortening
    B. the hanging wall moves down
    C. the hanging wall moves up
    D. the hanging wall moves sideways

4. Which of the following statements about the age of rocks is most likely true?
    A. Rocks found in the ocean are about the same age as rocks found on continents
    B. Rocks found on continents are generally older than rocks found in the ocean
    C. Rocks found in the ocean are generally older than rocks found on continents
    D. None of the above; we cannot figure out the age of rocks precisely enough to figure out
        which rocks are older

5. The difference between ionic and covalent bonding is
    A. in ionic bonding, atoms can share or lose electrons.
    B. ionic bonds are always stronger
    C. covalent bonding only occurs in salts
    D. in covalent bonding, atoms share electrons
    E. covalent bonds can only occur when metals bond.

6. What is the most likely environment where limestone forms?
    A. Fast moving stream
    B. Deep ocean
    C. Flood plain
    D. Shallow ocean or sea
    E. Alluvial fan

7. The ocean floor
   A. is oldest at the edges
   B. is generally older than continental rocks
   C. is generally deepest in the middle
   D. is similar in composition to the continents
   E. is created at subduction zones

8. Match each metamorphic rock with at least one parent rock that it might have been before metamorphism (there might be more than one possibility for each parent rock or metamorphic rock). Put the letter or letters of the appropriate parent rock(s) in the blank after the name of the metamorphic rock.

   Gneiss C,D,E   a. Sandstone

   Slate C   b. Limestone

   Quartzite A,F   c. Shale

   Greenstone E   d. Granite

   Marble B   e. Basalt

   Schist C,D,E   f. Chert

9. Fill in the chart below with the appropriate igneous rock names. NOTE: you may have used a chart to identify igneous rocks that looked different from this chart. Please think carefully about what rock name goes in which block.

Texture / Composition	Fine-grained	Coarse-grained
Mafic	Basalt	Gabbro
Intermediate	Andesite	Diorite
Felsic	Rhyolite	Granite

10. Identify each of the following materials as either an element (E), a mineral (M) or a rock (R)

arkose _R___   phyllite _R___   iron _E___   peridotite _R___

augite _M___   calcium _E___   mica _M___   amphibolite _R___

11. Look at the geologic
    map below.

A
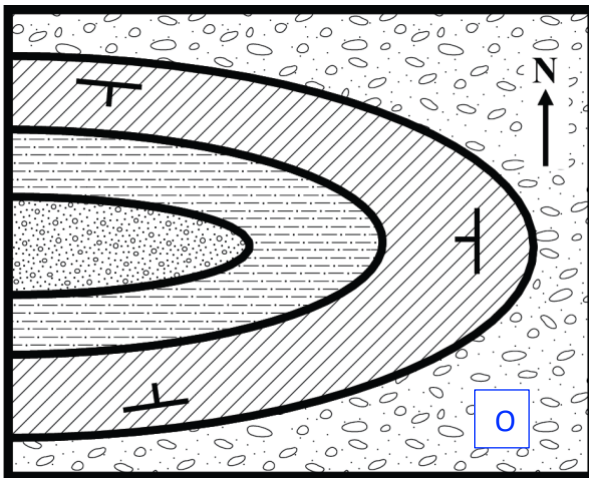
a. What geologic structure is shown on the map (be as specific as possible)?

   Plunging syncline

b. Put an **O** where you would expect to see the oldest rock in this area.

c. In the box below, draw a cross-section of this structure along the western edge of the map from **A** to **B**. (a sketch will do).

B

A   B

Student Knowledge Inventory   Name _____
Fall 2015

Where did you take your Physical Geology course? _____

Where did you take your Historical Geology course? _____

Circle the correct answer (or answers where appropriate).

