

2017 - 2018 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.

Please begin by selecting your program name in the drop down.

If the program name is not listed, please enter it below:

BA Geology

OR enter program name:

Section 1: Report All of the Program Learning Outcomes Assessed

Question 1: Program Learning Outcomes

Q1.1.

Which of the following Program Learning Outcomes (PLOs), Sac State Baccalaureate Learning Goals (BLGs), and 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**
- ☐ 20A. Other, specify any assessed PLOs not included above:

- a.
- b.
- c.

☐ 20B. **Check here if your program has not collected any data for any PLOs.** Please go directly to Q6 (skip Q1.2 to Q5.3.1.)

Q1.2.

Please provide more detailed background information about **EACH PLO** you checked above and other information including how your specific PLOs are **explicitly** linked to the Sac State **BLGs/GLGs**:

The Geology Department assessed three Program Learning Objectives (PLO's) in the 2016/17 academic year. These PLO's are consistent across our three undergraduate degree programs: the B.S. in Geology, B.A. in Geology and B.A. in Earth Science.

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

These Learning Objectives align with Sacramento State's Baccalaureate Learning Goals (BLGs) as shown:

Geology Department Program Learning Objectives (PLO's)	University Baccalaureate Learning Goals (BALG's)
1. Students will master a set of fundamental earth science concepts essential to understanding and solving geologic problems	Competence in the Disciplines Knowledge of Human Cultures and the Physical and Natural World
2. Students will be proficient in solving geologic problems	Competence in the Disciplines Knowledge of Human Cultures and the Physical and Natural World Integrative learning, including synthesis and advanced accomplishment
3. Students will be proficient in written communication	Competence in the Disciplines Intellectual and Practical Skills Integrative Learning

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
☐ 4. N/A
☐ 5. Other, specify:

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 Senior College and University Commission (WSCUC))?

- ☐ 1. Yes
☒ 2. No (skip to **Q1.5**)
☐ 3. Don't know (skip 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", see <http://degreeprofile.org>) 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?

- ☒ 1. Yes
☐ 2. No
☐ 3. Don't know

(Remember: **Save your progress**)

Section 2: Report One Learning Outcome in Detail

Question 2: Standard of Performance 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):

Written Communication

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

Q2.1.1.

Please provide more background information about the **specific PLO** you've chosen in Q2.1.

The PLO that we evaluated in detail is written communication, and we focused on scientific and technical report writing. Geology professionals are required to write technical reports, and we evaluated their writing on a geologic history section. This tests the student's ability to assimilate field data and write a comprehensive summary of the geologic history of an area.

Q2.2.
Has the program developed or adopted **explicit program standards of performance/expectations** for this PLO? (e.g. "We expect 70% 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

Q2.3.
Please **1) provide and/or attach the rubric(s) AND 2) the standards of performance/expectations** that you have developed for *the selected PLO* here:

The Geology Department used the Written Communication Value rubric, produced by AACU (American Association of Colleges and Universities) to evaluate writing in the discipline (see Appendix 1). It provides definitions and performance standards that are broad enough to assess many kinds of writing. We used this rubric without modification to evaluate student writing on a *Geologic History* section of a written report. Verbal descriptions of standards of performance are included on the second page of the AACU rubric.

The Geology Department uses this standard of performance to assess student writing skills:

"70% of the students will perform at a level of 75% or higher in each category of the AACU Written Communication Value Rubric".

The rubric is divided into quartiles, with Benchmark 1 demonstrating minimal performance, Milestone 2 showing discipline-specific content and sources, Milestone 3 signifying adequate, appropriate consideration of the audience and consistent use of geologic sources and language, and Capstone 4 level demonstrating a nuanced understanding of the audience, context, and subtleties of language used in a geologic report. Using this breakdown, we expect that 70% of our students will reach Milestone 3.

The Geology Department also uses a rubric to evaluate student's ability to write a geologic report. This rubric is attached to question 3.8.3, and results will be compared between the two methods of evaluating technical writing.

 AACU Written Communication VALUE Rubric edited.pdf
128.52 KB

 No file attached

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:
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. In SOME course syllabi/assignments in the program that address the PLO
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. In ALL course syllabi/assignments in the program that address the PLO
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. In the student handbook/advising handbook
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. In the university catalogue

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

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**)

Q3.1.1.

