2016-2017
Annual Assessment Report Template

For instructions and guidelines 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:

MS Geology

OR

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**
- [x] 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
- [x] 18. **Overall Disciplinary Knowledge**
- [ ] 19. **Professionalism**
- [ ] 20. Other, specify any assessed PLOs not included above:

a.
b.
c.

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**:

For the academic year 2016-2017, the Geology Department assessed the following Oral Communication program learning outcome:

Students will develop presentation skills and the ability to relay technical data and scientific concepts to diverse audiences that include technical groups, management and the general public.

These skills align with the following Office of Graduate Studies Graduate Learning Goals: Communication, Disciplinary knowledge

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)

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):

Oral 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.

Our Oral Communication Program Learning Goal is defined as follows: Students will develop presentation skills and the ability to relay technical data and scientific concepts to diverse audiences. This entails meeting the following 3 PLOs:

3a) Main points are clear and organized effectively and support a clear purpose.

3b) Language is familiar to the audience and appropriate for the setting.

3c) The delivery is natural, confident, and enhances the message - posture, eye contact, smooth gestures, facial expressions, volume, and pace.

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

- (•) 1. Yes
- ( ) 2. No
- ( ) 3. Don't know
- ( ) 4. N/A

Q2.3.
Please **provide the rubric(s)** and **standards of performance** that you have developed for this PLO here or in the appendix.

We have not yet set specific standards of performance for the MS Geology program. We will develop these standards over the next year. A modified VALUE rubric was used to assess student performance and is attached.

MS Geology oral rubric.pdf
32.83 KB

No file attached

Q2.4. PLO	Q2.5. Stdrd	Q2.6. Rubric	Please indicate where you have published the **PLO**, the **standard** 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**)

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**)

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 in GEOL-290 which is a required course for all of our graduate students. The instructor used this rubric as students gave formal presentations on specific topics.

(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
- [x] 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 **provide** the direct measure (key assignments, projects, portfolios, course work, student tests, etc.) you used to collect data, THEN **explain** how it assesses the PLO:

The final presentation assignment (attached) for GEOL 290 - Regional Geology of the Western United States was used to assess student Oral Communication proficiency.

This presentation required students to synthesize the knowledge gained over the course of the semester to evaluate competing hypotheses about an event in the geologic history of the Western United States. This directly measures student performance on the PLO because during the presentation, students had to relay technical data and scientific concepts to their peers and the faculty instructor.

The Oral Communication rubric was designed to evaluate student performance on several aspects of the Oral Communication PLO. As students presented, this rubric was used to score their efforts on multiple rubric specific topics.

MS Geology 290 Final Presentation and Paper.pdf
23.89 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.
How many faculty members participated in planning the assessment data **collection** of the selected PLO?

7

Q3.5.1.
How many faculty members 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

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

Work was used for all students in the course.

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

Work was used for all students in the course.

Q3.6.2.
How many students were in the class or program?

17

Q3.6.3.
How many samples of student work did you evaluated?

17

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, what was 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:

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(Remember: Save your progress)

Question 4: Data, Findings, and Conclusions

Q4.1.
Please provide simple tables and/or graphs to summarize the assessment data, findings, and conclusions for the selected PLO in **Q2.1**:

Attached are plots demonstrating cumulative student performance in each of the Oral Communication rubric categories.

Grads_2017.pdf
19.75 KB

No file attached

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?

Though we have yet to set formal performance standards, we note that:

Organization: 83% of students are performing at or above the 70% level

Topic Knowledge: 100% of students are performing at or above the 70% level

Audience Adaptation:71% of students are performing at or above the 70% level

Language Use: 100% of students are performing at or above the 70% level

Delivery: 100% of students are performing at or above the 70% level

Students are performing well in the categories of Topic Knowledge, Language Use, and Delivery. However, student performance trails in the categories of organization and audience adaptation. To improve student performance in these areas, the next time this course is taught, students will receive further instruction on how to organize oral presentations, and how to adapt the presentation to the audience. This may also include iterative approach in which students send a draft presentation in advance and instructors provide feedback on presentation organization prior to the student giving the presentation.

It should also be noted that this class included both first and second year students in the program, but we did not break out data by year.

No file attached

No file attached

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. Include a description of how you plan to assess the impact of these changes.