1. The periods of the Paleozoic include (mark all that apply)
    A. Triassic   D. Paleogene
    B. Permian   E. Oligocene
    C. Silurian

2. Different _____ of an element are atoms containing the **same number** of protons but
   different numbers of neutrons.
    A. ions   D. isotopes
    B. classes   E. varieties
    C. particles

3. Normal faults occur where
    A. there is horizontal shortening
    B. there is horizontal tension
    C. the hanging wall moves down
    D. the footwall moves up
    E. the hanging wall moves sideways

4. Which of the following statements about the age of rocks is most likely true?
    A. Rocks found in the ocean are about the same age as rocks found on continents
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    C. Rocks found in the ocean are generally older than rocks found on continents
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6. What is the most likely environment where limestone forms?
    A. Fast moving stream
    B. Deep ocean
    C. Flood plain
    D. Shallow ocean or sea
    E. Alluvial fan

7. The ocean floor
   A. is oldest at the edges
   B. is generally older than continental rocks
   C. is generally deepest in the middle
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8. Match each metamorphic rock with at least one parent rock that it might have been before metamorphism (there might be more than one possibility for each parent rock or metamorphic rock). Put the letter or letters of the appropriate parent rock(s) in the blank after the name of the metamorphic rock.

Gneiss _____   a. Sandstone

Slate _____   b. Limestone

Quartzite _____   c. Shale

Greenstone _____   d. Granite

Marble _____   e. Basalt

Schist _____   f. Chert

9. Fill in the chart below with the appropriate igneous rock names. NOTE: you may have used a chart to identify igneous rocks that looked different from this chart. Please think carefully about what rock name goes in which block.

Composition \ Texture	Fine-grained	Coarse-grained
Mafic		
Intermediate		
Felsic		

10. Identify each of the following materials as either an element (E), a mineral (M) or a rock (R)

arkose_____   phyllite_____   iron_____   peridotite_____

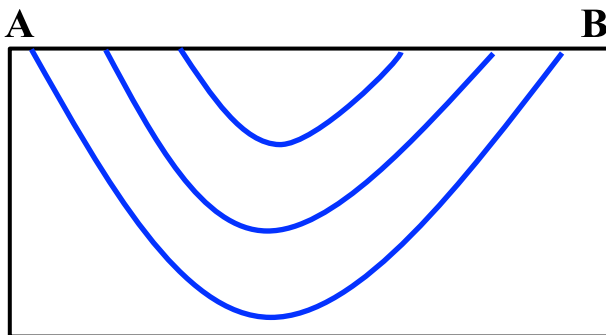augite_____   calcium_____   mica_____   amphibolite_____

11. Look at the map below.
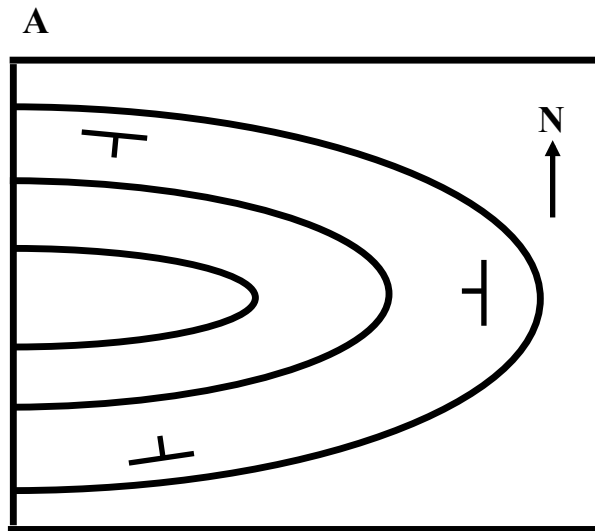
A

a. What geologic structure is shown on the map (be as specific as possible)?

b. Put an **O** where you would expect to see the oldest rock in this area.

c. In the box below, draw a cross-section of this structure along the eastern edge of the map from **A** to **B**. (a sketch will do).

B

A   **B**

Student Knowledge Inventory   Name _____
2018

Circle the course in which you are taking this: Mineralogy   Structural Geology & Tectonics

Where did you take your Physical Geology course? _____

Where did you take your Historical Geology course? _____

Circle the correct answer (or answers where appropriate).

