

**Course Assessment Report
Washtenaw Community College**

Discipline	Course Number	Title
Geology	110	GLG 110 07/20/2023- Geology of the National Parks and Monuments
College	Division	Department
	Math, Science and Engineering Tech	Physical Sciences
Faculty Preparer		Suzanne Albach
Date of Last Filed Assessment Report		

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

No

2. Briefly describe the results of previous assessment report(s).

3.

4. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

5.

II. Assessment Results per Student Learning Outcome

Outcome 1: Recognize and identify introductory principles and concepts of the geology and Earth sciences, as exposed and developed in various national parks and monuments of the United States.

- Assessment Plan
 - Assessment Tool: Outcome-related questions on departmental exams
 - Assessment Date: Winter 2023
 - Course section(s)/other population: All sections
 - Number students to be assessed: All students

- How the assessment will be scored: Multiple-choice questions will be scored using an answer key. Essay and short-answer questions will be scored using a departmentally-developed rubric.
- Standard of success to be used for this assessment: 70% of the students will score an average of 72.5%, or better, on each exam. An item analysis of outcome-related questions will be done to identify areas of strengths and weaknesses.
- Who will score and analyze the data: Appropriate geology faculty will assess the data.

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2022	2023	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
84	75

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

This assessment includes all students that completed GLG 110 during the Fall 2022 and Winter 2023 semesters, which totaled 75 students across four sections. This is more than the targeted goal of 50% of the students from each section. Students who withdrew, who did not complete the course, or who did not complete the assignment associated with this assessment were not included in this assessment report.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All four sections assessed are DL courses.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The tools used for this assessment were four multiple-choice departmental exams (each following a unit that covered one-quarter of the course material). Answers were scored using a key.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: <u>Yes</u>
Students scored an average of 84.9% across all four sections and all four unit exams. The standard of success is that "70% of students will score an average of 72.5% or better on each exam". 81.3% of students scored an average of 72.5% or better on the Unit One Exam, 86.7% on the Unit Two Exam, 93.3% on the Unit Three Exam, and 84.0% on the Unit Four Exam. Future assessments will include an item analysis of outcome-related questions to identify specific areas of strengths and weaknesses. Based on these results, students are able to recognize and identify introductory principles and concepts of the geology and Earth sciences as exposed and developed in various national parks and monuments of the United States.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students achieved an impressive average of 84.9% across all four sections and unit exams, indicating a high level of competency and understanding of the material covered throughout the course.
The majority of students demonstrated strong performance on each individual unit exam. Specifically, 81.3% of students scored an average of 72.5% or better on the Unit One Exam, 86.7% on the Unit Two Exam, 93.3% on the Unit Three Exam, and 84.0% on the Unit Four Exam. These results highlight consistent and successful learning across different topics and units.
These achievements reflect the effectiveness of the teaching methods and the students' dedication to understanding the course material.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Based on the assessment results and the standard of success, it is evident that student achievement for this learning outcome is generally strong, with the majority of students, 86.3%, meeting or exceeding the 72.5% score or better benchmark over all exams. While student achievement of the learning outcome is generally strong, there are opportunities for continuous improvement.
The Unit One Exam had the lowest percentage of students meeting the standard of success at 81.3%. While this satisfies the standard of success, it indicates that there

is some room for improvement in this particular unit. The first exam is often the lowest scoring exam as students adjust to a new course and learning experience. Students may benefit from additional tips and reminders on how to best prepare for the exam.

In addition, future item analysis of individual questions should help identify any specific challenges or topics that students struggled with in Unit One, or in other units to enhance the instruction and assignments in those areas to help increase student success.

Outcome 2: Connect and correlate appropriate knowledge, principles, and concepts to synthesize the geologic information contained within individual parks, and extrapolate to broader geographical areas.

- Assessment Plan
 - Assessment Tool: Outcome-related questions on departmental exams
 - Assessment Date: Winter 2023
 - Course section(s)/other population: All sections
 - Number students to be assessed: All students
 - How the assessment will be scored: Multiple-choice questions will be scored using an answer key. Essay and short-answer questions will be scored using a departmentally-developed rubric.
 - Standard of success to be used for this assessment: 70% of the students will score an average of 72.5%, or better, on each exam. An item analysis of outcome-related questions will be done to identify areas of strengths and weaknesses.
 - Who will score and analyze the data: Appropriate geology faculty will assess the data.