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

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**)

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:

Assessment data were collected using two methods:

- 1) The Geologic history section of the final report was graded with the AACU Value Rubric.
- 2) The Geologic history section of the final report for Geol 111B was graded with a rubric designed by the instructors. It gave up to 20 points for writing an accurate and insightful geologic history of the study area. Scores for this section were tabulated separately.

Results were compared between these two methods, and student progress was charted in the area of scientific and technical writing.

(Remember: Save your progress)

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**)

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:

Q3.3.2.

Please **1) provide and/or attach the direct measure** (key assignments, projects, portfolios, course work, student tests, etc.) you used to collect data, **THEN 2) explain here** how it assesses the PLO:

The direct measures used to collect data were two rubrics were used for direct measure of. The rubric provided by the Geology Department focuses mostly on geologic content and geologic language. The AACU rubric focuses more on content and understanding of the material, followed by detailed and compelling presentation.

The rubrics used for this assessment are attached to Questions 2.3 and 3.8.3.



AACU Written Communication VALUE Rubric edited.pdf
128.52 KB



No file attached

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.**)

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

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

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

Q3.5.

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

Q3.5.1.

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

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

Q3.6.

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

Work was evaluated from all 30 students in the class. This included students from three degree programs: B.S. in Geology, B.A. in Geology and B.A. in Earth Science.

Q3.6.1.

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

The B.A. in Geology is too small to provide accurate statistical data, with 3-5 students per year in the program. For this reason, all Bachelor's students were considered, and we assume that our B.A. students are performing at the same level as other students in the area of Written Communication.

Q3.6.2.

Please enter the number (#) of students that were in the class or program?

Q3.6.3.

Please enter the number (#) of samples of student work that you evaluated?

Q3.6.4.

Was the sample size of student work for the direct measure adequate?

- ☐ 1. Yes
☐ 2. No
☐ 3. Don't know

(Remember: **Save your progress**)

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**)

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:

 No file attached No file attached**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**)

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**)

Q3.8.3.

If other measures were used, please specify:

A special rubric was developed for Geol 111B. It covers technical content, writing style, use of geologic language, appropriate citations and use of data. The rubric is broken down by sections of the report, and assigns 20 points to the Geologic History section of the report. This gives us a second opportunity to look at student performance on the Geologic History section of their report.



Geol 111B grading rubric Sp 18.pdf
73.62 KB



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(Remember: **Save your progress**)

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](#)):

We expect that 70% of our Geology students will perform at a level of 75% or higher for all components of written communication. We used the AACU Value Rubric (attached) to evaluate the Geologic History section of a written report, and results are summarized in Figure 1 (Attached). The five categories in the Value Rubric evaluate several critical components of writing. The first category looks at the context or purpose of the writing, and considers whether the student judged the audience and the assignment correctly. For our written report, 60% of the students scored above 70% (Milestone 3 or higher). The next category is content development, and we expect most of our students to use "appropriate, relevant and compelling content to explore ideas...." This year 40% of our students reached this milestone. We rated students on Genre and Discipline conventions, with standard geologic reports as examples. 54% of our students performed at the expected Milestone 3 level. We also looked at "Sources and Evidence", where students are expected to use "credible, reliable sources to develop ideas....". In this category 50% of our students met the expected Milestone 3 level. The final category of "Syntax and mechanics" evaluates the language used to convey meaning to readers. In this category 44% of our students met the Milestone three benchmark.

These results show that we need to evaluate and change our technical writing program. Our Junior level students didn't perform at the expected Milestone 3 level in any category. We knew that we had some issues with technical writing, but this points to a larger problem. Moving forward, here are some things to consider:

- Do students see examples of technical writing before they are expected to write things themselves?
- Where do we expect students to learn technical writing? Are the required classes synchronized so that expectations are consistent?
- Are students receiving meaningful feedback on their written work?
- Are grading rubrics discussed with students?

We also need to consider the longitudinal changes that students go through in our program. Results for the B.A. in Geology were taken from the Junior class. One year from now these students will have written several more technical reports, and their writing may be better.