1. The periods of the Paleozoic include (mark all that apply)
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   different numbers of neutrons.
   A. ions   D. isotopes
   B. classes   E. varieties
   C. particles

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   A. there is horizontal shortening
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   C. Flood plain
   D. Shallow ocean or sea
   E. Alluvial fan

7. The ocean floor
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    C. is generally deepest in the middle
    D. is similar in composition to the continents
    E. is created at subduction zones

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Gneiss _____   a. Sandstone

Slate _____   b. Limestone

Quartzite _____   c. Shale

Greenstone _____   d. Granite

Marble _____   e. Basalt

Schist _____   f. Chert

9. Fill in the chart below with the appropriate igneous rock names. NOTE: you may have used a chart to identify igneous rocks that looked different from this chart. Please think carefully about what rock name goes in which block.

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Intermediate		
Felsic		

10. Identify each of the following materials as either an element (E), a mineral (M) or a rock (R)

arkose_____   phyllite_____   iron_____   peridotite_____

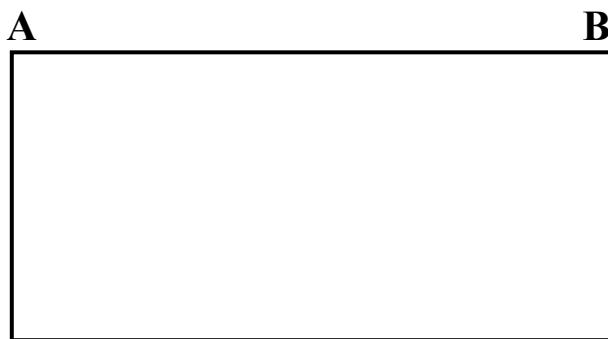augite_____   calcium_____   mica_____   amphibolite_____

11. Look at the geologic map below.

A

a. What geologic structure is shown on the map (be as specific as possible)?

b. Put an **O** where you would expect to see the oldest rock in this area.

c. In the box below, draw a cross-section of this structure along the western edge of the map from **A** to **B**. (a sketch will do).

B

A   B

Results are BOLD where the performance standard was met (70% of students scoring correct)

	2015 Juniors	2018 Juniors	2015 Seniors	2018 Seniors
Geologic timescale	30%	31%	40%	41%
Basic chemistry	**80%**	**78%**	**78%**	**81%**
Plate tectonics	67%	**72%**	**84%**	**84%**
Fold problem	23%	38%	57%	**74%**
Sedimentary rocks	60%	55%	**88%**	62%
Metamorphic rocks	54%	38%	**71%**	47%
Igneous rocks	28%	35%	44%	59%
Rock, mineral, or element	**72%**	65%	**77%**	**85%**
GEOL 10 at CSUS	53%	31%	28%	24%
GEOL 12 at CSUS	53%	52%	68%	52%