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2022	2023	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
84	75

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

This assessment includes all students that completed GLG 110 during the Fall 2022 and Winter 2023 semesters, which totaled 75 students across four sections. This is more than the targeted goal of 50% of the students from each section. Students who withdrew, who did not complete the course, or who did not complete the assignment associated with this assessment were not included in this assessment report.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All four sections assessed are DL courses.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

The tools used for this assessment were four multiple-choice departmental exams (each following a unit that covered one-quarter of the course material). Answers were scored using a key.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

Students scored an average of 84.9% across all four sections and all four unit exams. The standard of success is that "70% of students will score an average of 72.5% or better on each exam". 81.3% of students scored an average of 72.5% or better on the Unit One Exam, 86.7% on the Unit Two Exam, 93.3% on the Unit Three Exam, and 84.0% on the Unit Four Exam. Future assessments will include an item analysis of outcome-related questions to identify specific areas of strengths and weaknesses. Based on these results, students are able to connect and correlate appropriate knowledge, principles, and concepts to synthesize the geologic information contained within individual parks, and extrapolate to broader geographical areas.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students achieved an impressive average of 84.9% across all four sections and unit exams, indicating a high level of competency and understanding of the material covered throughout the course.

The majority of students demonstrated strong performance on each individual unit exam. Specifically, 81.3% of students scored an average of 72.5% or better on the Unit One Exam, 86.7% on the Unit Two Exam, 93.3% on the Unit Three Exam, and 84.0% on the Unit Four Exam. These results highlight consistent and successful learning across different topics and units.

These achievements reflect the effectiveness of the teaching methods and the students' dedication to understanding the course material.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Based on the assessment results and the standard of success, it is evident that student achievement for this learning outcome is generally strong, with the majority of students, 86.3%, meeting or exceeding the 72.5% score or better benchmark over all exams. While student achievement of the learning outcome is generally strong, there are opportunities for continuous improvement.

The Unit One Exam had the lowest percentage of students meeting the standard of success at 81.3%. While this satisfies the standard of success, it indicates that there is some room for improvement in this particular unit. The first exam is often the lowest scoring exam as students adjust to a new course and learning experience. Students may benefit from additional tips and reminders on how to best prepare for the exam.

In addition, future item analysis of individual questions should help identify any specific challenges or topics that students struggled with in Unit One, or in other units to enhance the instruction and assignments in those areas to help increase student success.

Outcome 3: Write a research paper that describes the geologic and cultural history of a national park not covered in the course material.

- Assessment Plan
 - Assessment Tool: Research paper
 - Assessment Date: Winter 2023
 - Course section(s)/other population: All sections

- Number students to be assessed: All students
- How the assessment will be scored: Research paper will be scored using a departmentally-developed rubric.
- Standard of success to be used for this assessment: 70% of the students will score a 2.5 (between acceptable and good), or above on a rubric scale of not acceptable (1), acceptable (2), good (3), and exemplary (4).
- Who will score and analyze the data: Appropriate geology faculty will assess the data.

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2022	2023	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
84	63

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

This assessment includes all students that completed GLG 110 during the Fall 2022 and Winter 2023 semesters, which totaled 63 students across four sections. This is more than the targeted goal of 50% of the students from each section. Students who withdrew, who did not complete the course, or who did not complete the assignment associated with this assessment were not included in this assessment report.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All four sections assessed are DL courses.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Since the inception of this course in Winter 2020, it has been revised multiple times to best meet the needs of our students. It was found that this research assignment and outcome could be better assessed through an extended discussion board post rather than in a traditional paper format as originally designed. This is because explaining the geology of a park properly can be the equivalent of writing

a book, and impossible to achieve in the length of a short paper. Instead, students now focus on 'Pick-a-[Geology]Feature' in a national park or monument instead of 'Pick-A-Park'. In this revision, students still utilize skills in research and applying previously learned knowledge but are able to do an in-depth geological analysis on a single feature as opposed to trying to cover the millions of years of geology across an entire park. Students had to research to write an extended discussion board thread that describes the geological history of a natural feature in a national park or monument not covered in the course material. The discussion board format is ideal in allowing the rest of the class to view submissions, provide peer review and to learn even more about geology and parks as they are required to review at least two classmate threads. This outcome will be revised in the master syllabus revision. The assessment tool was scored using a modified rubric from which points were totaled (see attached). Maintaining consistency with the other standards, the modified standard of success used is that 70% of students will score an average of 75% or better.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