G111b scores from AACU value rubric_2018.pdf
28.46 KB



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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?

As mentioned above, we will continue to work with our students on technical and scientific writing. Our assessment this year showed that we need improvement in written communication, especially the areas of content development, sources and evidence and control of syntax and mechanics. We plan to close the loop by discussing assessment at our annual faculty retreat in August. This will let faculty members look at our assessment results before the semester begins, and we will start to make changes to required writing assignments.



No file attached



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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

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

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

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**)

Q5.1.1.

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

Technical writing is not intuitive, and it takes time to teach students the finer points of technical and scientific writing. The Geology program has a plan to develop writing skills, and it begins with introductory courses. Courses in the Geology major are closely sequenced, so students work through a progression of courses and writing assignments that build in complexity:

Geol 10 (Physical Geology) Essay questions on exams use critical thinking skills.

Geol 12 (Historical Geology) Lab assignments require compare and contrast discussions, begin to use geologic descriptions and terms.

Geol 100 (Mineralogy) Students write their first technical paper, with review of primary literature and standard citation methods. This is accompanied by a visit to the library reference section.

Geol 103 (Sed/strat) Students generate data and write a technical lab report that uses simple statistics and presentation of data tables and charts. Expectations for citing Tables and Figures in a technical report are discussed.

Geol 111A (Field geology) Students practice writing sections of a geologic report and receive feedback during the semester. This builds to the final report for Geol 111B, where students write their first comprehensive geologic report.

Geol 111B (Field techniques) was chosen to evaluate Written Communication for our Junior-level students. At this point B.A. students in Geology have had five geology classes that require some technical writing, and they are entering senior year.

Our writing plan continues senior year with more detailed writing assignments in required classes and a variety of technical papers and reports in elective classes. The final culminating experience is Geol 188 (Advanced geologic mapping), where B.S. students live in remote field areas for five weeks and write five technical reports.

This is a long process, and our intent is to develop technical writing skills over a three or four year period. Results from this year's assessment have helped us isolate areas of weakness, and we will insert new exercises and explanations in the curriculum to continue to improve our technical writing program.

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 Geology Department will continue to evaluate student writing, and we plan to keep collecting annual data on Written Communication. This will eventually allow longitudinal comparisons, and we may eventually have enough information to evaluate B.A. students separately.

☐ 2. No

☐ 3. Don't know

Q5.2.

To what extent did you apply **previous assessment results** collected through your program in the following areas?

	1. Very Much	2. Quite a Bit	3. Some	4. Not at All	5. N/A
1. Improving specific courses	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Modifying curriculum	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Improving advising and mentoring	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Revising learning outcomes/goals	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Revising rubrics and/or expectations	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Developing/updating assessment plan	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Annual assessment reports	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Program review	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Prospective student and family information	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Alumni communication	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. WSCUC accreditation (regional accreditation)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Program accreditation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
13. External accountability reporting requirement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
14. Trustee/Governing Board deliberations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
15. Strategic planning	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Institutional benchmarking	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Academic policy development or modifications	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Institutional improvement	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Resource allocation and budgeting	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. New faculty hiring	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Professional development for faculty and staff	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Recruitment of new students	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Other, specify: <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5.2.1.

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

Our assessment last year involved critical thinking, (geologic) problem solving and overall disciplinary knowledge. We evaluated our Junior and senior level students for disciplinary knowledge using our SKI (Student Knowledge Inventory), and discussed results with faculty members. Our students are still having problems identifying igneous rocks and some structural features, and we have considered switching the order of required courses to address the problem.

Our assessment of geologic problem solving revealed that many students can't construct a cross section of California using disparate pieces of information. This was unexpected, and in Geol 103 the instructor spent additional time in class and on field trips to tie together different structural and sedimentologic provinces of California. Results were better this year, but we still need to work on the concept of constructing cross sections. Students have many misconceptions about the behavior of rock units in the subsurface, and a cross section is the basic tool that we use to visual geologic problems. We will continue to work on this concept in several classes.

Q5.3.