Student knowledge inventory results
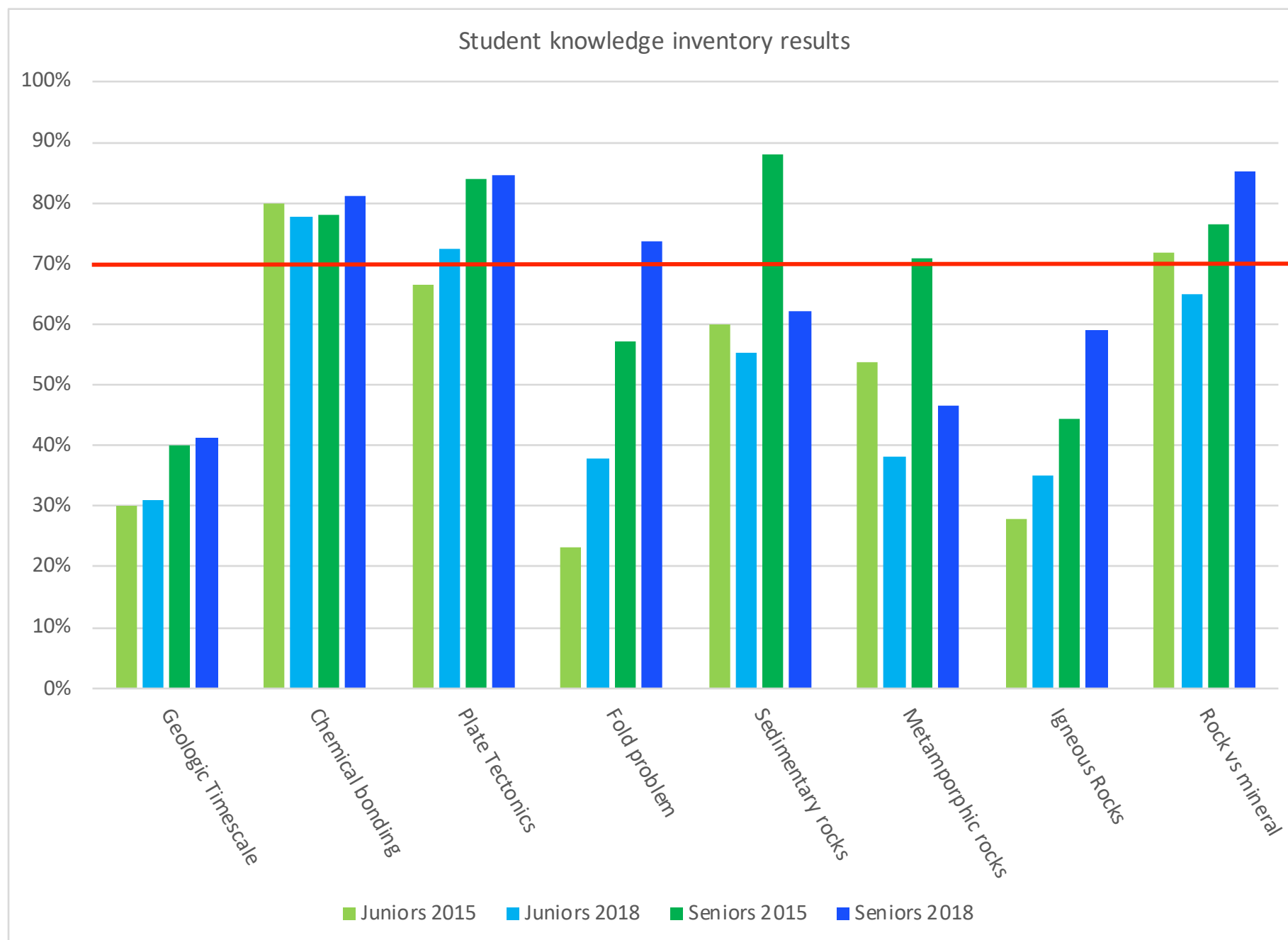
Geology Department overall program goals

I. Students are prepared for professional and/or graduate study involving the geosciences;
II. Students develop a deep understanding of Earth systems: how Earth systems work and how they interact;
III. Students develop their ability to solve geologic problems through the use of scientific method;
IV. Students develop the quantitative skills necessary to solve geologic problems;
V. Students develop their technical communication skills: seeking and processing technical information; and communicating technical information and conclusions in both oral and written form.

Summary of Assessment Data:
- ☐ Student Knowledge Inventory
- ☐ Geology 188 field maps and assignments
- ☐ Geology 111B field maps and assignments
- ☐ Embedded quantitative assignments from majors courses
- ☐ Writing rubrics from required assignments

Summary of Assessment Tasks for 2019-2024

Year	Periodic Tasks	Yearly Tasks
2019-20	Quantitative review	1. Administer SKI; compile results & review. 2. Collect Geology 188 rubrics, Cross-sections and select maps
2020-21	Oral communication review	3. Collect Geology 111B rubrics, Cross-sections and maps.
2021-22	Geology 188 and 111B review	4. Collect writing rubrics 5. Collect oral presentation rubrics 6. Collect embedded quantitative assignment from one course
2022-23	Written communication review	
2023-24	SKI longitudinal review	

BA in Geology

Program Learning Outcome	Assessment Method s)	Performance Standard	Assessment Schedule
Students will master a set of fundamental geologic concepts essential to understanding and solving geologic problems	Student Knowledge Inventory	70% of seniors answer questions in each domain correctly	Every Fall, administered in Geology 100. Every spring administered in Geology 110A. Collect data yearly, review annual data yearly, do longitudinal review once
Students will be proficient in solving geologic problems	Field assignments from Geology 188	TBD	Collect every year, review once.
Students will be proficient in using quantitative skills to solve geologic problems	Embedded assignments, select exam problems/questions	70 % of students answer questions/work problems correctly	Sample one course every year. Analyze data once in 6 year cycle.
Students will be proficient in understanding and producing geologic maps.	Field assignments from Geology 188	TBD	Collect every year, review once.
Students will be proficient writers, skilled in the genres of scientific and technical writing	Review rubrics from required writing assignments: ☐ Field report from Geology 188B ☐ Literature review from an elective course	70% of students demonstrate Milestone 2 on revised Written Communication VALUE Rubric	Review once in 5 year cycle.