Overall, students scored an average of 75.5% for this assignment and outcome. 49 of the 63 students (77.8%) scored an average of 72.5% or better, meeting the standard of success for this outcome.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students achieved an average of 75.5% across all four sections for the 'Pick-A-Feature' research assignment. 49 of the 63 students (77.8%) scored an average of 72.5% or better, thus indicating an acceptable level of competency and understanding of the material covered throughout the course. These results highlight successful learning that was pulled across different topics and units.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

While the majority, 77.8%, of students met or exceeded the standard of success, 22.2% of students that completed the assignment did not score an average of 72.5% or better. It is essential to identify the reasons behind this performance gap and offer additional support or interventions.

Student participation was analyzed. 75 students completed the course, but only 63 (84%) completed this assignment and were included in this assessment. The

reason for this may be due to it being the last assignment of the semester and students deciding to put their time and efforts elsewhere. This may also indicate a reason for the lower success rate for this assignment.

The average scores were consistent across semesters and sections, so additional investigation is needed to determine how student scores (and participation) can be improved. The rubric used helps to identify areas of concern. The main area where students are losing points is the portion of the assignment where they must explain the geology of the feature. To help improve student success in this area, the directions for the assignment will be adjusted and more examples provided. With each passing semester, this assignment will be analyzed to find ways to improve student success.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

N/A

2. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

This course includes a large number of geology topics that students must learn and then be able to apply to explain the geology behind famous landmarks in our parks. Most students have not had a geology course previously so it can be a challenging class. The high and consistent success rates speak to the course content and the consistent performance of students meeting or exceeding the standards of success in our outcomes.

3. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

The overall results of the assessment will be shared during an upcoming department meeting, and individually, information obtained from this assessment will be shared with geology instructors teaching this course at WCC for planning and revision purposes.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
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Outcome Language	<p>The third outcome will be revised to reflect that students will instead explain the detailed geology of a feature in a park instead of broadly explaining the entire geology of the park. New language: Write an extended discussion board thread that describes the geology and geological history of natural feature in a national park or monument not covered in the course material.</p>	<p>An entire semester could be devoted to writing a research paper on the geology of a national park or monument, and students barely scratched the surface to show they really understood what they were writing. In this revision, students will narrow the focus down to a famous landmark or feature in a park to provide the geology and geological history of the feature in detail. It will be delivered through the discussion board format to allow for peer review and discussion, as well as expose the students to additional parks not covered in the existing course material.</p>	2024
Assessment Tool	<p>For future assessments, a subset of common questions will be used in assessment across all sections and students while randomizing the remaining questions. This will</p>	<p>Currently, all assessment questions are randomized, so it is difficult to pinpoint individual areas of strength or concern. A subset of common questions will allow for better item analysis of</p>	2024

	<p>be true for both outcomes 1 and 2.</p> <p>Also, standard of success language will be updated to "70% of students will score 70% or higher"</p>	<p>outcome-related questions to identify areas of strengths and weaknesses.</p> <p>Standard of success will be updated per C&A suggestion to match the boilerplate language used across the college.</p>	
<p>Course Materials (e.g. textbooks, handouts, on-line ancillaries)</p>	<p>An open educational resource (OER) is being used to replace the published textbook previously used. This change has already been implemented and is an ongoing effort to continue to update and provide new course material.</p>	<p>Implementing an OER saves students money, provides greater access to learning materials, and allows for greater personalization of the course material and delivery.</p>	<p>2024</p>

5. Is there anything that you would like to mention that was not already captured?

6.

III. Attached Files

[GLG110 F22 and W23 Data](#)
[Pick-A-Feature Instructions and Rubric](#)

Faculty/Preparer: Suzanne Albach **Date:** 08/01/2023
Department Chair: Suzanne Albach **Date:** 08/01/2023
Dean: Tracy Schwab **Date:** 08/04/2023
Assessment Committee Chair: Jessica Hale **Date:** 01/04/2024