

Syllabus for Geomorphology, Geology 370-01

Fall 2008

CRN: 505

Credits: 3.0

Lecture meets Mon and Wed, 9:00-9:50 a.m., SCI1 211

Lab meets: Tuesday, 2:00-3:50 p.m., SCI1 205

Prerequisites: Geol 220

Instructor

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Textbook (required): *Surface Processes and Landforms*, Don Easterbrook, 2nd edition, Pearson. Date Published: 1999. ISBN-13: 9780138609580 ISBN: 0138609586

Course Overview

Geomorphology explores the shape of the land, and the various processes (that is, *mechanisms*) which are responsible for that shape. At first glance interpreting the shape of the land in terms of the dominant process might seem obvious and simplistic, but there are so many interacting systems (tectonic activity, climate, rock types, biological processes, chemical processes, erosional processes of wind, wave, and running water) that the exercise of relating process to form is not always an easy one. Clearly, geomorphology is an interdisciplinary science, so you will have a chance to apply much that you have learned in other Earth Science courses to geomorphology.

We will begin with a broader framework for geomorphology (linking process activity with geologic, tectonic, and climatic settings, and time). Then we will dive into Earth's active processes: mass movements, rivers, waves, wind, and ice. Each of these processes reshapes the land, often times easily within the human time scale of observation. This is what makes geomorphology an exciting and dynamic field of study! The shape of the land will play a prominent role in this course, as we try to relate mass transport processes to resultant land form. We will take numerous field trips to local sites to investigate these relationships.

Course Goals

- Students will utilize GIS software to *visualize* and *analyze* landforms
- Students will integrate online data sources with field investigations
- Students will generate hypotheses (e.g., *flood height depends on bed roughness*) and test them against observations
- Students will develop skills in taking field notes
- Students will develop expertise in writing field reports
- Students will relate mass transport mechanisms to landscape form

Grading

Grades will be based on exercise grades, midterm exams and a cumulative final exam.

Exam. Exam questions will consist of short answer essay questions. You are expected to absorb content as well as apply what you have learned to solve various problems. The final exam is cumulative. Mid-term exams are not.

Exercise Grade. The exercise grade will consist of weekly or semi-weekly assignments to be completed and handed in by the due date given on the exercise. You will need a scientific calculator, ruler with standard and metric units, pencils, and eraser for lab.

Field trips. There will be several field trips in this course which involve short hikes to nearby Silver and Oneonta Creeks next to campus and short van rides during the lab period. We will also take a longer Saturday field trip (4-6) hours to investigate karst landforms around Cobleskill, NY. We will discuss scheduling and participation issues for this field trip later in the course.

Here's the breakdown on grading:

50% Exercises (labs and field reports)

30% Mid-term exams

20% Final exam

100%

Final grade assignments will be guided by the standard University curve given below.

Percent	Grade	Percent	Grade	Percent	Grade	Percent	Grade
93-100	A	87-89.9	B+	77-79.9	C+	67-69.9	D+
90-92.9	A-	83-86.9	B	73-76.9	C	63-66.9	D
< 60	F	80-82.9	B-	70-72.9	C-	60-62.9	D-

Course Schedule (this schedule is subject to change if more time is required for some topics).

Date	Day	Reading	Topic
Aug 27	W		Introduction to the Course
Sep 1	M		Earth's Landforms and Surface Processes
Sep 2	T	Lab 1	Introduction to Landforms: Computer Lab
Sep 3	W		Mass movements
Sep 8	M		Mass movements
Sep 9	T	Lab 2	Field trip to Colliersville Landslide
Sep 10	W		GIS and Colliersville Landslide
Sep 15	M		Rivers: 2006 Flood
Sep 16	T	Lab 3	Field Trip: Morris Brook
Sep 17	W		Rivers: Erosion into rock
Sep 22	M		Rivers: Transport and deposition
Sep 23	T	Lab 4	Field Trip: Milford Trib bedrock erosion
Sep 24	W		Work up lab data
Sep 29	M		Exam 1
Sep 30	T	Lab 5	Oneonta Creek Cross Sections
Oct 1	W		Work up Hydraulic Geometry
Oct 6	M		Hydraulic Geometry
Oct 7	T	Lab 6	Micro flume erosion