Student performance was the worst in terms of presentation organization and audience adaptation. Instructor attention will be drawn to the fact that students likely need instruction on how to organize and adapt oral presentations, and more feedback on organization prior to the delivery of the oral presentation. The next time this course is taught, the rubric will again be used to measure student performance and compared to results from this year's assessment to see if there is improvement.

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

- (•) 1. Yes
- 2. No
- 3. Don't know

Q5.2.
Since your last assessment report, **how have the assessment data from then been used** so far?

	1. Very Much	2. Quite a Bit	3. Some	4. Not at All	5. N/A
1. Improving specific courses					(•)
2. Modifying curriculum					(•)
3. Improving advising and mentoring					(•)
4. Revising learning outcomes/goals					(•)
5. Revising rubrics and/or expectations					(•)
6. Developing/updating assessment plan					(•)
7. Annual assessment reports					(•)
8. Program review					(•)
9. Prospective student and family information					(•)
10. Alumni communication					(•)
11. WSCUC accreditation (regional accreditation)					(•)
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:

During academic year 15-16, the Graduate Advisory Committee developed an assessment plan, but did not have assessment data to evaluate or use to make recommendations for improvements.

Q5.3.
To what extent did you apply **last year's feedback** from the Office of Academic Program Assessment in the following areas?

	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 **last year's feedback** from the Office of Academic Program Assessment in any of the areas above:

Last year's MS Geology assessment report received commendation for producing a very complete assessment plan that could be an example to other graduate programs. It was recommended that we begin collecting data on a PLO, which we have done for Oral Communication and included in this year's assessment report.

(Remember: Save your progress)

Additional Assessment Activities

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

No file attached No file attached

Q7.
What PLO(s) do you plan to assess next year? [**Check all that apply**]

- [ ] 1. **Critical Thinking**
- [ ] 2. **Information Literacy**
- [ ] 3. **Written Communication**
- [x] 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
- [x] 18. **Overall Disciplinary Knowledge**
- [ ] 19. **Professionalism**
- [ ] 20. Other, specify any PLOs not included above:

a.
b.
c.

Q8. Please attach any additional files here:

No file attached No file attached No file attached No file attached

Q8.1.
Have you attached any files to this form? If yes, please list every attached file here:

Oral Communication Rubric

Final Presentation Assignment Description

Plots of student performance in Oral Communication

Curriculum Map

Assessment Plan

Program Information (**Required**)

Program:

(If you typed your program name at the beginning, please skip to Q10)

Q9.
Program/Concentration Name: [skip if program name appears above]
MS Geology

Q10.
Report Author(s):
Kevin Cornwell/Amelia Vankeuren

Q10.1.
Department Chair/Program Director:
Tim Horner

Q10.2.
Assessment Coordinator:
Amelia Vankeuren

Q11.
Department/Division/Program of Academic Unit
Geology

Q12.
College:
College of Natural Science & Mathematics

Q13.
Total enrollment for Academic Unit during assessment semester (see Departmental Fact Book):
21

Q14.
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:

Q15. Number of **undergraduate degree programs** the academic unit has?
3

Q15.1. List all the names:

BS Geology

BA Geology

BA Earth Science

Q15.2. How many concentrations appear on the diploma for this undergraduate program?
0

Q16. Number of **master's degree programs** the academic unit has?
1

Q16.1. List all the names:

MS Geology

Q16.2. How many concentrations appear on the diploma for this master's program?
0

Q17. Number of **credential programs** the academic unit has?
0

Q17.1. List all the names:

Q18. Number of **doctorate degree programs** the academic unit has?
0

Q18.1. List all the names:

When was your **assessment plan**...	1. Before 2011-12	2. 2012-13	3. 2013-14	4. 2014-15	5. 2015-16	6. 2016-17	7. No Plan	8. Don't know
Q19. developed?	○	○	○	○	◉	○	○	○
Q19.1. last updated?	○	○	○	○	◉	○	○	○

Q19.2. (REQUIRED)
Please **obtain** and **attach** your latest **assessment plan**:

MS Assessment Plan.pdf
87.14 KB

Q20.
Has your program developed a **curriculum map?**

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

Q20.1.
Please **obtain** and **attach** your latest **curriculum map**:

Geology%20curriculum%20mapping.pdf
132.63 KB

Q21.
Has your program indicated in the curriculum map where assessment **of student learning** occurs?

