

# COURSE SYLLABUS

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**YEAR COURSE OFFERED:** 2014

**SEMESTER COURSE OFFERED:** Fall

**DEPARTMENT:** Environmental Science

**COURSE NUMBER:** 1303

**NAME OF COURSE:** Physical Geology (Lecture)

**NAME OF INSTRUCTOR:** Staff

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**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.**

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## **Learning Objectives**

1. Understand the different branches of geology and the major theories and cycles involved
2. Understand and describe the formation and physical properties minerals and rocks
3. Understand and describe the causes, types, and effects of surficial geological processes, such as rivers, lakes, weathering, and erosion.
4. Describe and define different kinds of glaciation, features, erosional features, landforms, deposits, and relationship to climate, past and present.
5. Describe and define all shoreline features and processes.
6. Describe and define plate tectonics, the evidence to support it, the types of boundaries, and causes
7. Describe and define deformation, folds and faults, and techniques used in structural Geology
8. Understand and describe energy and mineral resources, including origin, uses, and environmental consequences.

## **Core Objectives (CO)**

Physical Geology 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

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- 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

The course components below are designed to meet the course objectives.

- **In class experience:** Students will be provided maps and air photos to analyze landform and geological history. CO: CT; CS; EQS and TW
- **Exams:** there will be three in-class exams during the semester. Exams will consist of multiple choice, short answer, and essay questions. CO: CT, EQS

Learning Outcomes	CO	Assessment Methods	Criteria/Targets
1. Analyze the geologic processes of tectonism, and other surficial and subsurface processes.	CT, COM, EQS	Students will be asked to analyze some geology maps/ images to identify geological processes and how they shape the earth in quiz and exams.	Using a rubric, students will be assessed on a 3-point scale: excellent, acceptable, not acceptable. At least 70% of the students will score acceptable or above.
2. Analyze and identify mineral and rock of formation	CT, COM and EQS	Students will be tested over rocks and minerals identification	Using a rubric, students will be assessed on a 3-point scale: excellent, acceptable, not acceptable. At least 70% of the students will score acceptable or above.
3. Use the basic geologic principle of uniformitarianism and the examples of present-day geologic processes to explain the formation and evolution of the features of the earth.	CT, COM, TW and EQS	Students will be given some field data( for example, stream flow data, to analyze the flooding issue and hydrological cycle) to interpret the geological processes as a group	Using a rubric, students will be assessed on a 3-point scale: excellent, acceptable, not acceptable. At least 70% of the students will score acceptable or above.

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## Required Reading

Earth: An Introduction to Physical Geology, 8th edition; Tarbuck and Lutgens. Prentice Hall. ISBN# 0-13-114865-6

## Recommended Reading

## List of discussion/lecture topics

1. Introduction to Geology
2. Matter and Minerals
3. Igneous Rocks
4. Sedimentary Rocks
5. Metamorphic Rocks
6. Volcanic and Plutonic Activity
7. Plate Tectonics
8. Geologic Time
9. Weathering and Soil
10. Groundwater/Rivers
11. Glaciers/Deserts
12. Shorelines/Ocean Floor
13. Structural Geology/Earthquakes
14. Earth's Interior
15. Energy and Mineral Resources