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

	1.	2.	3.	4.	5.
	Very Much	Quite a bit	Some	Not at All	N/A

1. Program Learning Outcomes	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Standards of Performance	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Measures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
4. Rubrics	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Alignment	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Data Collection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
7. Data Analysis and Presentation	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Use of Assessment Data	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Other, please specify:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>					

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:

One of our biggest improvements was articulating our expectations to students. Our report from OPA noted that some rubrics were not tied directly to exercises, or that expectations were not clear. Much of our assessment and grading in past years was retroactive, and students didn't get feedback that helped. We are including rubrics and assessment in our discussions with students, and in several cases this year the rubrics were included with course material.

(Remember: **Save your progress**)

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:



No file attached



No file attached

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. 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?

The Geology Department's 2016 Program Review was generally complimentary, but it did specifically mention Written and Verbal communication and assessment activities. The report noted that we hadn't done any specific assessment about geologic writing. We responded by pointing to our 5 year assessment plan, where Written Communication is the 2017/18 assessment topic. Our assessment topics are on a 5 year rotation, and the five year plan is attached to Question 20.2.

Q9. Please attach any additional files here:

 No file attached No file attached No file attached No file attached**Q9.1.**

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

AACU Written Communication VALUE Rubric edited.PDF

Geol 111B grading rubric Sp 18.PDF

Geology Assessment Plan 2013_19.PDF

Geol 111b scores from AACU value rubric.PDF

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]

BA Geology

Q11.

Report Author(s):

Tim Horner

Q11.1.

Department Chair/Program Director:

Tim Horner

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):

97

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:

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

3

Q16.1. List all the names:

B.A. Geology

B.A. Earth Science

B.S. Geology

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:

M.S. 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.	2.	3.	4.	5.	6.	7.	8.

Q20. Developed?

Q20.2. (Required)

Please **obtain** and **attach** your latest **assessment plan**:



Geology Assessment Plan 2013_2019.pdf
48.83 KB

Q21.

Has your program developed a **curriculum map**?

- ☒ 1. Yes
☐ 2. No
☐ 3. Don't know

Q21.1.

Please **obtain** and **attach** your latest **curriculum map**:



No file attached

Q22.

Has your program indicated explicitly in the curriculum map where assessment **of student learning** occurs?

- ☒ 1. Yes
☐ 2. No
☐ 3. Don't know

Q23.

Does your program have a capstone class?

- ☒ 1. Yes, specify:

Geol 188 (Advanced geologic mapping) is the capstone class for the B.S. in Geology.

- ☐ 2. No
☐ 3. Don't know

Q23.1.

Does your program have a capstone project(s)?

- ☐ 1. Yes
☒ 2. No
☐ 3. Don't know

(Remember: Save your progress)

Save When Completed!

ver. 10.31.17

When was your **Assessment Plan...**

Undo

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?

☐☐☐☐☒☐☐☐

WRITTEN COMMUNICATION VALUE RUBRIC

for more information, please contact value@aacu.org



The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses. The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can be shared nationally through a common dialog and understanding of student success.

Definition

Written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve working with many different writing technologies, and mixing texts, data, and images. Written communication abilities develop through iterative experiences across the curriculum.

Framing Language

This writing rubric is designed for use in a wide variety of educational institutions. The most clear finding to emerge from decades of research on writing assessment is that the best writing assessments are locally determined and sensitive to local context and mission. Users of this rubric should, in the end, consider making adaptations and additions that clearly link the language of the rubric to individual campus contexts.

This rubric focuses assessment on how specific written work samples or collections of work respond to specific contexts. The central question guiding the rubric is "How well does writing respond to the needs of audience(s) for the work?" In focusing on this question the rubric does not attend to other aspects of writing that are equally important: issues of writing process, writing strategies, writers' fluency with different modes of textual production or publication, or writer's growing engagement with writing and disciplinarity through the process of writing.

Evaluators using this rubric must have information about the assignments or purposes for writing guiding writers' work. Also recommended is including reflective work samples of collections of work that address such questions as: What decisions did the writer make about audience, purpose, and genre as s/he compiled the work in the portfolio? How are those choices evident in the writing -- in the content, organization and structure, reasoning, evidence, mechanical and surface conventions, and citational systems used in the writing? This will enable evaluators to have a clear sense of how writers understand the assignments and take it into consideration as they evaluate.