- 1. Yes
- (•) 2. No
- 3. Don't know

Q22.
Does your program have a capstone class?

- (•) 1. Yes, indicate: GEOL 500 or 596
- 2. No
- 3. Don't know

Q22.1.
Does your program have **any** capstone project?

- (•) 1. Yes
- 2. No
- 3. Don't know

(**Remember**: **Save your progress**)

ver. 5.15/17

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:**	**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						
GEOL 102	D	D						
GEOL 103	D	D	D	D				
GEOL 110A	D	D	D					
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						
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:**	**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)	D	D						
MATH 26A	I							
PHYS 5A & PHYS 5B	I, D							
GEOG 111	D							
GEOL 103	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							

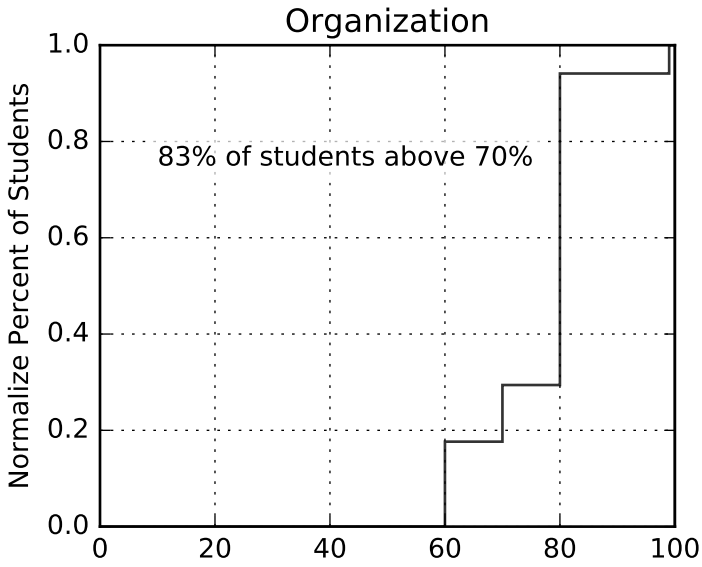
[1] use “I” for “Introduced”, “D” for “Developed”, and “M” for “Mastered”.

