

SYLLABUS for GEOLOGY 370-01
Geomorphology
Fall, 2013

CRN: 726 **Credits:** 3.0

Lecture Tues,Thurs, 04:00 pm-05:15 pm; **Lab:** Tues 02:30 pm-03:45 pm, SCI1 205

Prerequisites: GEOL 2XX (200 level Geology course)

Attribute: (LA)

Instructor Info

Instructor: Les Hasbargen

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Office hours: MWF, 10:00-10:50 am

Les' web site: <http://employees.oneonta.edu/hasbarle/>

Textbook (required): *Process Geomorphology*, by Ritter, Kochel, and Miller, 5th edition, Waveland Press, Inc. ISBN-13: 978-1-57766-669-1.

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 SUNY Oneonta 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: A GEOL 200 level course.

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. 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 drainage basins, 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.

Student Learning Outcomes for the Geology Major addressed by this course:

- Students will demonstrate their ability to describe and identify geologic materials. (GEOL-SLO #1)
- Students will demonstrate their understanding of how rocks, sediments, and soils form. (GEOL-SLO #2)
- Students will demonstrate comprehension of the role of deep time in Earth history. (GEOL-SLO #3)
- Students will demonstrate understanding of processes that occur on and within the Earth and interactions among Earth's systems. (GEOL-SLO #5)
- Students will demonstrate their ability to collect and analyze geologic information in field and laboratory settings. (GEOL-SLO #6)
- Students will demonstrate their understanding of how geologic processes and materials intertwine with societal needs. (GEOL-SLO #7)
- Students will demonstrate their ability to apply scientific reasoning and technology to solve geologic problems. (GEOL-SLO #8)
- Students will demonstrate their ability to work collaboratively to solve geologic problems (GEOL-SLO #9)
- Students will utilize scientific methods to design and execute research projects that include collection, analysis and interpretation of data. (GEOL-SLO #10)

Student Learning Outcomes for the Water Resources Major

addressed by this course:

- Students will demonstrate their ability to chronicle the formation of the geologic materials through which groundwater moves, and the landscape upon which surface water flows. (WATR-SLO #2)
- Students will demonstrate their ability to utilize scientific methods to design and execute field based research projects that include the collection, analysis and interpretation of data. (WATR-SLO #4)

Student Learning Outcomes for the Earth Science Major addressed by this course:

- Students will demonstrate understanding of the governing concepts related to all components of the Earth system (meteorology, geology, oceanography, astronomy) and the relationships that link them. (ES-SLO #1)
- Students will demonstrate understanding of the structure of Earth's interior and the processes that operate within and on the Earth's surface, including a working knowledge of plate tectonics and natural hazards. (ES-SLO #4)
- Students will demonstrate their ability to describe and identify geologic materials and interpret the processes by which these materials form. (ES-SLO #5)
- Students will utilize scientific methods to design and execute research projects or solve problems that include collection, analysis and interpretation of data. (ES-SLO #7)

Grading

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

Field Trips/Lab Exercises. 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 (6-8) hours to investigate karst and glacial landforms around Cobleskill, NY. We will discuss scheduling and participation issues for this field trip later in the course. Field trips will usually have a write-up/exercise associated with it. There will also be lab exercises for times when we don't have a chance to get out into the field.

Late work will be marked down exponentially, with a decay rate of -0.25 per day, up to a limit of 5 days, at which point your grade ceases to decay, but the damage is done, so to speak. The equation is: $G(t) = G_0 e^{\lambda t}$, where $G(t)$ is your grade after it has decayed over time, G_0 is your grade if you submit your work on time, λ is the decay rate, e is Napier's constant (≈ 2.71828), and t is time in days. For example the table below shows the value of a report up to five days past due:

Days Late	Value of report
0	100%
1.0	78%
2.0	61%
3.0	47%
4.0	37%
5.0	29%

Note that labs are worth A LOT, so even if you are 5 days or more late, you will still get something for the lab, and this is often the difference between a passing or failing mark for the course. **Do the labs in the time allotted! You won't regret it!**

Midterm 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.

