Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Geology	114	GLG 114 11/16/2018-Physical Geology
Division	Department	Faculty Preparer
Math, Science and Engineering Tech	Physical Sciences	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 related to geology including: topographic maps, minerals, rocks, soil erosion and formation, plate tectonics, earthquakes, volcanoes, mountain building, geologic time and dating, running water, lakes, groundwater, oceans and glaciations, as well as the environmental concerns associated with each.

- Assessment Plan
  - Assessment Tool: Departmental Exams
  - Assessment Date: Winter 2013
  - Course section(s)/other population: All sections
  - Number students to be assessed: Random sample of 50% of the students from each section with a minimum of one full section.

- How the assessment will be scored: Multiple choice questions will be scored using the key. Essay and short answer questions will be scored using a departmentally-developed rubric.
- Standard of success to be used for this assessment: Students will score an overall average of 72.5% or better on each assessment question.
- Who will score and analyze the data: Appropriate geology faculty will analyze 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)
	2018	

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

# of students enrolled	# of students assessed
61	46

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.

Fifteen students either withdrew and failed to complete the semester (stopped attending).

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.

Three sections were included, which represents all sections that ran during the Winter 2018 semester. This includes one 15-week DL section (17 students), one 12-week late-starting DL section (7 students), and one 15 week on-campus section (22 students), for a total of 46 students.

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

The current master syllabus for this course states that we will use 50% of the students from each section offered, with students scoring an overall average score of 72.5% or better on the departmental exam. Multiple-choice questions were assessed using an answer key and short answer and essay questions were scored using departmentally-developed rubrics. Again, all students that finished the semester were included, and all questions from the department exam were included in this assessment.

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
The data shows that these students (all sections and formats) achieved an overall average score 75.4% overall (on all four exams). This average score slightly exceeded our standard for success of 72.5%. When looking at each of the four individual exams, (across all sections) the average is a 81% on Exam One, 76% on Exam Two, 74% on Exam Three, and 71% on Exam Four. When examining individual exams, and not a combined total, the data shows that all but one exam (Exam Four) would meet our standard for success.

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

The data shows that these students (all sections and formats) achieved an overall average score 75.4% overall (on all four exams)*. This average score slightly exceeded our standard for success of 72.5%. When looking at each of the four individual exams, (across all sections) the average is a 81% on Exam One, 76% on Exam Two, 74% on Exam Three, and 71% on Exam Four. When examining individual exams, and not a combined total, the data shows that all but one exam (Exam Four) would meet our standard for success.

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 we did meet our standard of success, some areas of concern do exist. For example, student exam scores decrease as the semester progresses. Ideally, we would complete a question by question comparison, but that is not possible because on-line section exams are randomly drawn from a larger pool, and randomly ordered, which provides every student with a unique exam. While this helps maintain the integrity of the assessment, it makes direct comparisons very difficult. On-campus sections also use different versions of the same test to help maintain the integrity ofthe assessment. Perhaps this is something we can change temporarily for future assessments, or look into finding another solution as it would be helpful to obtain and compare data on which specific questions students struggled with. In the meantime, instructors can analyze each assessment to identify any common areas where students struggles and could benefit from different, or additional instruction. Another area of concern is Exam Three, where students online scored considerable lower than on-campus students. The reasons for this could be due to the fact that

this is an exam the exclusively relies on mapping. It is worthwhile to examine how we can strengthen online student success with additional support materials.

It is worth noting that all formats of GLG 114 switched to OER materials, starting Fall 2017, one semester before this assessment. Several problems areas developed because of this after reviewing student SOQ responses from the assessed semester, Winter 2018. Several students mentioned that material covered in the modules did not always coincide with what ended up in quizzes, as well as numerous other errors. This applies to both on-campus and DL sections. The course needs a thorough review to better organize the work, to make sure quizzes are covering the actual material learned and available, that the labs questions are clearly labeled and images clear, etc. A summary of these comments can be found in the attached files.

In addition, CiTL provided an OLAT review for the the DL formats of the course for suggested improvements to help revise materials to help improve student success for this outcome. The OLAT review for the DL format of the course can be found in the attached files.

