

**Geomorphology
Schedule Fall 2018
GEOL 151 A 95723
GEOG 144 A 95723**
(8/29/18 version)

*Class meets in ROOM 219 DELEHANTY (M, W, F)
and in the GEOLOGY 3rd floor COMPUTER LAB (on occasion)*

*12:00-1:15 Monday and Friday
11-3:10 Wednesday*

Class leaders: Paul Bierman and Mae Kate Campbell

Professor: Paul Bierman, 307 Delehanty, 656-4411 (office) and (802) 238-6826 (cell, best to text), pbierman@uvm.edu (even better to email!)

Teaching Assistant: Mae Kate Campbell, 314 Delehanty, 443-995-4701 (cell, best to text!)
mcampb22@uvm.edu

Office hours: Please stop by and see us if you have any questions about the class or class material. Email is the best way to find us!

Paul: Friday, 11-12 am, Room 307 Delehanty

Mae Kate: Monday, 10-12 am, Room 314 Delehanty

Class Website: All of the readings for this class (except the textbook) as well as other communal resources will be available for viewing and downloading on our 2018 Geomorphology website. Get there by visiting Paul's "classes I teach" site.

<http://www.uvm.edu/~pbierman/classes/>

or as

<http://www.uvm.edu/~geomorph/geol151/2018>

There are two of us involved with teaching the course. Paul, as the professor, is leading the class. Mae Kate, as part of her master's training at UVM, is co-teaching under Paul's mentorship. You should feel free to come to either of us for advice and assistance.

Textbook: (with required readings): Bierman and Montgomery, *Key Concepts in Geomorphology*, you can use either the US print edition available at the bookstore or from on line retailers. Beware overseas sellers...it can take months to get your book!

ISBN-10: 1-4292-3860-7; ISBN-13: 978-1-4292-3860-1

Why Geomorphology?

Landscapes surround us all and often seem to be static, unchanging backdrops for our day-to-day activities. Yet, if we begin to look closely, landscapes are anything but static features; they are continually evolving at a variety of time and spatial scales.

So, what then is Geomorphology? It is the study of landscapes, their forms and the history and processes of their development. Geomorphology is one of the most synthetic of all geologic sub-disciplines. Properly done, it must consider any number of processes and Earth characteristics: structure, lithology, tectonics, weathering, hydrology, and in New England, as over most of the world today, humans.

My goal for you as students was best expressed by one of my colleagues, "After this class you'll never look at a landscape the same way again. You'll always stop and wonder how and why the land looks the way it does..."

In 2018, Geomorphology at UVM will be a survey of global surface processes guided by considering sources and sinks of sediment and the processes that move material across Earth's dynamic surface.

Class Schedule and Structure

Monday: 12:00 - 1:15 PM

Wednesday: 11:00 – 3:15 PM

Friday: 12:00 - 1:15 PM

Over the next 15 weeks, we will use a variety of tools and approaches to learn more about Earth's surface. Monday classes will be devoted to a mixture of short quizzes, lecture, activities, and some preparation for Wednesday fieldtrips and labs. Wednesday, we will do lab work and/or take fieldtrips and gather data. On Friday, we will reduce the data that we collected on Wednesday as well as do additional hands-on activities and sometimes have short lectures.

After the first 10 weeks, you and a partner will do a mid-term assignment.

At the end of the week 14, you and your partner will complete a final assignment that synthesizes the semester's work.

The class will conclude at the end of fall semester. Please make sure not to schedule your Thanksgiving break departure before late afternoon on Friday, November 16 and make sure that you are back for Monday November 26 at class time. There is no final examination.

Field Trips

Field trips make up an integral part of this course. All trips will include some amount of walking and sturdy shoes are a necessity. Of course, since it will be fall in Vermont, the weather will be cool and clear but make sure you are prepared for cold, wet conditions. Unless the weather is extreme enough to present a hazard, we will go out in the, rain, fog, snow, and wind. For each trip, you **MUST** have:

- waterproof raingear
- sturdy footwear
- a sweater or fleece for warmth
- a waterproof field notebook and pencil
- money for bakery and store stops
- some food to stave off hunger pangs
- hat for sun and for cold
- perhaps a small knapsack to carry all this

Expectations and Responsibilities for the Course

Mae Kate and I will be responsible for providing you a well-organized, clearly presented view of Earth's surface and how it works. We will strive to have all assignments returned to you in a timely fashion. We will strive to be available to help you with reasonable notice either in person or by email. As long as the email system is functioning or it's not a weekend, you should expect a response within 24 hours to an emailed question.