Final Exam. The final exam is cumulative, and will draw extensively from prior exams, the lab exercises, and the field trips. Questions will be short answer essay and sketching.

Here's the breakdown on grading:

50% Field Trips and Labs

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).

Week	Tuesday (Lab + Lecture) 2:30-5:15 p.m.	Thursday (Lecture) 4:00 pm-5:15 pm
8/26 to 8/30	NO CLASS	Course Overview; Mass movements (Ch. 4)
9/2 to 9/6	Lab: Landslides in the Field: Silver Creek (FT)	Lecture: Creep, slumps, rainsplash, and rock falls (Ch. 4)
9/9 to 9/13	Lab: Hillslope Creep Monitoring (FT)	Lecture: Fluvial Landforms (Ch. 7)
9/16 to 9/20	Lab: Milford Gorge (FT)	Lecture: Abrasion, quarrying, transport (Ch. 6)
9/23 to 9/27	Lab: Butternut Creek (FT)	Lecture: Hydraulic geometry (Ch. 6)
9/30 to 10/4	Lab: Bedrock-Alluvial transition in Silver Creek (FT)	Lecture: Drainage Basin Evolution and Morphometry
10/7 to 10/11	Lab: Morphology of uplifting landscapes	Finish Lab
10/14 to 10/18	Exam 1 Hillslopes, Streams, Drainage Basins	NO CLASS: Fall Break
10/21 to 10/25	Lab Glacial Landforms (FT)	Lecture: Glacial Landforms
10/28 to 11/1	No Class: GSA (m/u 11/16)	More Glaciers
11/4 to 11/8	Lab: Wind-related Landforms	Karst
11/11 to 11/15	Lab: Karst around the World	No Class: LOTM and Sat FT
11/16	Saturday Field Trip to Cobleskill	
11/18 to 11/22	No Class: Thanksgiving	
11/25 to 11/29	Lab: Karst Around the world	Coasts
12/2 to 12/6	Lab: Coasts	Lecture: Coasts
12/9-12/13	Exam 2: Wind, Glacial, Karst, Coasts	Review for Final
Thursday, Dec. 19, Final Exam, 2:00-4:30 p.m.		

College Calendar Fall 2013

August 25-27	Sunday-Tuesday	New Student Arrival & Orientation
August 28	Wednesday	Classes Begin
October 15	Tuesday	College Closes After Last Class
October 21	Monday	Classes Resume
November 22	Friday	College Closes After Last Class
December 2	Monday	Classes Resume
December 8	Sunday	December Recognition
December 16-20	Monday-Friday	Finals

Final Exam Week Class Schedule December 16 - 20, 2013

Date and Time	Monday Dec 16	Tuesday Dec 17	Wednesday Dec 18	Thursday Dec 19	Friday Dec 20
8:00am-10:30am	10 MWF	10 Tu Th	9 MWF	8:30 Tu Th	8 MWF
11:00am-1:30pm	12 MWF	2:30 Tu Th	11 MWF	1 Tu Th	2 MWF
2:00pm-4:30pm	1 MWF	11:30 Tu Th	4 MW	4 Tu Th	3 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>.

ADA (Americans With Disabilities Act) Statement

All individuals who are diagnosed with a disability are protected under the Americans with Disabilities Act, and Section 504 of the Rehabilitation Act of 1973. As such, you may be entitled to certain accommodations within this class. If you are diagnosed with a disability, please make an appointment to meet with Student Disability Services (SDS), 209 Alumni Hall, ext. 2137. All students with the necessary supporting documentation will be provided appropriate accommodations as determined by the SDS Office. It is your responsibility to contact SDS and provide the teacher with your accommodation plan before a test.

Policy on Academic Dishonesty

Academic dishonesty results in a loss of trust and open-ness which is the heart and soul of student-mentor relations. Plagiarism and cheating will not be tolerated in this course.

Please see the Code of Student Conduct for definitions and repercussions of Academic Dishonesty (<http://www.oneonta.edu/development/judicial/code.pdf>).

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.