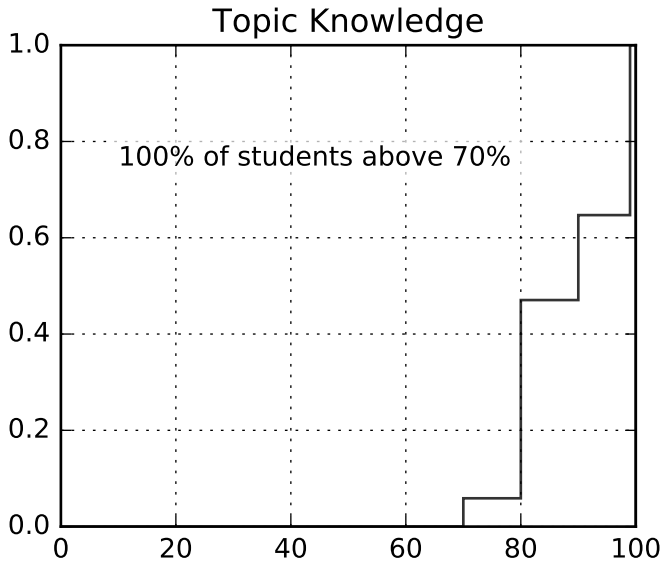
Table 2.5c: Curriculum Map: Geology MS

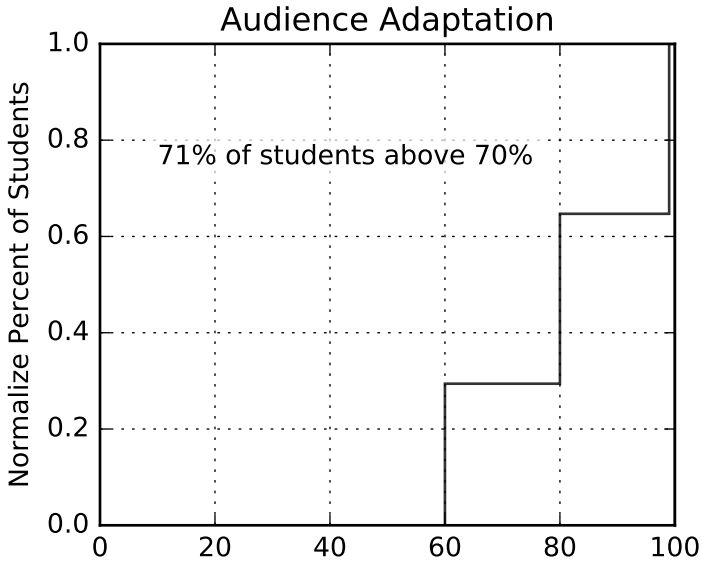
Linking Program Learning Outcomes[1] (PLO) to Each Course in the Curriculum (number of Learning Outcomes varies per program)

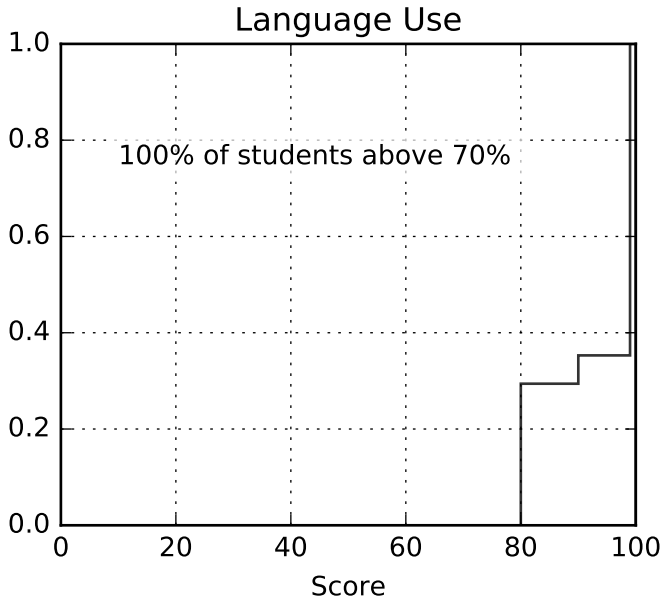
Outcomes (PLOs) / Courses	**Outcome 1:** Students will be able to read and digest complex scientific papers in the discipline, assess competing hypotheses and reach rational and logical conclusions.	**Outcome 2:** Students will be able to evaluate and interpret real-world data sets and use discipline-specific 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				

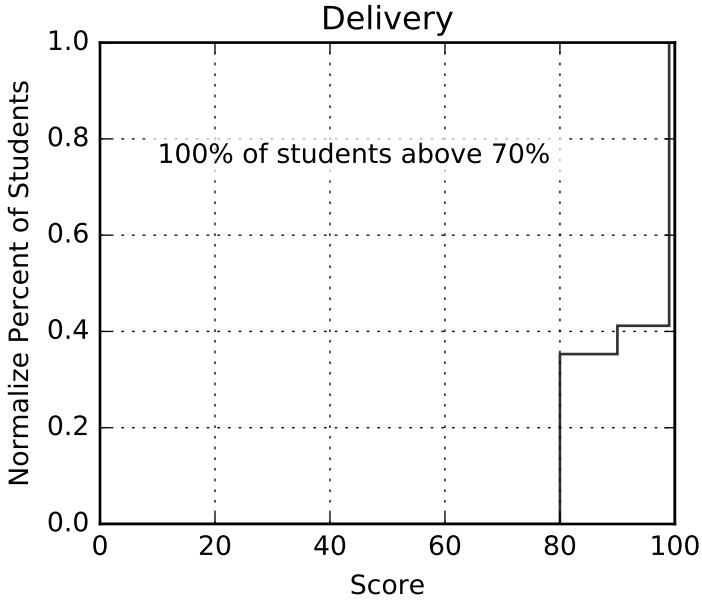
[1] Note: currently courses are marked with an "X" to indicate which ones contain PLOs. Eventually course map will include "I" for "Introduced", "D" for "Developed", and "M" for "Mastered", but those determinations are still in progress.