You will be responsible for completing a variety of assignments including readings over the course of the semester. These readings will mostly be in the textbook, which we expect you to purchase so that you have your own copy to read and work with. Other readings will be posted to the class web site as PDF files for you to download.

Attendance in class is expected. If you know in advance that you will miss a class, please let us know ahead of time. Also, we will abide by the Arts and Sciences guidelines for classroom behavior. Respect and courtesy are top priorities.

Group Projects

There are two projects in the class that serve to help you synthesize your learning and present what you know. Both projects will be done in groups (two or three students working together) and the projects will build one upon the other.

The first project will be done over the week of November 5 and submitted electronically on November 9 (by midnight). The revised and expanded project will be submitted December 3 (also electronically) by midnight and presented to your peers on December 5 during class.

The projects will both be presented as concept sketches, which are annotated illustrations in which the annotations explain both form and process.

The first project will focus on how sediment moves from source to sink. The second project will build on the first and consider landscapes from a broader overview including interactions with climate and tectonics. Detailed instructions as well as the rubrics we will use to evaluate the projects will be posted on the downloads subpage of the class webpage.

Course Goals

We have structured both the classroom and field portions of this course to give you the best chance of achieving the following broader goals by the end of the class.

- Understand and be able to interpret landscapes in terms of both geologic history and surface process,
- Predict how a landscape will respond to both human and natural perturbations,
- Experience the power of peer review and revision in the production of high-quality scientific presentations,
- Master data collection techniques with wide application including surveying and GPS,
- Increase your ability and comfort with quantitative calculations,
- Improve your ability to collect quantitative and qualitative field data in adverse conditions,
- Recognize the value of simple models to represent physical systems and apply such models to data we collect or situations we observe,
- Improve your ability to reduce field data and write meaningful summaries of your observations.

Grading

Field trip reports and lab exercises (drop lowest or missed lab)	35%
Mid semester Project	20%
Final Project (including revision of mid semester project)	30%
Weekly quizzes (drop lowest or missed quiz)	15%

Mae Kate will be grading your laboratory assignments and quizzes. I will grade your projects.

Assignment due dates and late assignments: **All readings are due** at the start of class (12:00). All lab assignments **are due on Wednesday, a week after they are assigned.** Lab assignments handed in after class starts on Wednesday will lose 10% of their grade. Assignments handed in any time on Thursday will lose 20% of their grade. Assignments handed in on Friday will lose 30% of their grade. Without permission of the instructors obtained ahead of time, assignments will not be accepted after Friday's class (this is so we can grade and return all lab assignments by Monday). Projects will lose 10% of their grade

if they are handed in after the deadline and an additional 10% for every extra day late – please be in touch before things are late so we can make alternate arrangements with you.

Quizzes will be given when readings are due. They will be short answer (10 minutes) and questions will be taken verbatim from the *Knowledge Assessments* at the end of the assigned chapter of Bierman and Montgomery. To do well on the quizzes, you should make sure that you can answer each of the *Knowledge Assessment* questions.

Semester Schedule

See the detailed, colorful class schedule for the dates when readings are due and quizzes will be given! It's a bit of a crazy semester because I am travelling to two scientific meetings and have a pre-scheduled medical procedure in mid September that might take me down for a couple days.

Honesty matters (UVM academic integrity code)

1. Students may not plagiarize.

All ideas, arguments, and phrases, submitted without attribution to other sources must be the creative product of the student. Thus, all text passages taken from the works of other authors (published or unpublished) must be properly cited. The same applies to paraphrased text, opinions, data, examples, illustrations, and all other creative work. Violations of this standard constitute plagiarism.

2. Students may not fabricate.

All experimental data, observations, interviews, statistical surveys, and other information collected and reported as part of academic work must be authentic. Any alteration, e.g., the removal of statistical outliers, must be clearly documented. Data must not be falsified in any way. Violations of this standard constitute fabrication.

3. Students may work cooperatively, but not collude.

Students are encouraged to collaborate on academic work within any limits that may be prescribed by their instructors. Students may only provide, seek or accept information about any academic work that will be submitted for a grade, to or from another student, with the authorization of the instructor. Violations of this standard constitute collusion.