The first section of this rubric addresses the context and purpose for writing. A work sample or collections of work can convey the context and purpose for the writing tasks it showcases by including the writing assignments associated with work samples. But writers may also convey the context and purpose for their writing within the texts. It is important for faculty and institutions to include directions for students about how they should represent their writing contexts and purposes.

Faculty interested in the research on writing assessment that has guided our work here can consult the National Council of Teachers of English/Council of Writing Program Administrators' White Paper on Writing Assessment (2008; www.wpacouncil.org/whitepaper) and the Conference on College Composition and Communication's Writing Assessment: A Position Statement (2008; www.ncte.org/cccc/resources/positions/123784.htm)

Glossary

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- **Content Development:** The ways in which the text explores and represents its topic in relation to its audience and purpose.
- **Context of and purpose for writing:** The context of writing is the situation surrounding a text: who is reading it? who is writing it? Under what circumstances will the text be shared or circulated? What social or political factors might affect how the text is composed or interpreted? The purpose for writing is the writer's intended effect on an audience. Writers might want to persuade or inform; they might want to report or summarize information; they might want to work through complexity or confusion; they might want to argue with other writers, or connect with other writers; they might want to convey urgency or amuse; they might write for themselves or for an assignment or to remember.
- **Disciplinary conventions:** Formal and informal rules that constitute what is seen generally as appropriate within different academic fields, e.g. introductory strategies, use of passive voice or first person point of view, expectations for thesis or hypothesis, expectations for kinds of evidence and support that are appropriate to the task at hand, use of primary and secondary sources to provide evidence and support arguments and to document critical perspectives on the topic. Writers will incorporate sources according to disciplinary and genre conventions, according to the writer's purpose for the text. Through increasingly sophisticated use of sources, writers develop an ability to differentiate between their own ideas and the ideas of others, credit and build upon work already accomplished in the field or issue they are addressing, and provide meaningful examples to readers.
- **Evidence:** Source material that is used to extend, in purposeful ways, writers' ideas in a text.
- **Genre conventions:** Formal and informal rules for particular kinds of texts and/or media that guide formatting, organization, and stylistic choices, e.g. lab reports, academic papers, poetry, webpages, or personal essays.
- **Sources:** Texts (written, oral, behavioral, visual, or other) that writers draw on as they work for a variety of purposes -- to extend, argue with, develop, define, or shape their ideas, for example.

WRITTEN COMMUNICATION VALUE RUBRIC

for more information, please contact value@aacu.org

	Capstone 4	Milestones		Benchmark 1
		3	2	
Context of and Purpose for Writing Includes considerations of audience, purpose, and the circumstances surrounding the writing task(s).	Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.	Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).	Demonstrates awareness of context, audience, purpose, and to the assigned tasks(s) (e.g., begins to show awareness of audience's perceptions and assumptions).	Demonstrates minimal attention to context, audience, purpose, and to the assigned tasks(s) (e.g., expectation of instructor or self as audience).
Content Development	Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.	Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.	Uses appropriate and relevant content to develop and explore ideas through most of the work.	Uses appropriate and relevant content to develop simple ideas in some parts of the work.
Genre and Disciplinary Conventions Formal and informal rules inherent in the expectations for writing in particular forms and/or academic fields (please see glossary).	Demonstrates detailed attention to and successful execution of a wide range of conventions particular to a specific discipline and/or writing task (s) including organization, content, presentation, formatting, and stylistic choices	Demonstrates consistent use of important conventions particular to a specific discipline and/or writing task(s), including organization, content, presentation, and stylistic choices	Follows expectations appropriate to a specific discipline and/or writing task(s) for basic organization, content, and presentation	Attempts to use a consistent system for basic organization and presentation.
Sources and Evidence	Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing	Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.	Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre of the writing.	Demonstrates an attempt to use sources to support ideas in the writing.
Control of Syntax and Mechanics	Uses graceful language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.	Uses straightforward language that generally conveys meaning to readers. The language in the portfolio has few errors.	Uses language that generally conveys meaning to readers with clarity, although writing may include some errors.	Uses language that sometimes impedes meaning because of errors in usage.