Organization
Normalize Percent of Students
83% of students above 70%
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
100


Topic Knowledge
100% of students above 70%
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
100


Audience Adaptation
Normalize Percent of Students
71% of students above 70%
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
100


Language Use
100% of students above 70%
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
100
Score


Delivery
Normalize Percent of Students
100% of students above 70%
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
100
Score

Outline of Geology Department Assessment Plan

OGS Goals	Geology Program Learning Goals	Program Learning Objectives	Measure	Eval. Tools	Stan. of perform.	When	Who
Disciplinary knowledge	Students will be able to read and digest complex scientific papers in the discipline, assess competing hypotheses and reach rational and logical conclusions.	1a) Evaluates the scholarly significance and relevance within and beyond the discipline 1b) Recognizes possible implications of the text for contexts, perspectives, or issues beyond the assigned task 1c) Compares and evaluates multiple and diverse sources and viewpoints according to specific criteria appropriate for the discipline. 1d) Articulates an understanding of the multiple interpretive possibilities particular to a text.	1) Instructor assesses and evaluates in-class presentations and discussions using detailed rubric for standardized evaluations. 2) Instructor evaluates written responses from students. 3) GEOL596 (Cumulative exit exam)	Reading, writing and oral rubrics	Advanced, Proficient and Beginning	See Course Map	Instructor
Critical thinking / analysis	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.	2a) Uses specific inductive or deductive reasoning to make inferences regarding premises. 2b) Thoroughly identifies and addresses key aspects of the problem, 2c) Insightfully uses facts and relevant evidence from analysis to support and defend potentially valid solutions.	1) Instructor assesses and evaluates the strength and detail of the technical reports using a detailed rubric.	Analysis rubric	Advanced, Proficient and Beginning	See Course Map	Instructor
Communi-cation	Students will develop presentation skills and the ability to relay technical data and scientific concepts to diverse audiences.	3a) Main points are clear and organized effectively and support a clear purpose. 3b) Language is familiar to the audience and appropriate for the setting. 3c) The delivery is natural, confident, and enhances the message - posture, eye contact, smooth gestures, facial expressions, volume, and pace.	1) Instructor assesses the student's knowledge of topics, clarity of discussion and connection and engagement of the audience in classroom presentations and thesis edits.	Writing and oral rubrics	Advanced, Proficient and Beginning	See Course Map	Instructor

Outline of Geology Department Assessment Plan

Information literacy	Students will demonstrate the ability to obtain, assess, and analyze information from a variety of sources	4a) Students compare and evaluate multiple and diverse sources and viewpoints according to specific criteria appropriate to the discipline. 4b) Effectively synthesizes and integrates information from a variety of sources.	1) Instructor assesses student's abilities to make information literacy decisions using a detailed rubric.	Writing Rubric	Advanced, Proficient and Beginning	See Course Map	Instructor
Professional -ism	Students will demonstrate an understanding of professional integrity	5a) Students consistently and accurately cite ideas and information of others correctly in written and oral exercises. 5b) Students are properly attired and present clear and cogent presentations to audience in oral exercises.	1) Instructor assesses these outcomes using detailed rubrics	Writing and oral rubrics	Advanced, Proficient and Beginning	See Course Map	Instructor
Intercultural / global perspectives	Students will demonstrate relevant knowledge and application of intercultural and / or global perspectives.	6a) Insightfully relates concepts and ideas from multiple sources and across geographic regions relative to geologic processes and hazards. 6b) Evaluates the scholarly significance and relevance within and beyond the discipline and geographic region.	1) Instructor assesses this outcome using detailed rubrics	Reading and analysis rubrics	Advanced, Proficient and Beginning	See Course Map	Instructor

Outline of Geology Department Assessment Plan

Program Learning Goals

The Geology Department has six Program Learning Goals (PLG's) that closely parallel the Office of Graduate Studies PLG's. The Geology Department goals are outlined as follows:

1. Students will be able to read and digest complex scientific papers in the discipline, assess competing hypotheses and reach rational and logical conclusions.

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.

3. Students will develop presentation skills and the ability to relay technical data and scientific concepts to diverse audiences.

4. Students will demonstrate the ability to obtain, assess, and analyze information from a variety of sources

5. Students will demonstrate an understanding of professional integrity

6. Students will demonstrate relevant knowledge and application of intercultural and / or global perspectives.

Program Learning Outcomes

These overall program learning goals are assessed throughout our graduate curriculum through a series of Program Learning Outcomes (PLO's). The PLO's are outlined below for each of the PLG's.