Oct 8	W		Erosion rates and styles of erosion
Oct 13	M		Drainage basin geometry
Oct 14	T	Lab 7	Drainage basin geometry: GIS
Oct 15	W		Drainage basins: uplift-climate-rocks-time
Oct 20	M		Drainage basins: uplift-climate-rocks-time
Oct 21	T	Lab 8	Alluvial fans in GIS: Great Basin
Oct 22	W		Wind and Sand
Oct 27	M		Wind and Sand
Oct 28	T	Lab 9	GIS and Desert Landforms
Oct 29	W		Exam 2
Nov 3	M		Glaciers: Glacier budget, flow, and types
Nov 4	T	Lab 10	Field Trip: Glacial Features of West Oneonta
Nov 5	W		Erosional glacial landforms
Nov 10	M		Ice margin landforms
Nov 11	T	Lab 11	Ice margin landforms: GIS
Nov 12	W		Glaciers and climate change
Nov 17	M		Coastal Processes and Landforms
Nov 18	T	Lab 12	Coastal Processes and Landforms
Nov 19	W		Coastal Processes and Landforms
Dec 1	M		Coastal Processes and Landforms
Dec 2	T	Lab Moved!!	Lab on Sat.
Dec 3	W		Karst
Dec 6	Sat	Lab 13	Field trip: Howe's Cave
Dec 8	M		Karst
Dec 9	T		Exam 3
Dec 10	W		Review for Final
Dec 17	W	Final Exam	Wed. Dec 17, 8:00-10:30 am

August 24-26	Sunday-Tuesday	New student arrival & orientation
August 27	Wednesday	Classes begin
October 8	Wednesday	College closes after last evening class
October 13	Monday	Classes resume
October 17-19	Friday-Sunday	Homecoming & Family Weekend
November 21	Friday	College closes after last evening class
December 1	Monday	Classes resume
December 15-19	Monday-Friday	Finals Week (Click here to view schedule)

Course Expectations and Guidelines

The following list provides a baseline of what is expected from students in this course (the quoted section below is from the list of *Student Responsibilities* approved by SUNY Oneonta).

“In class responsibilities

Students will:

- Attend all classes and arrive punctually.
- If unavoidably late for a class, enter quietly and unobtrusively, and behave in other required ways to minimize distraction.
- Remain alert and attentive during lectures, discussions, and other class/lab activities.
- Avoid unnecessary conversation during lectures, discussions, and other class/lab activities.
- Contribute to class experiences by asking relevant questions, offering relevant examples or views, adequately answering questions posed by others, engaging in critical and independent thought, and challenging both the instructor and the curriculum materials assigned for the course.
- Demonstrate courtesy and respect in dealing with instructors and classmates.
- Recognize and seek to understand diverse points-of-view.

Out-of-class responsibilities

Students will:

- Place academic obligations at the top of the list of college-related priorities.
- Plan to spend 2 to 3 hours out-of-class time in academic study for every one hour of class attendance.
- Thoroughly plan and prepare for classes.
- Notify the instructor in advance, if possible, or in a timely fashion, if unable to attend a class or lab, take a scheduled exam or quiz, submit a scheduled assignment, or remain in the classroom for the entire class meeting because of unavoidable circumstances.”

IN ADDITION

- You are expected to **read each chapter before we cover it in class**. This will allow you to formulate questions concerning material that is not clear, or that you would like to have covered in greater detail. I use lectures to focus on the most important aspects of the topic. I strongly encourage you to ask questions during lecture. There are no ‘dumb’ or ‘stupid’ questions. Often the questions you have are shared by others. You should view lectures as the time and place for discussion, and I welcome your thoughts and questions!
- Any reasonable accommodation will be provided for students with physical, sensory, learning, or psychiatric disabilities. Please contact me for assistance as early as possible.
- If English is not your primary language and you would like to have additional time in which to take the exams, let me know. Anyone who needs additional time for the exams will be extended the same courtesy.
- **Turn off cell phones before coming to class!** A ringing (or singing!) phone is almost impossible for others to ignore. Especially the lecturer, who may wander so far off course that everyone will get upset...Of course, medical conditions can override this request.