

COURSE SYLLABUS

YEAR COURSE OFFERED: 2014

SEMESTER COURSE OFFERED: Fall

DEPARTMENT: Environmental Science

COURSE NUMBER: 1103

NAME OF COURSE: Physical Geology lab

NAME OF INSTRUCTOR: Staff

The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Learning Objectives

1. Read and interpret a topographic map.
2. Use proper methods to identify common minerals and rocks
3. Identify common geological structure using geological maps.
4. Understand and know how to construct a geological cross section
5. Identify geological landforms and depositional and erosional features using geological maps
6. Understand stream flow data and analyze flooding pattern

Core Objectives (CO)

Physical Geology Lab addresses the following core objectives to ensure students develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in their lives.

- Critical Thinking Skills(CT) - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- Communication Skills(COM) - to include effective development, interpretation and expression of ideas through written, oral and visual communication
- Empirical and Quantitative Skills(EQS) - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- Team Work (TW) - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Major Assignments/Exams

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Working as a group:

Students will be working as a group on many in class activities, such as identification of rocks, analyzing geological maps; perform water flow experiments and others. CO: CT, EQS, COM and TW.

Exams/ quizzes: there will be three in-class exams and 10 quizzes during the semester.

Exams/quizzes will consist of multiple choice, short answer, and essay questions. CO: CT, EQS

Learning Outcomes	CO	Assessment Methods	Criteria/Targets
Recognize the importance of minerals and rocks, especially the economically important ones, and identify common minerals and rocks in land.	CT, CO, EQS, TW	Students will be divided into small group to study and identify rock and mineral specimens in lab. Lab exam will be given and test students how to identify rock and mineral.	70% above
Read and interpret a topographic map.	CT, CO and EQS, TW	Students will be working as a group in lab to study and interpret topo maps and submit a lab report. Students will be tested on the basic skills of reading a map and constructing a topo map using given elevation data.	70% above
Identify geological landforms and depositional and erosional features using geological maps	CT, CO and EQS, TW	Geological maps will be given to each group. Students will learn and recognize common land forms which shape earth surface, and submit a lab report. Lab exam will be given and test them how to identify the depositional and erosional features	70% above
Understand stream flow data and analyze flooding pattern	CT, CO and EQS	Students will be asked and tested how to analyze flooding data, construct a flooding frequency curve, and calculate recurrence interval.	70% above

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Required Reading

Laboratory Manual In Physical Geology, 7th edition, Bush and TasaAGI/NAGT. Prentice Hall.
ISBN# 0-13-149745-6

Recommended Reading

List of discussion/lecture topics

1. Topographic Maps 1
2. Plate Tectonics
3. Rock Deformation and Mountain Building
4. Earthquakes and Seismology
5. Minerals
6. Igneous Rocks and Volcanism
7. Sedimentary Rocks
8. Metamorphism and Metamorphic Rocks
9. Geologic Time
10. Mass Wasting
11. Streams and Groundwater
12. Oceans and Coastlines
13. Glaciers
14. Economic Geology and Resources