Name _____

Rainbow Basin- written report

Regional Geology (+15)

	5	4	3	2	1
Older passive margin	—	—	—	—	—
Paleozoic marine deposits	—	—	—	—	—
Mesozoic intrusions	—	—	—	—	—
Miocene fluvial and lacustrine	—	—	—	—	—
Uplift, Tertiary basin fill	—	—	—	—	—

Lithologies (+30)

	5	4	3	2	1
discuss oldest first	—	—	—	—	—
use proper rock name	—	—	—	—	—
discuss grain composition	—	—	—	—	—
describe bedding	—	—	—	—	—
describe sed structures	—	—	—	—	—
describe unit thickness	—	—	—	—	—

Describe each unit:**Tbm**

ss w/interbedded conglom	—	—	—	—	—
ash-rich	—	—	—	—	—

Skyline tuff

bedding and thickness	—	—	—	—	—
ashy, micaceous	—	—	—	—	—
reworked top	—	—	—	—	—

Tbu1

mudstone, rare ss	—	—	—	—	—
mudcracks, gypsum, ripples	—	—	—	—	—

Marker bed

thin, resistant ash bed	—	—	—	—	—
rippled, mudcracks	—	—	—	—	—

Tbu2

mudstone, often massive	—	—	—	—	—
ash-rich matrix	—	—	—	—	—

Pleistocene dunes

thickness, position	—	—	—	—	—
angular relationship	—	—	—	—	—
varied composition	—	—	—	—	—

Intermediate terrace

thickness, position	—	—	—	—	—
planar surface	—	—	—	—	—
varied composition	—	—	—	—	—

Quaternary alluvium

thin, valley bottoms	—	—	—	—	—
varied composition,	—	—	—	—	—
mod. Sorted	—	—	—	—	—

Structural geology (+20)

	5	4	3	2	1
Folds:					
trend of syncline	—	—	—	—	—
dip of N and S axis	—	—	—	—	—
axis is offset by faults	—	—	—	—	—

Faults:

2 trends: NW/SE and E/W	—	—	—	—	—
describe dip of fault plane	—	—	—	—	—
estimate displacement	—	—	—	—	—

Fractures (if present)	—	—	—	—	—
------------------------	---	---	---	---	---

other _____

Geologic history (+20):

	5	4	3	2	1
Chronologic narrative	—	—	—	—	—
Use observations	—	—	—	—	—
early fluvial deposition	—	—	—	—	—
later lacustrine envt	—	—	—	—	—
Describe volcanic eruptions	—	—	—	—	—
Age of folds vs. faults	—	—	—	—	—
Basin and Range extension	—	—	—	—	—
Uplift along major faults	—	—	—	—	—
Form alluvium (3 kinds!)	—	—	—	—	—
other	—	—	—	—	—

Format (+15)

	5	4	3	2	1
Overall presentation	—	—	—	—	—
table of contents	—	—	—	—	—
plates	—	—	—	—	—
headings, titles, fonts	—	—	—	—	—
page numbers	—	—	—	—	—
figure captions	—	—	—	—	—
margins	—	—	—	—	—
introduction	—	—	—	—	—
location map	—	—	—	—	—
technical writing style	—	—	—	—	—
Proofreading	—	—	—	—	—
other	—	—	—	—	—

Comments about the written report:

Report score: _____/100

Name _____

Rainbow Basin- map and graphics

Cross section (+30):

	5	4	3	2	1
profile	—	—	—	—	—
placement and orientation	—	—	—	—	—
interpretation and geology	—	—	—	—	—
accurate contacts	—	—	—	—	—
accurate dip	—	—	—	—	—
draw beds in subsurface	—	—	—	—	—
constant bed thickness	—	—	—	—	—

other: _____

Strat. column (+20):

	5	4	3	2	1
headings and labels	—	—	—	—	—
vertical scale	—	—	—	—	—
appropriate unit thickness	—	—	—	—	—
appropriate unit symbols	—	—	—	—	—
brief unit descriptions	—	—	—	—	—

other _____

Geologic map (+50)

