

GEOLOGY 210: Hydrology & Surficial Geology

M W F 920-1010
Labs: M R 1320-1600
Ho Science Center 239

Course Description:

This is an intermediate-level course that will allow you to develop an in-depth understanding of aspects of Earth's surface geology. We will focus on landscape development: what processes cause topographic changes and patterns? Water is often the root answer to this question, so we will look at movement of water in liquid and solid form. We will also look at near-surface changes in groundwater and soils. Interactions between chemical weathering, physical weathering, and erosion will crop up over and over in the course, though in different climates and topographic environments. The class is structured so that you will get experience relating different aspects of hydrology and surficial geology (e.g., fluvial and periglacial processes, glaciology, and climate) within several model environments. While this may seem overly specific, it should give you the tools to apply this to other environments. During these studies, you will also get the opportunity to look at how modern surface environments intersect with human populations, providing both advantages and disadvantages to communities.

Major Learning Objectives:

1. Be able to read, summarize, and analyze primary geomorphological literature.
 2. Write clear and critical discussions of geomorphology and hydrology data.
 3. Identify basic landforms using topographic maps, photos, Google Earth/Google Maps, and in the field.
 4. Describe and explain connections between multiple Earth surface processes.
 5. Interpret the basic geologic history of landscapes using data, maps, and photos.
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Office hours: W 1330-1530 (Ho 239)
R 1000-1200 (My office)
or, by appointment

Readings: 1. Geomorphology: The Mechanics and Chemistry of Landscapes, Anderson & Anderson, 2010. Available as an e-book—see this site: <http://goo.gl/KnhoUe>

2. Selected scientific articles and layperson readings, which will be posted on Moodle.

A note about the textbook: This is quantitative text that incorporates physical and chemical methods of understanding geology. While we will not focus on mathematical derivations, we will occasionally be using mathematics to represent surface processes. This is partly because geomorphology has become more quantitative in the past couple decades, and partly because I want you to have a quantitative resource for your geologic work in the future.

Required Materials: Calculator (or Excel, etc.!)
Notebook
Weather-appropriate field clothing
A few colored pencils
Google Earth access (personal or computer lab)

Grading:

The lab and lecture sections of this class will be combined for your final grade (i.e., your lab grade will equal your lecture grade). This will give us the flexibility to work on lab projects in class.

40%	Lab Assignments & Projects
20%	Literature Review Paper
20%	Exams
10%	In-class Activities & Presentations
10%	Quizzes

Details:

- For some labs, you will hand in a finished assignment by the beginning of the next lab session. For other labs, you will work on longer-term projects with reports due at the very end.
- The final exam will be cumulative, but each quiz will only cover material since the previous quiz.
- The literature review paper will have several sub-assignments to keep you on track, though these will not be graded.
- There will be one mandatory, overnight field trip. We will leave on Saturday morning, April 18, and return Sunday evening, April 19.

Assignments are due, unless otherwise noted, at the start of lecture/lab. Late assignment partial credit will be assigned as follows: up to 24 hours late = 10% off, 1-3 days late = 20% off, 3-7 days late = 30% off, more than 7 days late = no credit.

The final exam for this class is scheduled to be on Monday, May 4, 12-2pm. Note that material from both the lab and the lecture periods will be on the final, and that there will be no separate final for the lab.

Additional Assistance & Resources:

You may also find it useful to read sections from introductory sedimentology or climate texts—there are a number of these in the science library, and I can point you to specific texts if you have questions about a certain topic. I will assign occasional additional readings, which I'll upload to Moodle.

If you are interested in improving your writing, you can check out the Writing & Speaking Center in 208 Lathrop. Peer writing consultants can help you refine your writing by reviewing a paper's focus, development, organization, clarity, grammar, source integration, or other aspects. Peer speaking consultants can help you prepare or organize the content of an oral presentation; they can also help you improve your delivery to an audience. For more information or to make an appointment, visit <http://www.colgate.edu/writingcenter> or call (315) 228-6085.

If you have any specific learning needs that could influence your course experience, and for which you would like accommodation, please let me know by January 28. If you have questions, you can contact the very nice Lynn Waldman, who is the director of Academic Support and Disability Services (315-228-7375 or lwaldman@mail.colgate.edu).

Course Expectations:

Attendance in lab sessions is mandatory and will be difficult to make up. We will also be doing many activities in lecture sessions, some of which will be related to your lab projects, so you should also always come to class! Let me know as soon as you can if you need to miss a quiz/exam/lab/due date as a result of family, illness, or travel issues.

You are expected to be respectful of everyone in class. You will often be working together—it is each group's responsibility to make sure that everyone in the group is participating AND understanding the material. Do not move on from a question until everyone is capable of answering that question. There is a wide range in background preparation among your classmates, so you will often be teaching your peers and being taught by them. This is great practice!

Readings will be assigned for each week. You can decide whether you want to do them before class or after class—there are benefits to each method. Exceptions to this will be noted on Moodle.

You have signed the Colgate University academic honor code, and are expected to uphold it. I will treat evidence of plagiarism very seriously. It is always better to turn in work late, or not at all, than to plagiarize. If you have questions, particularly about the definition of plagiarism, let me know!

Check Moodle at least every couple days!