

## **Geomorphology - Geology 235**

**Sue Swanson**

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Office Hours: Wednesday 11:00AM-12:00PM, Thursday 4:00-5:00PM, or by appointment

**Lectures and discussions:** MWF 10:00-10:50AM, T 11:00-11:50AM, 116 Chamberlin Hall

**Laboratory:** Thursdays 1:00-3:50PM, Room 116 Chamberlin Hall

### **Course description:**

This course focuses on the origin and development of landforms created by fluvial, glacial, and eolian processes. In addition, the relationships of landforms to underlying geologic structures and the history of geologic and climatic changes as recorded by surface features are explored.

Landscapes and surface processes are analyzed using air photos and topographic maps as well as field-mapping techniques and geographic information systems.

Geomorphology is by nature an interdisciplinary science because the land surface is located at the interface of the earth's lithosphere, atmosphere, hydrosphere, and biosphere. As a result, this course aims to expand your knowledge of chemical and biological processes as well as geological processes that shape the earth's surface. Specifically, the purpose of the course is to study continental landforms and the fluvial, glacial, and eolian processes that form them. In addition, through both descriptive and quantitative analysis, the course will provide an understanding of the scales and rates at which the diversity of surface processes occur. This approach utilizes landscapes that are currently exposed to surface processes to reveal the geologic and climatic changes that have occurred as part of earth history.

### **Course Goals:**

At the end of the semester, you should be able to

- analyze an unfamiliar geologic setting and describe the driving and resisting forces involved in forming the environment and
- predict how current surficial processes and/or changes in surficial processes may alter a given geologic setting.

### **Course Expectations:**

What I expect from you:

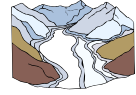
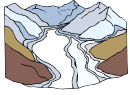
- to take responsibility for your own learning
- to come prepared for class and be an enthusiastic participant in class
- to set high standards for your work in group settings and in individual assignments

What you can expect from me:

- to be enthusiastic and knowledgeable about the course material
- to create challenging ways for you to learn and apply your knowledge of geomorphology
- to treat you with fairness and respect
- to set high standards for the class

### **Textbook and required readings:**

- *Process Geomorphology* by Ritter et al.
- Selected readings on reserve at Morse Library and in 116.



### **Course grading:**

Your final grade\* will be calculated using the *approximate* percentages:

Exams (midterm and final)	40%
Project 1	15%
Project 2	15%
Project 3	10%
Other labs and assignments in class	20%

\*You can ask me for an *estimate* of your current grade at any time.

### **Attendance**

Attendance is expected for all scheduled class times. While I will not “take attendance” every day, please keep in mind that many exercises will be completed in class. If you have a conflict with a scheduled class period, please let me know prior to class so that we can discuss alternate arrangements, if necessary. If alternate arrangements are not made prior to class, credit will not be given for assignments that were missed due to an unexcused absence.

There is one additional activity outside the normally scheduled class time that is ***required***. There is a field trip to the **Kettle Moraine** on **October 29<sup>th</sup>**! YIPPEE!! If you have a conflict with this date, let me know *immediately*.

### **Additional Comments on Field Trips**

A few labs involve field work. I will tell you ahead of time if you need to bring special field gear such as hiking boots, water-proof boots/shoes, and/or rain gear. Labs will continue even if the weather does not cooperate. There is also a field trip on **October 29<sup>th</sup>**. We will spend the entire day in and around the Horicon Marsh National Wildlife Refuge and the Kettle Moraine State Forest in eastern Wisconsin. We will leave EARLY, 7:00AM, and will probably stay near the Kettle Moraine until dark, returning around 8:00PM. This trip is required. One lab exercise cannot be completed if you do not attend.

### **Late Policy**

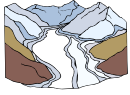
Late assignments will be penalized 10% per day. Please note that your late assignment will not be accepted at all (and no credit will be given) after I grade and return the assignment to the rest of the class.

### **Students with Disabilities**

If you have a disability and would like to speak to someone about possible accommodations, please visit the LSSC (Learning Support Services Center) located on the first floor of 635 College St. You will need to provide appropriate documentation of your disability to Diane Arnzen, Director of the LSSC. If you wish to receive accommodations in my class please provide me the LSSC Accommodation Verification Letter, dated for this semester, as soon as possible so your learning needs may be appropriately met.

