GEOL 111 - Physical Geology Laboratory Course Outline

Approval Date: 04/23/2020
Effective Date: 08/16/2021

SECTION A

Unique ID Number	CCC000341316
Discipline(s)	Earth Science
Division	Science and Engineering
Subject Area	Geology
Subject Code	GEOL
Course Number	111
Course Title	Physical Geology Laboratory
TOP Code/SAM Code	1914.00 - Geology/Earth Science, General / E - Non-Occupational
Rationale for adding this course to the curriculum	Add GEOL 110 as a prerequisite, edit SLOs, update Methods of Evaluation, update Assignments, update textbook.
Units	1
Cross List	*N/A*
Typical Course Weeks	18

Total Instructional Hours

	Contact Hours
Lecture	0.00
Lab	54.00
Activity	0.00
Work Experience	0.00
Outside of Class Hours	0.00

Total Contact Hours	54
Total Student Hours	54
Open Entry/Open Exit	No
Maximum Enrollment	24
Grading Option	Letter Grade or P/NP
Distance Education Mode of Instruction	On-Campus Hybrid

SECTION B

General Education Information:

SECTION C

Course Description

Repeatability May be repeated 0 times

Catalog Description This is a laboratory course to supplement Geology 110. The course investigates minerals and rocks and includes the use of topographic maps and profiles as well as three-dimensional aerial photographs in analyzing landforms and geologic structures. The interpretation of geologic maps, cross sections and exercises on geologic processes are all included.

Schedule Description

SECTION D

Condition on Enrollment

1a. Prerequisite(s)

- GEOL 110 with a minimum grade of C or better or

1b. Corequisite(s)

- GEOL 110

1c. Recommended: *None*

1d. Limitation on Enrollment: *None*

SECTION E

Course Outline Information

1. Student Learning Outcomes:

A. Identify geologic materials and features of the earth.
B. Explain how geologic features are formed by geologic processes.
C. Identify and evaluate the impacts of geologic processes on society, with an emphasis on geologic natural hazards, land-use planning, and global climate.

2. Course Objectives: Upon completion of this course, the student will be able to:

A. Practically apply the principles of the scientific method.
B. Demonstrate a conceptual understanding of fundamental concepts, principles, and interactions of Earth's systems applicable to the geological Sciences.
C. Demonstrate an understanding of the Earth through the identification and evaluation of minerals.
D. Demonstrate an understanding of the Earth through the identification and evaluation of igneous, sedimentary and metamorphic rocks.
E. Demonstrate an ability to communicate complex course concepts effectively in writing and diagrams.
F. Demonstrate the ability to read and interpret topographic and geologic maps and answer questions pertaining to geologic processes.
G.

3. Course Content

A. Laboratory Activities
    a. Mineral identification
    b. Rock identification
    c. Topographic Maps
    d. Surface water processes
    e. Ground water processes

f. Coastal processes
g. Desert processes
h. Glacial processes
i. Geological structures
j. Geological maps and cross sections
k. Field Trips
l.

4. Methods of Instruction:

Lab:
Lecture:
Observation and Demonstration:
Other: Demonstration: Geological events and processes will be demonstrated. Lectures: Computer enhanced lectures covering core concepts, terminology and geological analysis. Collaborative Learning: Students will be assigned problem sets that involve working with groups.
Online Adaptation: Activity, Directed Study, Discussion

3. Methods of Evaluation: Describe the general types of evaluations for this course and provide at least two, specific examples.

Typical classroom assessment techniques

Exams/Tests -- There will be a minimum of three exams. Exams will consist of identifying mineral and rocks samples, reading and interpreting topographic and geologic maps and structures, and demonstrating knowledge of basic laboratory methods. Examples: 1. Correctly identify the unknown mineral samples using physical properties test methods. 2. Draw the appropriate map symbols for the structural features found on the given map.
Quizzes -- Quizzes covering current laboratory exercises and material will be given throughout the course. Examples: 1. What is the building block of silicate minerals? 2. A fractional scale of 1:24000 means that 1 inch on the map is equal to ____?
Field Trips -- There will be at least one required field trip report that will include sketches, field notes, and written description/conclusion of the field area observed. Examples: 1. Class field trip to a local quarry. 2. Self-guided field trip following a field guide provided by the instructor.
Lab Activities -- Students will work individually and in groups during lab activities. Labs will be checked by instructor prior to the student leaving lab. Examples: 1. Mineral identification of silicate and non-silicate groups by testing the physical properties of unknown minerals. 2. Identifying igneous rock textures and interpreting igneous rock processes associated with the textures.

Additional assessment information:

Students will keep an organized lab notebook of their observations of the exercises performed in the laboratory. The lab notebook will be evaluated by the laboratory instructor at the end of the course.

Letter Grade or P/NP

4. Assignments: State the general types of assignments for this course under the following categories and provide at least two specific examples for each section.

A. Reading Assignments
Selected readings from the assigned Laboratory Manual and/or lab materials provided in class.

Examples:
1. Mineral Properties, Uses, and Identification, 13 pages, Laboratory Manual for

Introduction Geology.
2. Rock-Forming Processes and the Rock cycle, 9 pages, Laboratory Manual for Introduction Geology.

B. Writing Assignments
Writing will be assigned in pre-lab assignments, lab reports, exams, and field trip report(s).

Examples:
1. Lab Report: Correctly identify a geologic structure in the field and explain the processes that led to the formation of that feature.
2. Exam: Name and describe an example of mass wasting within Napa County.

C. Other Assignments
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5. Required Materials

A. EXAMPLES of typical college-level textbooks (for degree-applicable courses) or other print materials.

Manual #1:

Author:	Ludman, A.; Marshak, S.
Title:	Laboratory Manual for Introduction Geology
Publisher:	Norton
Date of Publication:	07-01-2019

B. Other required materials/supplies.