	5	4	3	2	1
Accuracy					
accurate contacts (counts as the majority of the map grade)					
uncertain contacts	—	—	—	—	—

Geologic structures

fold axis	—	—	—	—	—
fault axis	—	—	—	—	—

Plot strikes and dips

Number of strikes and dips	—	—	—	—	—
----------------------------	---	---	---	---	---

Explanation

map symbols	—	—	—	—	—
appropriate colors	—	—	—	—	—
unit symbols	—	—	—	—	—

Neatness and layout

neatness and artistry	—	—	—	—	—
color lightly	—	—	—	—	—
appropriate line width	—	—	—	—	—

Map layout

north arrow, scales	—	—	—	—	—
title and labels	—	—	—	—	—
north arrow, scales	—	—	—	—	—
"mapped by", date	—	—	—	—	—

other _____

Map score: _____/100

Comments:

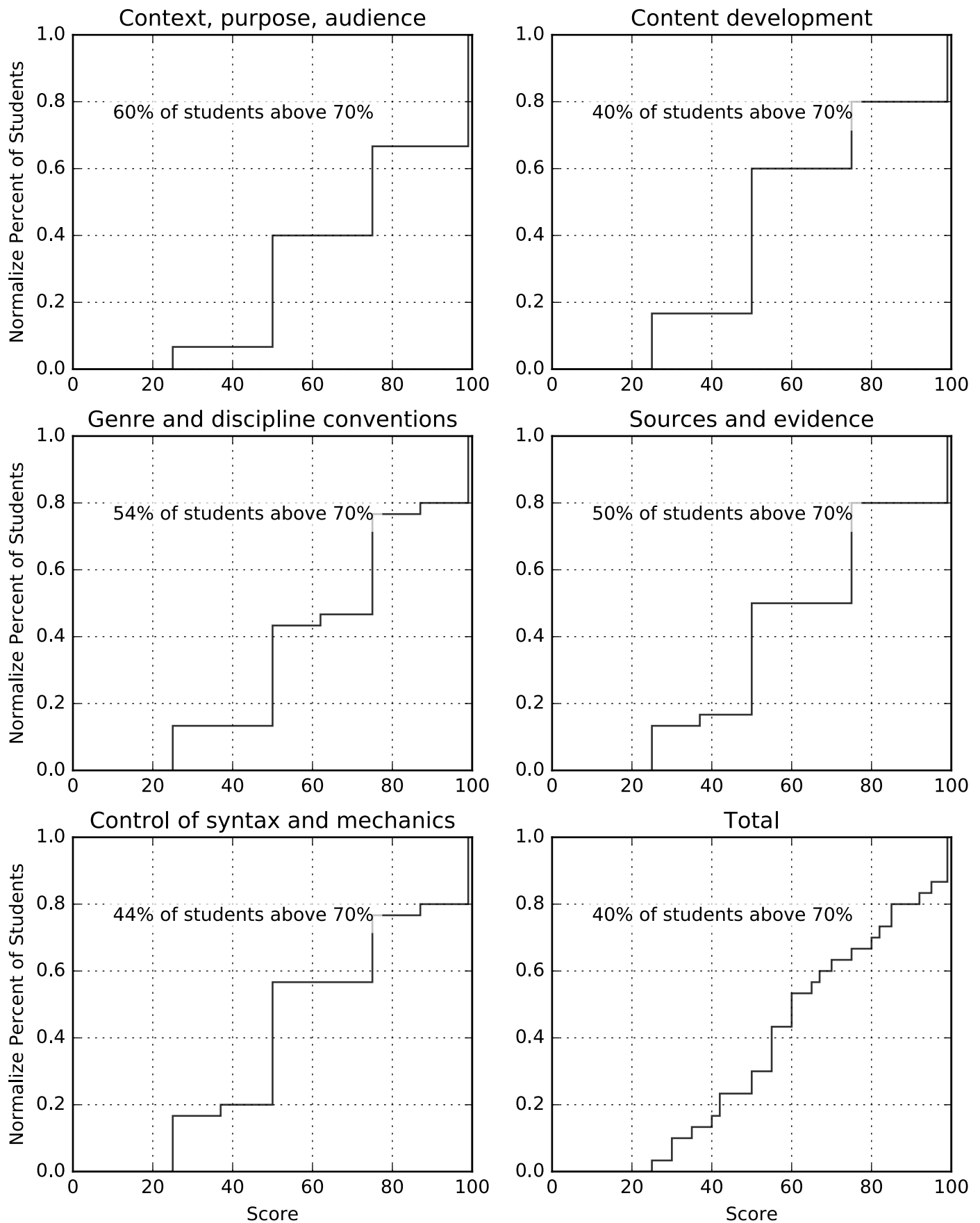


Figure 1: Summary of results from AACU Written Communication Value Rubric.

Overall Program Goals for All Programs of the Geology Dept.

- 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 a deep curiosity about how the Earth works, and a lifelong appreciation of the Earth's place in space and time; and
- 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 assignments from majors courses
- Writing rubrics from required assignments
- CSET scores

Summary of Assessment Tasks for 2014-2019

Year	Periodic Tasks	Yearly Tasks
2014-15	Geology 188 review	1. Administer SKI in Fall semester; compile results & review. 2. Collect Geology 188 rubrics, cross-sections and select maps 3. Collect Geology 111B rubrics, cross-sections and maps. 4. Collect writing rubrics (from which courses?) 5. Collect embedded assignment from one course. 6. Collect CSET data from Earth Science majors.
2015-16	Geology 111B review	
2016-17	Embedded assessment review	
2017-18	Writing review	
2018-19	SKI longitudinal review	

BS 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 and Geology 102. Collect data yearly, review annual data yearly, do longitudinal review once every five years.
	Embedded assignments		Sample one course every year: 2014-15: 2015-16: 2016-17: 2017-18: 2018-19: Analyze data once in 5-year cycle.
Students will be proficient in solving geologic problems	Field assignments from Geology 188, measured using?		Collect every year, review every other year? Every 5 years?: 2014-15 2016-17 2018-19
Students will be proficient in geologic mapping	Field assignments from Geology 188 measured using?		Review every other year? Every 5 years?: 2014-15 2016-17 2017-18