PLG 1 - Students will be able to read and digest complex scientific papers in the discipline, assess competing hypotheses and reach rational and logical conclusions.

PLO 1 - 1a) Evaluates the scholarly significance and relevance within and beyond the discipline.

1b) Recognizes possible implications of the text for contexts, perspectives, or issues beyond the assigned task.

1c) Compares and evaluates multiple and diverse sources and viewpoints according to specific criteria appropriate for the discipline.

1d) Articulates an understanding of the multiple interpretive possibilities particular to a text.

PLG 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.

PLO 2 - 2a) Uses specific inductive or deductive reasoning to make inferences regarding premises.

2b) Thoroughly identifies and addresses key aspects of the problem.

2c) Insightfully uses facts and relevant evidence from analysis to support and defend potentially valid solutions.

PLG 3 - Students will develop presentation skills and the ability to relay technical data and scientific concepts to diverse audiences.

PLO 3 - 3a) Main points are clear and organized effectively and support a clear purpose.

3b) Language is familiar to the audience and appropriate for the setting.

3c) The delivery is natural, confident, and enhances the message - posture, eye contact, smooth gestures, facial expressions, volume, and pace.

PLG 4 - Students will demonstrate the ability to obtain, assess, and analyze information from a variety of sources.

PLO 4 - 4a) Students compare and evaluate multiple and diverse sources and viewpoints according to specific criteria appropriate to the discipline.

4b) Effectively synthesizes and integrates information from a variety of sources.

PLG 5 - Students will demonstrate an understanding of professional integrity

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PLO 5 - 5a) Students consistently and accurately cite ideas and information of others correctly in written and oral exercises.

5b) Students are properly attired and present clear and cogent presentations to audience in oral exercises.

PLG 6 - Students will demonstrate relevant knowledge and application of intercultural and / or global perspectives.

PLO 6 - 6a) Insightfully relates concepts and ideas from multiple sources and across geographic regions relative to geologic processes and hazards.

6b) Evaluates the scholarly significance and relevance within and beyond the discipline and geographic region.

Curriculum Map of Graduate Geology Courses

The curriculum map that follows outlines where in the graduate program the 6 PLG's are evaluated. Courses GEOL200, GEOL275 and GEOL290 are core, required classes for all students advancing through the M.S. Geology program. All students who successfully navigate the Program will either complete a master's thesis (GEOL500) or take the comprehensive exam (GEOL596).

COURSE	COURSE TITLE	PLG 1	PLG 2	PLG 3	PLG 4	PLG 5	PLG 6
Required							
GEOL200	Research Methods	X	X	X		X	X
GEOL275	Quantitative Research Methods	X	X	X	X		
GEOL290	Regional Geology of the Western US	X	X	X	X	X	
Elective							
GEOL202	Aqueous Geochemistry	X	X	X	X	X	
GEOL208	Groundwater Modeling	X	X	X	X	X	
GEOL212	Geologic Remote Imaging	X		X	X	X	X
GEOL213	Advanced Structural Geology	X	X	X	X	X	X
GEOL218	Applied Geophysics	X	X	X	X		
GEOL220	Surficial Processes	X	X	X	X	X	X
GEOL227	Advanced Hydrogeology	X	X	X	X	X	X
GEOL240C	Advanced Volcanology	X		X	X	X	X
GEOL500	Masters Thesis	X	X	X	X	X	X
GEOL596	Comprehensive Examination	X	X	X	X		

Outline of Geology Department Assessment Plan

Assessment Plan

The M.S. Geology program is just getting underway (Fall, 2015) after being administratively closed for several years. With the construction of this assessment plan, Geology will begin collecting assessment data in the Fall, 2016 semester. Pending the continued development of assessment at the graduate level, it is anticipated that the M.S. Geology program collect assessment data every semester that classes are held and will review and assess that data every five years.