BA in Geology

Program Learning Outcome	Assessment Method s)	Performance Standard	Assessment Schedule
Students will master a set of fundamental geologic concepts essential to understanding and solving geologic problems	Student Knowledge Inventory	70% of seniors answer questions in each domain correctly	Every Fall, administered in Geology 100. Every spring administered in Geology 110A. Collect data yearly, review annual data yearly, do longitudinal review once
Students will be proficient in solving geologic problems	Field assignments from Geology 111B	TBD	Collect every year, review once.
Students will be proficient in using quantitative skills to solve geologic problems	Embedded assignments, select exam problems/questions	70 % of students answer questions/work problems correctly	Sample one course every year. Analyze data once in 6 year cycle.
Students will be proficient in understanding and producing geologic maps.	Field assignments from Geology 111B.	TBD	Collect every year, review once.
Students will be proficient writers, skilled in the genres of scientific and technical writing	Review rubrics from required writing assignments: ☐ Field report from Geology 111B ☐ Literature review from an elective course	70% of students demonstrate Milestone 2 on revised Written Communication VALUE Rubric	Review once in 5 year cycle.

BA in Earth Science

Program Learning Outcome	Assessment Method s)	Performance Standard	Assessment Schedule
Students will master a set of fundamental geologic concepts essential to understanding and solving geologic problems	Student Knowledge Inventory	70% of seniors answer questions in each domain correctly	Every Fall, administered in Geology 100. Every spring administered in Geology 110A. Collect data yearly, review annual data yearly, do longitudinal review once
Students will be proficient in solving geologic problems	Field assignments from Geology 111B	TBD	Collect every year, review once.
Students will be proficient in using quantitative skills to solve geologic problems	Embedded assignments, select exam problems/questions	70 % of students answer questions/work problems correctly	Sample one course every year. Analyze data once in 6 year cycle.
Students will be proficient in understanding and producing geologic maps.	Field assignments from Geology 111B.	TBD	Collect every year, review once.
Students will be proficient writers, skilled in the genres of scientific and technical writing	Review rubrics from required writing assignments: ☐ Field report from Geology 111B ☐ Literature review from an elective course	70% of students demonstrate Milestone 2 on revised Written Communication VALUE Rubric	Review once in 5 year cycle.

Curriculum Map: Geology BS and BA
Linking Program Learning Outcomes[1] (PLO) to Each Course in the Curriculum (number of Learning Outcomes varies per program)

Outcomes (PLOs) / Courses	Outcome 1: Students will master a set of fundamental geologic concepts essential to understanding and solving geologic problems	Outcome 2: Students will be proficient in solving geologic problems	Outcome 3: Students will be proficient in (BA: introductory) skills of understanding and producing geologic maps	Outcome 4: Students will be proficient writers, skilled in the genres of scientific and technical writing	Outcome 5: Students will be proficient in using quantitative skills to solving geologic problems	Outcome 6:	Outcome 7:	Outcome 8:
Required Courses								
GEOL 10	I	I						
GEOL 10L	I	I	I					
GEOL 12	I	I		I				
GEOL 12L	I	I	I					
GEOL 100	D	D			I			
GEOL 102	D	D						
GEOL 103	D	D	D	D	D			
GEOL 110A	D	D	D		M			
GEOL 110B	D	D	D	D				
GEOL 111A	D	D	D					
GEOL 111B	M	M	M	M				
(GEOL 188 – only in BS)	M	M	M	M				
Elective Courses								
GEOL 105	M	M		D				
GEOL 112	M	M						
GEOL 114	M	M		D				
GEOL 120	M	M						
GEOL 123	M	M						
GEOL 125	M	M						
GEOL 127	M	M			D			
GEOL 150	M	M	M					

GEOL 171	M	M						
GEOL 190A	M	M						
GEOL 190C	M	M						
GEOL 198A	M	M		M				
GEOL 198B	M	M		M				

[1] use "I" for "Introduced", "D" for "Developed", and "M" for "Mastered".