Students will be proficient writers, skilled in the genres of scientific and technical writing	Review rubrics from required writing assignments: <ul style="list-style-type: none"> Field report form Geology 111B Literature review from Geology 105 		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 students answer questions in each domain correctly	Every Fall, administered in Geology 100 and Geology 102
	Embedded assignments		Sample one course every year: 2014-15: 2015-16: 2016-17: 2017-18: 2018-19: Analyze data once in 5-year cycle.
Students will be proficient in solving geologic problems	Field assignments from Geology 111B, measured using?		Collect every year, review every other year? Every 5 years?: 2015-16 2017-18 2018-19
Students will master introductory geologic mapping skills	Field assignments from Geology 111 measured using?		Review every other year? Every 5 years?: 2015-16 2017-18 2018-19
Students will be proficient writers, skilled in the genres of scientific and technical writing	Review rubrics from required writing assignments: <ul style="list-style-type: none">• Field report form Geology 111• Literature review from Geology 105		Review

BA in Earth Science

Program Learning Outcome	Assessment Method(s)	Performance Standard	Assessment Schedule
Students will master a set of fundamental earth science concepts essential to understanding and solving geologic problems	Student Knowledge Inventory	70% of students answer questions in each domain correctly	Every Fall, administered in Geology 100 and Geology 102
	CSET scores	70% of students will pass Science Subtest #1 on the first try	Collect data yearly, review once every five years
Students will be proficient in solving geologic problems	Field assignments from Geology 111B, measured using?		Sample one course every year: 2014-15: 2015-16: 2016-17: 2017-18: 2018-19: Analyze data once in 5-year cycle.
Students will master introductory geologic mapping skills	Field assignments from Geology 111B measured using?		Collect every year, review every other year? Every 5 years?: 2015-16 2017-18 2018-19
Students will be proficient writers, skilled in the genres of scientific and technical writing	Review rubrics from required writing assignments: <ul style="list-style-type: none">• Field report form Geology 111• Literature review from Geology 105		Review every other year? Every 5 years?: 2015-16 2017-18 2018-19