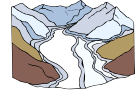
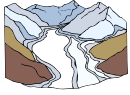
### **Academic Honesty Policy**

The academic honesty policy is found on page 22 of the Beloit College catalog. Please review it.



**Course Outline:**

<b>Week</b>	<b>Date</b>	<b>Topic</b>	<b>Readings</b>
<b>1</b>	T-08/29:	Course overview;	<b>Preface – pg. ix, Ch. 1, pp. 2-19</b>
	W-08/30:	Process geomorphology	
	R-08/31:	<b>Lab: Topographic maps and Abstracts</b>	
	F-09/01:		
<b>2</b>	M-09/04:	Endogenic processes and Climate change	<b>Ch. 2, pp. 21-31, pp. 34-41</b>
	T-09/05:		
	W-09/06:		
	R-09/07:	<b>Lab: Intro to GIS</b>	
	F-09/08:	Endogenic processes and Climate change	
<b>3</b>	M-09/11:		<b>Ch. 3, pp. 43-48</b>
	T-09/12:	Chemical and Physical weathering	
	W-09/13:	Physical weathering and Mass wasting processes	
	R-09/14:	<b>Lab: Big Hill Park</b>	
	F-09/15:		
<b>4</b>	M-09/18:	Physical weathering and Mass wasting processes	<b>Ch 4, pp. 80-133</b>
	T-09/19:		
	W-09/20:		
	R-09/21:	<b>Lab: Landslides project</b>	
	F-09/22:	Physical weathering and Mass wasting processes	
<b>5</b>	M-09/25:	Glaciers and glacier mechanics	<b>Ch. 9, pp.297-320</b>
	T-09/26:		
	W-09/27:		
	R-09/28:	<b>Lab: Landslides project</b>	
	F-09/29:		
<b>6</b>	M-10/02:	Glaciers and glacier mechanics	<b>Ch. 10, pp. 322-335</b>
	T-10/03:		
	W-10/04:		
	R-10/05:	Glacial erosion and landforms	
	F-10/06:		
<b>7</b>	M-10/09:	Glacial deposition and landforms	<b>Ch. 10, pp. 335-357</b>
	T-10/10:		
	W-10/11:		
	R-10/12:	<b>MIDTERM EXAM</b> ~~Through glacial erosion and landforms~~	
	F-10/13:	Glacial deposition and landforms	
<b>Midterm Break: 10/14-10/22</b>			



8	M-10/23:	~~GSA~~	Ch. 10, pp. 335-357
	T-10/24:		
	W-10/25:		
	R-10/26:	<b>Lab: Glacial lab</b>	
	F-10/27:	Glacial deposition and landforms	
	<b>Sunday 10/29</b>	<b>Field trip to the Kettle Moraine!</b>	
9	M-10/30:	The Drainage Basin – development, morphometry, and hydrology	Ch. 5, 135-137 (Table 5.1); 144-153; 156-159
	T-10/31:		
	W-11/01:		
	R-11/02:	<b>Lab: Basin project</b>	
F-11/03:	The Drainage Basin – development, morphometry, and hydrology		
M-11/06:			
10	T-11/07:	<i>International Symposium Day</i>	
	W-11/08:	<b>Lab: Basin project</b>	
	R-11/09:	The Drainage Basin – development, morphometry, and hydrology	
	F-11/10:		
11	M-11/13:	Fluvial processes	Ch. 6, pp. 190-192; 195-231
	T-11/14:		
	W-11/15:		
	R-11/16:	<b>Lab: Hydraulic geometry lab</b>	
	F-11/17:	Fluvial processes	
12	M-11/20:	Fluvial landforms	Ch. 7, pp. 233-264; 269-270
	T-11/21:		
	W-11/22:		
	R-11/23:	<i>Thanksgiving</i>	
F-11/24:			
13	M-11/27:	Fluvial landforms	
	T-11/28:		
	W-11/29:		
	R-11/30:		
	F-12/01:		
14	M-12/04:	Coastal processes and landforms	Ch. 13, pp. 434-476, 490
	T-12/05:		
	W-12/06:	<b>Lab: Coastal GIS</b>	
	R-12/07:	Coastal processes and landforms	
F-12/08:			
15	M-12/11:	<b>Lab: Coastal GIS</b>	
	T-12/12: (Thursday)		
	W-12/13:	Review for final and course evaluation	

Final Exam –Friday December 15<sup>th</sup>, 2:00-5:00PM