4. Students may not cheat.

Students must adhere to the guidelines provided by their instructors for completing academic work. Students may not claim as their own work any portion of academic work that was completed by another person. Students may only use materials approved by their instructor when completing an assignment or exam. Students may not present the same (or substantially the same) work for more than one course or within the same course without obtaining approval from the instructor of each course. Students must adhere to all course reserves regulations. Students may not act dishonestly or convey information that the student knows or should know to be false, by actions such as lying, forging or altering any document or record in order to gain an unfair academic advantage. Violations of this standard constitute cheating.

august

2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
30 July	31	1 August	2	3	4/5
6	7	8	9	10	11/12
13	14	15	16	17	18/19
20	21	22	23	24	25/26
27	28	29 INTRODUCTION Do basic concept sketch on maps and hand out syllabus.	30	31 WHAT IS GEOMORPHOLOGY READ <i>BM Chapter 1</i> PRACTICE QUIZ	1 September/2
3	4	5	6	7	8/9

september

2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
27 August	28	29	30	31	1 September/2
3 NO CLASS Labor Day	4	5 SURVEYING and GPS MEASUREMENTS Intro lecture Field activity	6	7 GEOCHRONOLOGY READ <i>BM Chapter 2</i> QUIZ 1	8/9
10 NO CLASS PAUL IN DENMARK	11	12 NO CLASS PAUL IN DENMARK	13	14 NO CLASS PAUL IN DENMARK	15/16
17 SOILS and WEATHERING READ <i>BM Chapter 3</i> QUIZ 2	18	19 SOILS and WEATHERING Field trip to Aududon center, Huntington	20	21 Data reduction and lab reports <i>Computer lab</i>	22/23
24 GEOMORPHIC HYDROLOGY READ <i>BM Chapter 4</i> QUIZ 3	25	26 RUNOFF MEASUREMENTS On campus	27	28 Data reduction and lab reports <i>Computer lab</i>	29/30
1 October	2	3	4	5	6/7

october

2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
24 September	25	26	27	28	29/30
1 October RIVERS READ <i>BM Chapter 6</i> READ <i>Manual of Field Hydrology, Chapter 3</i> QUIZ 4	2	3 FLOW MEASUREMENTS East Woods	4	5 Data reduction and lab reports Computer lab	6/7
8 NO CLASS UVM FALL RECESS	9	10 SLOPES AND MATERIAL PROPERTIES; Data collection then reduction and lab reports Computer lab -READ <i>BM Chapter 5</i> QUIZ 5	11	12 NEIGC MT MANSFIELD GLACIAL GEOLOGY TRIP – all day – optional but highly recommended!	13/14
15 GLACIAL GEOMORPHOLOGY READ <i>BM Chapter 9</i> QUIZ 6	16	17 GLACIAL LANDFORMS AND SEDIMENTS Shelburne	18	19 CLIMATIC GEOMORPHOLOGY READ <i>BM Chapter 13</i> QUIZ 7	20/21
22 DRAINAGE BASINS READ <i>BM Chapter 7</i> QUIZ 8	23	24 SOURCE TO SINK TRIP Underhill to Burlington	25	26 Basin summary Computer lab	27/28
29 COASTAL GEOMORPHOLOGY READ <i>BM Chapter 10</i> QUIZ 8	30	31 LANDSCAPE EVOLUTION and cosmolab tour READ <i>BM Chapter 14</i> QUIZ 10	1 November	9	10/11

november

2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
29 October	30	31	1 November	2 INTRO TO PROJECTS	3/4
5 NO CLASS PAUL and MK at GSA meeting	6	7 NO CLASS PAUL and MK at GSA meeting	8	9 PROJECT CONSULTANCY AND HAND IN	10/11
12 TECTONIC GEOMORPHOLOGY READ <i>BM Chapter 12</i> QUIZ 11	13	14 TECTONIC GEOMORPHOLOGY <i>Start in Computer lab</i>	15	16 PROJECT HAND BACKS	17/18
19 NO CLASS Turkey Break	20	21 NO CLASS Turkey Break	22	23 NO CLASS Turkey Break	24/25
26 VOLCANIC GEOMORPHOLOGY READ <i>BM Chapter 11</i> QUIZ 12	27	28 VOLCANIC GEOMORPHOLOGY <i>READ: Potential hazards from future eruptions of Mount St. Helens Volcano, Washington, 1978, Crandell et al. USGS Bulletin: 1383-C</i> intro to final project	29	30 PROJECT WORK DAY	1 December/2
3	4		6	7	8/9

december

2018

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SAT/SUN

26 November

27

28

29

30

1 December/2

3

PROJECT work day

SUBMISSION AT
MIDNIGHT

4

5

POSTER SESSSION

6

7

POSTER GIVE BACKS

8/9

10

11

12

13

14

15/16

17

18

19

20

21

22/23

24

25

26

27

28

29/30

31

1 January

2

3

4

5/6