Syllabus for Geomorphology, Geology 370-01
Fall 2009

CRN: *177*
Credits*:* 3.0
Lecture meets Thursday, 04:00 pm-04:50 pm, SCI1 205
Lab meets: Tuesday, 2:00-4:50 p.m., SCI1 205
Prerequisites: Geol 220
Attribute: (LA)

Instructor

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

This course uses **Angel** (https://angel.oneonta.edu/) to transmit information such as the syllabus and lecture schedule, lecture notes, and exercises. You will use your SUCO email ID and password to access course information on Angel.

SUNY Oneonta Course Description: *The study of surface processes and landforms, their origin and development, systems in equilibrium, effects of climate, and underlying rock structures*. (LA) Prerequisite: GEOL 220.

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, flowing ice 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. A strong grasp on mass transport processes, and the ability to recognize the various kinds of processes that reshape the land is very important. Skills you develop in this course have many applications spanning archaeological investigations, stream restoration, shoreline management and beach replenishment, highway stability, and flood hazard mapping, to name a few of the diverse disciplines where geomorphology plays a major role.

We will begin with hillslopes, and move to rivers and at yet a broader view, drainage basins. Then we will look into other significant mass movers: wind, ice, and waves. 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!

We will take numerous field trips to local sites to investigate land form and process. We will utilize computers to access classic geomorphic settings, and learn how to quantify landscape characteristics. And we will utilize physical experiments to gain insight into the interaction between flowing water and sediment. Come prepared to engage with Earth!

Course Goals

- Students will learn to recognize mass transport processes
- Students will learn to recognize geomorphic features, such as floodplains, hillslopes, channels, terraces, kames, cirques, moraines, landslides, etc.
- Students will utilize GIS software to *visualize* and *analyze* landforms
- Students will develop skills making field observations and taking field notes
- Students will integrate online data sources with field investigations
- Students will generate hypotheses and test them against observations
- Students will develop expertise in writing field reports

Grading

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

Exams. 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 geomorphic problems. The final exam is cumulative. Mid-term exams are not.

Exercises. 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. Many of these exercises will consist of field reports from field trips. Others involve computer labs.

Oral Presentations. Early in the semester your instructor will break you into groups of 2 or 3. Each group will make a 10-15 minute powerpoint presentation to the class on one of the large rivers of the world, such as: the Nile River, the Green River, the Colorado River, the Ohio River, the Ganges/Brahmaputra river, or the Amazon River. Your presentation must provide appropriate background (size, location, etc), and discuss key aspects of the river—its approximate geologic age, signs of tectonic activity or rock control of drainage path, characteristics of the channel (meandering, braided, etc), general geomorphology of the landscape, current sediment loads, etc. You are strongly encouraged to "fly" these drainages in Google Earth and Google Maps to assist with locating interesting features. I encourage you to fly the drainage, and select as many features as you can that present themselves as pertinent to geomorphology, and begging for an interpretation. Use the *Screen Capture* function (PrntScrn on some computers) to copy images that you can then paste into a powerpoint slide. Identify features that document the development of the landscape and the key process involved, such as glacial moraines, rivers that transect folded rock layers, or broad floodplains, meander scars and oxbows, etc.,. If possible, determine the broader landscape history of the river basin, based on features that provide such history, and/or from a literature review. You will be graded both on the

background information on the river (30%), as well as your presentation of the features that you have discovered (70%).

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:

40%	Exercises
10%	Oral Presentation
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	Th	Lecture	Course Intro; Landslides (Ch4)
Sep 1	**T**	**Field Trip**	**Landslide in the Field**
Sep 3	Th	Lecture	Creep, slumps, rainsplash, and rock falls (Ch4)
Sep 8	**T**	**Field Trip**	**Field Trip: Measure Creep in Silver Creek**
Sep 10	Th	Lecture	Channels: geomorphic features and form (Ch6)
Sep 15	**T**	**Field Trip**	**College Camp (bars, banks, floodplain, etc)**
Sep 17	Th	Lecture	Stream erosion: abrasion, quarrying, bedload
Sep 22	**T**	**Field Trip**	**Milford Canyon**
Sep 24	Th	Lecture	Drainage basins: planform development (Ch6)
Sep 29	T	NO CLASS	
Oct 1	Th	Lecture	Floods; 2006 Flood event (Ch5)
Oct 6	**T**	**Field Trip**	**Morris Brook**
Oct 8	Th	Lecture	Rivers and Hydraulics (Ch5)
Oct 13	**T**	**Field Trip**	**Silver Creek channel geometry and roughness**
Oct 15	**Th**		**Exam 1 Hillslopes and Channels**
Oct 20	T	Lab (***GSA***)	Wind, Sand, and Deserts (Google Earth) (Ch16)
Oct 22	Th	Lecture	Loess (Ch16)
Oct 27	T	Lecture/Lab	Large scale landscape form and evolution (Ch9)
Oct 29	Th	Lecture	Rocks, tectonics and landforms (Ch9-10)
Nov 3	**T**	**Field Trip**	**Hwy 23 to Catskill Front**
Nov 5	Th	Lecture	Glaciers and Landforms (Ch13)

Nov 10	**T**	**Field Trip**	**Cherry Valley moraines, outwash, etc**
Nov 12	Th	Lecture	Karst (Ch7)
Nov 14	**Sat**	**Field Trip**	**Howe Caverns and Cobleskill area**
Nov 17	T	Lab	Karst around the World
Nov 19	Th	Lecture	Coastal processes (Ch15)
Nov 24	T	NO CLASS	
Nov 26	Th	NO CLASS	
Dec 1	T	Lab	Coastlines (Ch15)
Dec 3	**Th**		**Exam 2 Wind, Glaciers, Karst, and Coasts**
Dec 8	**T**		**Student Presentations**
Dec 10	Th	Lecture	Prepare for Final
Dec 15	**Tues**	**Final Exam**	**11:00 am -1:30 pm**

Fall 2009

August 23-25	Sunday-Tuesday	New student arrival & orientation
August 26	Wednesday	Classes begin
September 25	Friday	College closes after last class
September 30	Wednesday	Classes resume
October 23-25	Friday-Sunday	Homecoming & Family Weekend
November 20	Friday	College closes after last class
November 30	Monday	Classes resume
December 9	Wednesday	Follow Monday class schedule
December 10	Thursday	Follow Tuesday class schedule
December 14-18	Monday-Friday	Finals

Final Exam Schedule, Fall 2009

Date and Time	Monday Dec 14	Tuesday Dec 15	Wednesday Dec 16	Thursday Dec 17	Friday Dec 18
8:00am-10:30am	10 MWF	10 Tu Th	9 MWF	8 Tu Th	8 MWF
11:00am-1:30pm	2 MWF	4 Tu Th	1 MWF	2 Tu Th	3 MWF
2:00pm-4:30pm	12 MWF	12 Tu Th	11 MWF		

Emergency Evacuation/Shelter-in-Place Procedures

In the event of an emergency evacuation (i.e. fire or other emergency), classes meeting in Science I are directed to **reassemble at Chase Gymnasium** so that all persons can be accounted for. Complete details of the College's emergency evacuation, shelter-in-place, and other emergency procedures can be found at http://www.oneonta.edu/security .

Course Expectations and Guidelines

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.