# Physical Geology

**College of Natural Sciences and Mathematics**

**Department of Environmental Sciences**

**EEES 1010-001**

**CRN 10106**

---

**Instructor**: Mark J. Camp mark.camp@utoledo.edu

**Email**: mark.camp@utoledo.edu

**Office Hours**: 8:30-9:25MW, 12-2M, 9:30-10:30TR

**Office Location**: 3022 BO **Office Phone**: 419-530-2398

**Term**: Spring 2015

**Class Location**: 1049 BO **Class Day/Time**: MW 9:30-10:45

**Credit Hours**: 3

---

**EEES – 1010 PHYSICAL GEOLOGY** [3 hours]
Introduction to classification and origins of rocks and minerals, surficial processes and landscape development, groundwater and other natural resources, geologic structures, earthquakes and the earth's interior, plate tectonics, and geologic time. No credit if EEES

2100 is taken. [Fall, Spring, Summer] General Education Natural Sciences core course.

## COURSE OVERVIEW

Ever visited a national park or gone on a vacation to the mountains or beach? This is the course for you! The scenery becomes more meaningful and remains in your memory if you understand the science behind it. Ever wonder what made that colorful stone? You'll know after this class. Niagara Falls, Yellowstone, the Florida Keys in your travel plans? See how they formed in this course.

## STUDENT LEARNING OUTCOMES

- Identify, classify, and understand the origin and development of earth materials including minerals, igneous, sedimentary, and metamorphic rocks.
- Comprehend the nature of Earth systems.
- Apply certain reasoning skills, field and laboratory observations and experimentation, and scientific inquiry as a means of studying geologic materials, processes, and concepts.
- Recognize the relevance of knowledge about earth materials and processes to world society and history, betterment of living, and environmental awareness.
- Understand surficial processes of weathering and erosion and the development of landforms and landscapes related to hydrologic, glacial, atmospheric, and oceanic systems.
- Utilize topographic and geologic maps to interpret landscape evolution and geologic history.

- Describe modes of internal deformation and geologic structure development.
- Possess a knowledge of plate tectonics and the evolution of Earth's surface through time and its relation to world-wide volcanic and seismic activity.
- Comprehend the rationale of geologic time and the ordering of Earth events and materials through geologic observations of materials, structures, and landforms.

**Related TAGs: Physical Geology**

Students will be able to:

1. Understand characteristics of the earth systems
2. Recognize properties and classifications of earth's materials
3. Describe surficial process including weathering, erosion and landform evolution
4. Recognize hydrologic systems and features
5. Describe concepts of plate tectonics
6. Identify earth's internal processes including igneous activity, metamorphism and rock deformation
7. Understand evolution of significant geologic concepts
8. Recognize glacial processes
9. Describe/recognize applications and impacts of earth sciences to society
10. Apply methodologies of scientific inquiry
11. Interpret topographic and geologic maps

This course fulfills the Natural Science Core Requirement:

- Provides an understanding of the scientific method as it applies to the study of geologic materials, processes, and concepts.

- Introduces the rationale of geologic time and the time ordering of events through geologic observations of materials and structures.
- Reviews the basic hypotheses and theories covering the development and changes of materials and landforms over geologic time.
- Concentrates on the importance of field observation and laboratory experimentation in the explanation of natural events and materials.
- Presents the relevance of knowledge about geologic materials and processes to world society and history, betterment of living, and environmental awareness.

**TEACHING STRATEGIES**

Power-point lectures will focus on three areas of geology—earth materials, dynamic earth processes, and landscape development. Emphasis will be placed on U.S. sites as selected by students at the start of the course. Animations, hand specimens, and video clips will supplement lectures.

**PREREQUISITES AND COREQUISITES** none

**REQUIRED TEXTS AND ANCILLARY MATERIALS**

Plummer, C.C., D.H. Carlson & L. Hammersley, *Physical Geology* , any recent edition, hard copy, on-line version, or rented copy.

**TECHNOLOGY REQUIREMENTS**

Computer access to book website www.mhhe.com/plummer14e

**UNIVERSITY POLICIES**

*The University is an equal opportunity educational institution.*

**Academic Accommodations** *The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the Student Disability Services Office.*

**MIC POLICIES**

**Academic dishonesty** Academic dishonesty in this course will not be tolerated. Examples of academic dishonesty include:

1. Obtaining or using work other than your own on tests, exams, quizzes or assignments.
2. Unauthorized use of notes, calculators or other programmable equipment during tests, exams, or quizzes.
3. Soliciting or providing answers on exams, tests or quizzes.

Students who violate the above policy can expect disciplinary action. Disciplinary action may consist of receiving a zero on the assignment, failing the course, being reported to the Dean of Students, or other action as deemed appropriate by the course instructors.