Assessment Tools

The Geology Graduate Program has developed four different assessment rubrics to be used in the overall evaluation of the program. Those rubrics are reading, writing, oral presentation and analysis and ultimately address all six of the PLG's. Each rubric consists of three standard of performance levels (beginner (1), proficient (3) and advanced (5)) that will be assessed for each student on each rubric required activity. Numerical values are assigned to each standard of performance which allows the grader some range within each performance standard. Within the rubric are descriptions for each level of performance that assessors will look for. For example, when determining the problem solving skills in the analysis rubric of a student, the difference between the advanced, proficient and beginning standards are as follows:

Advanced - ***thoroughly*** identifies and addresses key aspects of the problem,
insightfully uses facts and relevant evidence from analysis to support and defend potentially valid solutions.

Proficient - identifies and addresses key aspects of the problem,
uses facts and relevant evidence from analysis to develop potentially valid conclusions or solutions.

Beginning - identifies and addresses ***some*** aspects of the problem;
develops possible conclusions or solutions ***using some inappropriate*** opinions and information from analysis.

The four assessment rubrics are located in Appendix A of this report.

Lines of Evidence

Direct lines of evidence will ultimately be used to reach assessment decisions regarding program effectiveness. The Geology Department is always open to indirect assessments that come our way regarding the effectiveness of the program but with the exception of occasional class queries will not be a primary source for assessment data.

Outline of Geology Department Assessment Plan

Program Learning Outcomes	Direct	Indirect
1a) Evaluates the scholarly significance and relevance within and beyond the discipline 1b) Recognizes possible implications of the text for contexts, perspectives, or issues beyond the assigned task 1c) Compares and evaluates multiple and diverse sources and viewpoints according to specific criteria appropriate for the discipline. 1d) Articulates an understanding of the multiple interpretive possibilities particular to a text.	• Reading and presentation assignments in core and elective courses	Possible mid-course assessments Alumni surveys
2a) Uses specific inductive or deductive reasoning to make inferences regarding premises. 2b) Thoroughly identifies and addresses key aspects of the problem, 2c) Insightfully uses facts and relevant evidence from analysis to support and defend potentially valid solutions.	• Analytical assignments in elective courses. • G-500 thesis • G-596 comprehensive exam	Possible mid-course assessments Alumni surveys
3a) Main points are clear and organized effectively and support a clear purpose. 3b) Language is familiar to the audience and appropriate for the setting. 3c) The delivery is natural, confident, and enhances the message - posture, eye contact, smooth gestures, facial expressions, volume, and pace.	• Presentation assignments in core and elective courses • Thesis defense	Possible mid-course assessments Alumni surveys
4a) Students compare and evaluate multiple and diverse sources and viewpoints according to specific criteria appropriate to the discipline. 4b) Effectively synthesizes and integrates information from a variety of sources.	• Reading, writing and presentation assignments in core and elective courses	Possible mid-course assessments Alumni surveys
5a) Students consistently and accurately cite ideas and information of others correctly in written and oral exercises. 5b) Students are properly attired and present	• Writing assignments • Thesis writing and culminating exam • Presentation assignments in core and	Possible mid-course assessments Alumni surveys

clear and cogent presentations to audience in oral exercises.	elective courses • Thesis defense	
6a) Insightfully relates concepts and ideas from multiple sources and across geographic regions relative to geologic processes and hazards. 6b) Evaluates the scholarly significance and relevance within and beyond the discipline and geographic region.	• Presentation assignments in core and elective assignments • Writing assignments in core and elective classes	Possible mid-course assessments Alumni surveys

Geology 290 Final Paper and Presentation
as of March 30, 2017

As we've read through papers, you've realized that many issues are not settled, and there are multiple hypotheses to explain some geological observations. This exercise is for you to learn how to determine the substance of disagreement between ideas. Your topic has to fit into the category "Regional Geology of the Western US".

For your final paper, you'll be selecting a specific question to write a short (4-5 pages of single-spaced text, plus references and figures) review and commentary. Your review should be comprehensive and include most of the highest cited papers. I shouldn't be able to find a significant paper on the topic that you haven't cited.

Some possible questions could be:
What is the relationship between Mojavia and Laurentia?
What continent rifted away from Western Laurentia in the Neoproterozoic?
Do Cryogenian deposits in the Cordillera support a Snowball Earth modle
What was the geodynamic cause of the Laramide Orogeny?
When did Sierra Nevada uplift occur? What drives it?
How were large amounts of sediment deposited in the Death Valley region in the Neoproterozoic?
What is the significance of positive $\delta^{13}C$ excursion during the Ordovician mass extinction
What is the date of initiation of the Sierra Nevada arc?
What is the relationship between the Luning-Fencemaker Thurst Belt and the Sevier Thrust Belt?
How much of the Franciscan in tectonic mélange?

