

# GLY 367: Geomorphology

Fall 2011                      3 credit hours                      WI

**Dr. David Barclay:**            Office: 324 Bowers, (607) 753-2921  
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Course webpage in the SUNY Cortland eLearning system

**Office hours:**                      M 11:30 am - 2:30 pm; W 11:30 am - 1:30 pm  
or by appointment, or at any other time if I am available.

**Lecture:**                              339 Bowers; M, W 10:20 - 11:10 am

**Laboratory:**                        339 Bowers; Tu 11:40 - 2:30 pm

**Textbooks:**                        Ritter, D.F., Kochel, R.C. and Miller, J.R., 2011, Process  
Geomorphology, 5th ed.: Boston, Waveland Press, Inc, 652 p.  
Harrelson, C.C., Rawlins, C.L. and Potyondy, J.P., 1994, Stream  
Channel Reference Sites: an illustrated guide to field technique:  
General Technical Report RM-245, Fort Collins, CO, U.S.D.A.  
Forest Service, 61 p. [pdf file at course website]

## Catalog course description:

“Processes of glaciers, rivers, mass wasting, wind and weathering, and their resulting landforms. Methods of geomorphic analysis and the evolution of landscapes. Two lectures, one three-hour lab. field trips. Prereq: GLY 261. (3 cr. hr.)”

## Course attendance policy:

I expect you to attend all lecture and lab sessions and fieldtrips. Please familiarize yourself with official college policy on attendance and absences (Section 410.11 of College Handbook).

Be responsible for your own education. If you miss a class, get the notes from a colleague before the next class. If you miss an exam, you must contact me as soon as possible with a valid reason for your absence or you will receive a zero for that exam. Ask questions and get involved in class discussions: your participation and attitude will be used to aid final grade determinations for borderline situations.

## Emails:

Occasionally I may need to contact the class regarding changes to the schedule, assignments or for other reasons. Accordingly, I need email addresses for all students that will work and which students will check regularly. Please email me this week from an email account that meets these criteria so that I have your reliable email address on record, should I need it.

## Academic accommodations:

If you are a student with a disability and wish to request accommodations, please contact the Office of Student Disability Services located in B-40 Van Hoesen Hall or call (607) 753-2066 for an appointment. Information regarding your disability will be treated in a confidential manner. Because many accommodations require early planning, requests should be made as early as possible.

**Academic integrity:**

I expect you to abide by the SUNY Cortland standards of academic integrity (Chapter 340 of the College Handbook). Stated simply, this means that you will not commit plagiarism, nor cheat on exams or assignments, nor help others plagiarize or cheat.

**Evaluation of student performance:**

There will be three exams spaced equally through the semester (see course schedule). Questions on all exams will be drawn from material covered in lecture and lab since the previous exam. The average of these exams will comprise 60% of your final grade.

The remaining 40% of your grade will come from writing assignments, lab and homework quizzes, problem sets, and a literature review paper and presentation. Details of these assignments and their relative weightings will be given through the semester.

A+ = 97-100	B+ = 87-89	C+ = 77-79	D+ = 67-69	E = 0-59
A = 93-96	B = 83-86	C = 73-76	D = 63-66	
A- = 90-92	B- = 80-82	C- = 70-72	D- = 60-62	

**Reading assignments:**

Recommended reading assignments for every class will be posted on the course website in the SUNY Cortland eLearning system. This list will be updated regularly so keep checking back throughout the semester.

**Laboratory equipment:**

Please bring a scientific calculator, a 12" ruler, a sharp pencil, an eraser, and your textbook to every indoor lab.

**Fieldwork equipment:**

Please bring a raincoat, a fleece or sweater, walking shoes or boots, bug spray, a snack, a drink, a notebook, and pencils/pens on every field trip. These are the minimum equipment for safe and comfortable work in the field.

**Learning outcomes & NSTA standards:**

Students enrolled in GLY 367 and majoring in Adolescence Education: Earth Science 7-12 will focus on acquiring knowledge and developing skills aligned with learning outcomes from the College's Conceptual Framework for Teacher Education and those established by the National Science Teachers Association. In particular, this course addresses Conceptual Framework Learning Outcome 2: Possess in-depth knowledge of the subject area to be taught; Conceptual Framework Learning Outcome 13: Demonstrate sufficient technology skills and the ability to integrate technology into classroom teaching/learning; NSTA Standard 1: Content; NSTA Standard 2: Nature of Science; NSTA Standard 3: Inquiry; and NSTA Standard 7: Science in the Community.