**COURSE EXPECTATIONS**

Students are expected to attend class regularly. To be excused student must contact instructor by the preceding class meeting in less in case of sudden emergency or illness. Students are responsible for obtaining missed notes or handouts from classmates or in some cases from the instructor. Exams are to be taken as scheduled unless student arranges with instructor for a rescheduling due to an approved circumstance. An official medical note is expected and a notifying e-mail is required if illness or emergency leads to a rescheduling of an exam. The missed exam must be made up within a week of the absence. Students are responsible for saving all graded assignments in case a dispute over a recorded grade occurs.

## GRADING

Three exams will be given during the semester; two during the term and one during final exam week. Each will consist of 100 questions of a true-false and multiple choice nature, including a number of important diagrams and charts. Each exam will equate to 32% of the final grade. A short introductory quiz (20 points, 4% of final grade) will be given at the end of the first two weeks to familiarize students with the type of questioning to be included on the exams. One or two optional extra credit writings will be offered during the latter part of the semester.

### *Midterm Grading*

The combined scores of the quiz and Exam 1 will be submitted as a midterm grade. Please realize that this includes only 36% of your course grade, but should indicate your current performance in the course. Please make an appointment to see me if your performance is judged unsatisfactory so that you can receive help in improving your progress.

### *Final Grading*

A, A-, B+,B, B-, C+, C, C-, D+, D, D-, F will be assigned as final grades. The grades will be curved based on class averages. Total points possible will be 320.

## COMMUNICATION GUIDELINES

For any concerns or questions I prefer you to visit me during office hours or make an appointment at another agreed upon time. You may also e-mail me; I check e-mail a number of times daily. You can also call—leave a short message if I am not in.

## STUDENT SUPPORT SERVICES

Please consult any of the agencies below for furthering your success at UT.

**Student Support Services**

University Libraries
http://www.utoledo.edu/library/
Learning Enhancement Center
http://www.utoledo.edu/success/lec/
Writing Center
http://www.utoledo.edu/success/writingcenter/index.html
Success Coaches
http://www.utoledo.edu/successcoach/index.html
Counseling Center
http://www.utoledo.edu/studentaffairs/counseling/

**COURSE SCHEDULE**

| Date | | Topic | Reading Assignments |
|---|---|---|---|
| Jan | 14 | Introduction | Chap. 1 |
| | 16 | Geologic Materials – Minerals | Chap. 2 |
| | **19** | **Holiday No Class** | |
| | 21 | Geologic Materials – Mineral Classification | |
| | 26 | Geologic Materials – Igneous Rocks-Bowen's Reaction Series **Quiz 1** (4% of course grade) | Chap. 3 |
| | | Geologic Materials- Igneous Rocks Classification | Chap. 3 |
| | 28 | Geologic Materials – Volcanism | Chap. 4 |
| Feb | 2 | Geologic Materials – Volcanism continued | |
| | 4 | Geologic Materials – Weathering and Soils | Chap. 5 |
| | 9 | Geologic Materials – Sedimentary Rocks | Chap. 6 |
| | 11 | Geologic Materials – Sedimentary Rocks | |
| | 16 | Geologic Materials – Metamorphic Rocks | Chap. 7 |
| | 18 | Mineral Resources | Chap. 22 |
| | **23** | **Exam I (Chap. 1, 3- 8, 22) (32% of course grade** | |
| | 25 | Geologic Time | Chap. 8 |
| Mar | 2 | Geologic Time | |
| | 4 | Geologic Processes – Geologic Structure – folding | Chap. 15 |
| | **9,11** | **Spring Break** | |
| | 16 | Geologic Processes – Geologic Structure- faulting | Chap. 15 |
| | 18 | Geologic Processes – Plate tectonics | Chap. 19 |
| | 23 | Geologic Processes – Plate Tectonics cont. | |
| | 25 | Geologic Processes – Earthquakes, Earth's interior | Chap. 16,17 |

| | | | |
|---|---|---|---|
| **Mar** | **30** | **Exam 2 (Chap. 8, 15-17, 19) (32% of course grade)** | |
| Apr | 1 | Geologic Processes – Mass Wasting | Chap. 9 |
| | 6 | Geologic Processes – Running Water | Chap. 10 |
| | 8 | Geologic Processes – Running Water | |
| | 13 | Geologic Processes – Groundwater | Chap. 11 |
| | 15 | Geologic Processes – Groundwater | |
| | 20 | Geologic Processes – Glaciation | Chap. 12 |
| | 22 | Geologic Processes – Glaciation cont. | |
| | 27 | Geologic Processes – Wind Activity, Arid Landscapes | Chap. 13 |
| | 29 | Geologic Processes – Shorelines | Chap. 14 |
| **May** | **5** | **10:15-12:15 Exam 3 (Chap. 9-14) (32% of course grade) (TUESDAY)** | |