Outcome 2: Apply appropriate principles, tools and concepts to solve problems, as well as construct and interpret maps, charts, diagrams and graphs related to geological concepts.

- Assessment Plan
    - Assessment Tool: Laboratory Exercises
    - Assessment Date: Winter 2013
    - Course section(s)/other population: All sections
    - Number students to be assessed: Random sample of 50% of students from each section with a minimum of one full section.
    - How the assessment will be scored: Departmentally-developed rubric
    - Standard of success to be used for this assessment: Students will score an overall average of 72.5% or better.
    - Who will score and analyze the data: Appropriate geology faculty.

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)
	2018	

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

# of students enrolled	# of students assessed
61	46

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.

Fifteen students were excluded from this assessment for various reasons, including withdrawal and failure to complete the semester (stopped attending).

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.

Three sections were included, which represents all sections that ran during the Winter 2018 semester. This includes one 15-week DL section (17 students), one 12-week late-starting DL section (7 students), and one 15 week on-campus section (22 students), for a total of 46 students.

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

The current master syllabus for this course states that we will use 50% of the students from each section offered, with students scoring an overall average score of 72.5% or better on the laboratory exercises. All questions were assessed using an answer key (not a departmentally-developed rubric as stated in the original master syllabus for this course). Again, all students that finished the semester were included, and all questions from the laboratory exercises were included in this assessment.

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
Both on-campus and online students complete the same laboratory exercises, with few exceptions. The data shows that these students (all sections and formats) achieved an overall average score 79.1% overall (on all fifteen laboratory exercises). This average score exceeded our standard for success of 72.5%. When looking at each of the fifteen individual laboratory exercises, (across all sections) the average is a 92% on Lab 1, 78% on Lab 2, 75% on Lab 3, 80% on Lab 4, 77% on Lab 5, 74% on Lab 6, 80% on Lab 7, 79% on Lab 8, 72% on Lab 9, 82% on Lab 10, 74% on Lab 11, 88% on Lab 12, 72% on Lab 13, 79% on Lab 14, and

84% on Lab 15. Labs 9 and 13 were the only to fall just slight short of the 72.5% standard for success, at 72% for each.

There was no appreciable difference noticed between types of classes or length of term on exam performance.

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

Both on-campus and online students complete the same laboratory exercises, with few exceptions. The data shows that these students (all sections and formats) achieved an overall average score 79.1% (on all fifteen laboratory exercises). This average score exceeded our standard for success of 72.5%.

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.

Across all formats and sections, laboratory exercises 9 and 13 were the only two to fall just slight short of the 72.5% standard for success, at 72% for each, out of the fifteen total*. Certainly the directions and material covered in these labs should be revisited to find methods to help improve student success on these labs.

It really stands out that the on-campus section only fell below the standard of success for one lab (Lab 11), while the DL courses fell below the standard of success for eight of the labs (Labs 2, 3, 5, 6, 7, 8, 9 and 13) or just more than half of the fifteen labs in the course. Clearly, the online students are struggling with the labs. This is not unexpected, since on-campus students have the benefit of receiving direct, immediate, and in-person help from their instructor.

While we did meet our standard of success, some areas of concern do exist. For example, student exam scores decrease as the semester progresses. ideally, we would complete a question by question comparison, but that is not possible because on-line section exams are randomly drawn from a larger pool, and randomly ordered, which provides every student with a unique exam. While this helps maintain the integrity of the assessment, it makes direct comparisons very difficult. On-campus sections also use different versions of the same test to help maintain the integrity ofthe assessment. Perhaps this is something we can change temporarily for future assessments, or look into finding another solution as it would be helpful to obtain and compare data on which specific questions students struggled with. In the meantime, instructors can analyze each assessment to identify any common areas where students struggles and could benefit from different, or additional instruction.

Another area of concern is Exam Three, where students online scored considerable lower than on-campus students. The reasons for this could be due to the fact that

this is an exam the exclusively relies on mapping. It is worthwhile to examine how we can strengthen online student success with additional support materials.