**Course objectives:**

Geomorphology is the study of landforms, landscapes and the processes that shape them. In this course we will take a process-oriented approach, i.e. we will seek to understand the mechanics and operation of a process before we consider how that process can produce specific landforms. Only when we see how processes create landforms can we begin to consider how landscapes develop. This process-oriented approach is particularly useful in environmental geology where geomorphic systems are managed and engineered for human benefit.

## Course schedule and activities: (tentative)

	<u>Topic</u>	<u>Assignments</u>
01 Mon 29 Aug.	Introduction	
02 Tue 30 Aug.	Lab 01: Geomorphic settings	Report 1a - due T 6 Sep. by 11:40 am
03 Wed 31 Aug.	Basins, hillslopes & channel initiation	
- Mon 5 Sep.	LABOR DAY	
04 Tue 6 Sep.	Lab 02: Rivers field trip	Quiz 1 - due online F 9 Sep. by 5:00 pm
05 Wed 7 Sep.	Hydrology basics	
06 Mon 12 Sep.	Open channel flow	Problems 1 - due F 16 Sep. by 5:00 pm
07 Tue 13 Sep.	Lab 03: Channel surveying field trip	Report 1b - due T 20 Sep. by 11:40 am
08 Wed 14 Sep.	Sediment transport	
09 Mon 19 Sep.	Fluvial erosion	
10 Tue 20 Sep.	Lab 04: Rosgen analysis	Report 1c - due T 27 Sep. by 11:40 am
11 Wed 21 Sep.	Quasi-equilibrium	
12 Mon 26 Sep.	Planiforms	Review sheet 1 online
13 Tue 27 Sep.	Lab 05: Sediment transport	Quiz 2 - due online by end of lab
14 Wed 28 Sep.	Floodplains	
15 Mon 3 Oct.	EXAM 1	
16 Tue 4 Oct.	Lab 06: Glaciers	Report 1d - due T 11 Oct. by 11:40 am
17 Wed 5 Oct.	Glaciology	
18 Mon 10 Oct.	Glacier motion	
19 Tue 11 Oct.	Lab 07: Drumlin analysis	Problems 2 - due T 18 Oct. by 11:40 am
20 Wed 12 Oct.	Glacier erosion	
21 Mon 17 Oct.	Glacial sediments	
22 Tue 18 Oct.	Lab 08: Surficial sediments field trip	Quiz 3 - due online F 21 Oct. by 5:00 pm
23 Wed 19 Oct.	Glacial deposits	
24 Sun 23 Oct.	Lab 09: All day field trip	Report 2 - due T 8 Nov. by 11:40 am
25 Mon 24 Oct.	NYS landscape evolution	Review sheet 2 online
26 Tue 25 Oct.	Lab 10: Glacial landforms	Quiz 4 - due online by end of lab
27 Wed 26 Oct.	Quaternary dating methods	
28 Mon 31 Oct.	EXAM 2	
29 Tue 1 Nov.	Lab 11: Soils	Literature review assigned
30 Wed 2 Nov.	Chemical weathering	
31 Mon 7 Nov.	Physical weathering	
32 Tue 8 Nov.	Lab 12: Weathering	Quiz 5 - due online by end of lab
33 Wed 9 Nov.	Slope stability	Problems 3 - due T 15 Nov. by 5:00 pm
34 Mon 14 Nov.	Slumps and slides	
35 Tue 15 Nov.	Lab 13: Rotational slump model	Quiz 6 - due online by end of lab
36 Wed 16 Nov.	Dry flows	
37 Mon 21 Nov.	Wet flows	
38 Tue 22 Nov.	Lab 14: Landscape planning	Literature review proposal due by 11:40 am
- Wed 23 Nov.	THANKSGIVING	
39 Mon 28 Nov.	Eolian processes	
40 Tue 29 Nov.	Literature review presentations 1	
41 Wed 30 Nov.	Eolian deposits	
42 Mon 5 Dec.	Arid environments	Review sheet 3 online
43 Tue 6 Dec.	Literature review presentations 2	
44 Wed 7 Dec.	Orogen evolution	Literature review paper due by 11:40 am
45 Mon 12 Dec.	EXAM 3 at 1:00 pm	