Please follow this format:
-Briefly lay out the question
-Give a compact background that gives enough information for the reader
-Explain each of the hypotheses. Group them into "schools of thought" if possible.
-Explain the methods/data that support each of the hypotheses.
-Determine the substance of the disagreement. Basically, why do they disagree? Do they disagree about fundamental data? Do the papers have different assumptions? Are the authors talking past each other and not addressing each other's evidence? Or, are the authors actually in agreement, but they don't realize it?
-What do you think?
-And finally, propose an additional piece of data that could solve the problem.

Please include figures. You must write your own captions for each of the figures. Place your figures after your references.

Due dates:
April 6: Email me a paper topic
April 13: Reference cited due in class (paper copy)
April 27: Draft of paper (paper copy)
May 4 and May 11: 12-minute long PowerPoint presentations in class
May 18: Final paper due by 5 pm (paper copy, under my door)

ORAL COMMUNICATION RUBRIC

	Advanced (5 points)	**Proficient** (3 points)	**Beginning** (1 points)	**Score** **5-0**
Organization	• Ideas are clearly organized, developed, and support a clear purpose. • The introduction gets the attention of the audience • Main points are clear and organized effectively. • The conclusion is satisfying and relates back to introduction.	• Ideas are organized relative to the purpose but clarity between is not strong and clear. • Introduction has the basic mechanics but not engaging. • Main points are present but lacking some in clarity or method of organization. • Conclusion is appropriate but may not connect to all issues raised.	• Main idea is evident, but the organizational structure is weak • Ideas may not be clearly developed or flow smoothly. • Purpose not clearly stated. • Introduction may not be well developed. • Transitions may be awkward. • Supporting material may lack in development. • The conclusion may need additional development.	
Topic Knowledge	• Student has a clear grasp of information. • Citations are introduced and attributed appropriately and accurately. • Student demonstrates full knowledge of topic. • Speaking outline or note cards are used for reference only.	• Student has a partial grasp of the information. • Citations are generally introduced and attributed appropriately. • Student is at ease with expected answers to all questions but fails to elaborate. • Over dependence on notes may be observed.	• Student has a limited grasp of information. • Citations not used properly or too few • Has some difficulty answering questions about the subject. • Presentation is read directly from note cards.	
Audience Adaptation	• The presenter is able to effectively keep the audience engaged. • Material is modified or clarified as needed given audience verbal and nonverbal feedback. • Delivery style is modified as needed.	• The presenter is able to keep the audience engaged most of the time. • Generally, the speaker demonstrates audience awareness through nonverbal and verbal behaviors. • Some effort to make the material relevant to audience needs and interests.	• The presenter is not able to keep the audience engaged. • Not aware of audience feedback • No noticeable change in delivery based on obvious verbal or nonverbal feedback from the audience.	
Language Use	• Language is familiar to the audience and appropriate for the setting. • The presenter may “code-switch”	• Language is appropriate. W • Word choices are not particularly vivid or precise.	• Language choices may be limited, peppered with slang or jargon, too complex, or too dull.	

	(use a different language form) when appropriate. • Language choices are vivid and precise.		• Language is questionable or inappropriate for a particular audience, occasion, or setting. •	
Delivery	• The delivery is natural, confident, and enhances the message - posture, eye contact, smooth gestures, facial expressions, volume, pace, etc. indicate confidence, • The vocal tone and delivery style and clothing are consistent with the message. Articulation and pronunciation are clear. • All audience members can hear the presentation.	• The delivery generally seems effective – however, effective use of volume, eye contact, vocal control, etc. may not be consistent. • Vocal tone, facial expressions, and clothing and other nonverbal expressions do not detract significantly from the message, generally, articulation and pronunciation are clear. • Most audience members can hear the presentation.	• The delivery detracts from the message (eye contact may be very limited, presenter may tend to look at the floor, mumble, speak inaudibly, fidget, or read most of the speech. • The delivery may appear inconsistent with the message, articulation and pronunciation tend to be sloppy. • Audience members have difficulty hearing the presentation. • Nonfluencies (“ums, like, etc…) are used excessively.	