It is worth noting that all formats of GLG 114 switched to OER materials, starting Fall 2017, one semester before this assessment. Several problems areas developed because of this after reviewing student SOQ responses from the assessed semester, Winter 2018. Several students mentioned that material covered in the modules did not always coincide with what ended up in quizzes, as well as numerous other errors. This applies to both on-campus and DL sections, since both use the same OER lab manual. The course needs a thorough review to better organize the work, to make sure labs are covering the actual material learned and available, that the questions are clearly worded and labeled, and that the images are clear, etc. Many students are reporting errors and typos that need to be corrected as well. A summary of student comments can be found in the attached files.

In addition, CiTL provided an OLAT review for the the DL formats of the course for suggested improvements to help revise materials to help improve student success for this outcome. As far as labs go, there is concern at the length of the labs, and the wording of lab instructions. These are all items that can be corrected and I believe will help improve student success. The OLAT review for the DL format of the course can be found in the attached files.

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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.

2.

3. 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?

Overall, I am satisfied that students are meeting the course objectives and outcomes. However, there is certainly a lot of room for improvement to address certain areas, and much of the feedback provided from students and CiTL have shown several problem issues that have developed as a result of switching to the OER format.

One area needing revision is the lab modules, which are directly tied to our second outcome, where students need to apply appropriate principles, tools, and concepts to solve problems, as well as construct and interpret maos, charts, diagrams and graphs related to geologic concepts. Labs need to be condensed in length to eliminate duplicate material in the lectures and learning modules. Directions need

to be revised to provide more clarity for the lab questions and expectations. Errors and typos need to be corrected. mages and diagrams in the labs, quizzes and tests need to corrected to display clear and crisp details in the images. These items apply to both online and on-campus sections, since they use the same lab manual.

As far as learning material (recognizing and identifying geologic principles and concepts in outcome one), we need to review each module to be sure that the material in each is correctly corresponding to each quiz and exam, especially since the exam questions come from the quiz questions. Errors and typos need to be corrected. Questions need to be edited to eliminate errors, typos and excessive wordiness. Additional study aid materials can be created to help students prepare for the exams, for all formats.

The assessment process really allows us to examine the success rates in this course, or lack thereof, and guides us to investigate the reasons why student success is less than optimal. In doing so, we can ascertain where more instruction may be needed, or where assignments, quizes and other learning materials can be improved.

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

The summary report and related data from CiTL hs already been sent to all the faculty teaching this course.

5. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Assessment Tool	For Outcomes One and Two, how the assessment will be scored should be changed to this: Multiple choice questions will be scored using the answer key. Essay and short answer questions will be scored using a departmentally-developed rubric. Standard of success to be used for this	The previous wording was not specific as to what students needed to score the minimum average on, and I wanted to align the 75% minimum threshold with the other geology courses for continuity.	2019

	assessment: 75% of the students will correctly answer 75% of the outcome-related questions.		
Assessment Tool	Outcome two should be changed to be measured by the laboratory exercises only (elininate the second assessment tool of departmental exams).	While solving problems may certainly come into play in some exam questions, this outcome can be completely and thoroughly addessed through assessing the laboratory exercises exclusively.	2019
Course Assignments	All lab modules will be thoroughly revised to shorten their length, provide more clarity in the directions, correct and improve image quality, remove errors and typos and to be sure examples and related assessment questions are clear and concise. Directions for assignments with lower success rates will be analyzed to determine if improving the language will help improve completion rates. Quiz and exam questions for all formats will be	It is my hope that these modifications will help increase the success rate for all assignments, since we believe that these assignments play an integral role in understanding and applying the course material, objectives and outcomes.	2019

	checked and adjusted (as needed) for clarity and accuracy.		

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

A big thank you to Peter Bacille and his support teams for providing detailed information in their OLAT review for the DL sections of this course, as well as to Kelly Fuks and Steven Barone, part-time geology instructors for their help in providing the data for this report from their classes, both on-campus and online.

III. Attached Files

DL GLG 114 OLAT Review
GLG 114 Average Scores W18

Faculty/Preparer:	Suzanne Albach	**Date:**	04/04/2019
Department Chair:	Suzanne Albach	**Date:**	04/04/2019
Dean:	Brandon Tucker	**Date:**	04/04/2019
Assessment Committee Chair:	Shawn Deron	**Date:**	05/17/2019