Table 2.5b: Curriculum Map: Earth Science BA

Linking Program Learning Outcomes[1] (PLO) to Each Course in the Curriculum (number of Learning Outcomes varies per program)

Outcomes (PLOs) / Courses	Outcome 1: Students will master a set of fundamental earth science concepts essential to understanding and solving geologic problems	Outcome 2: Students will be proficient in solving geologic problems	Outcome 3: Students will be proficient in introductory skills of understanding and producing geologic maps	Outcome 4: Students will be proficient writers, skilled in the genres of scientific and technical writing	Outcome 5: Students will be proficient in using quantitative skills to solving geologic problems	Outcome 6:	Outcome 7:	Outcome 8:
Required Courses								
GEOL 5, GEOL 7, GEOL 8 or GEOL 10	I	I						
GEOL 8L or 10L	I	I	I					
ASTR 4B & ASTR 6								
BIO 1 & BIO 2; OR BIO 7								
CHEM 1A OR CHEM 6A								
GEOL 12	I	I		I				
GEOL 12L	I	I	I					
GEOL 17 (currently being changed to GEOL 100)	D	D			I			
MATH 26A	I							
PHYS 5A & PHYS 5B	I, D							
GEOG 111	D							
GEOL 103	D	D	D	D	D			
GEOL 111A	D	D	D					
GEOL 111B	M	M	M	M				
GEOL 130	D	D		M				
Elective Courses								
GEOL 105	M	M		D				
GEOL 110A	M	M	M					
GEOL 114	M	M		D				
GEOL 120	M	M						

GEOL 140	M	M		M				
GEOL 184	I	M	I					
ANTH 124	D							
ANTH 151	D		M					
ENGL 120P				M				
GEOG 113	D							
GEOG 116	D							
GEOG 117	D			M				
GEOG 161	D			M				
JOUR 131				M				
PHIL 125	D							
RPTA 153	D							

[1] use "I" for "Introduced", "D" for "Developed", and "M" for "Mastered".

Table 2.5c: Curriculum Map: Geology MS
Linking Program Learning Outcomes[1] (PLO) to Each Course in the Curriculum (number of Learning Outcomes varies per program)

Outcomes (PLOs) / Courses	Outcome 1: Students will be able to read and digest complex scientific papers in the discipline, assess competing hypotheses and reach rational and logical conclusions.	Outcome 2: Students will be able to evaluate and interpret real-world data sets and use discipline-specific analytical tools to generate insight into discipline specific geologic problems.	Outcome 3: Students will develop presentation skills and the ability to relay technical data and scientific concepts to diverse audiences.	Outcome 4: Students will demonstrate the ability to obtain, assess, and analyze information from a variety of sources.	Outcome 5: Students will demonstrate an understanding of professional integrity.	Outcome 6: Students will demonstrate relevant knowledge and application of intercultural and/or global perspectives.	Outcome 7:	Outcome 8:
Required Courses								
GEOL 200	X	X	X		X	X		
GEOL 275	X	X	X	X				
GEOL 290	X	X	X	X	X			
Elective Courses								
GEOL 202	X	X	X	X	X			
GEOL 208	X	X	X	X	X			
GEOL 212	X		X	X	X	X		
GEOL 213	X	X	X	X	X	X		
GEOL 218	X	X	X	X				
GEOL 220	X	X	X	X	X	X		
GEOL 227	X	X	X	X	X			
GEOL 240C	X		X	X	X	X		
GEOL 500	X	X	X	X	X	X		
GEOL 596	X	X	X	X				

[1] Note: currently courses are marked with an "X" to indicate which ones contain PLOs. Eventually course map will include "I" for "Introduced", "D" for "Developed", and "M" for "Mastered", but those determinations are still in progress.