

COURSE INFORMATION AND OBJECTIVES  
Principles of Geomorphology  
GEOL 23100

Professor Frank Buonaiuto

**CLASS MEETINGS:**

LECTURES: Wednesday, 17:35-21:15, Room 1022 Hunter North

**PROFESSOR BUONAIUTO CONTACT INFORMATION:**

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Office Hours:            Wednesday, 5:00 – 5:35, *and by appointment.*

\* Note: the best way to contact me is through your Hunter College email – (1) You must include the course name or number in your subject line and (2) you must sign your name as it appears in CUNYfirst in your email. I try to answer all emails within 24 hours. Allow for a 48 hour delay on the weekends.

*Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice. Updates will be posted regularly on BlackBoard.*

**INFORMED REGISTRATION STATEMENT**

In this 3-credit course we will explore meteorology and climatology. Topics will include weather forecasting, climate change and environmental issues relating to weather and climate. This is a lab science course and can be used to meet the GER 2/E or 3/B General Education Requirement.

**COURSE DESCRIPTION, LEARNING OBJECTIVES AND OUTCOMES**

Geomorphology is the study of the identification of landforms on the earth's surface, and of the processes that create and change them. In this class, we will focus on orogenic/thrust events, glacial, aeolian, marine and fluvial (river) processes as these dominate the landforms in our area. We will also discuss modern geomorphic dating techniques, interactions between topography, tectonics, and climate, and the role of humans and biologic agents in landscape evolution. As with all of the disciplines within geology, geomorphology requires a number of fundamental skills that are useful in many situations. First and foremost, geomorphology is a study of observation. Through observation, we can identify individual landforms (“that is a ridge”), understand their composition and relation to the surrounding landscape (“it is composed of glacial and fluvial sediment, and located near the margin of one of the large Pleistocene ice sheets”), and identify their origin (“that is an ‘esker,’ or a ridge of fluvial sediment left behind by a sub-glacial river”) and evolution through time (“it is probably 18,000 years old and has been slowly eroding via diffusional hillslope processes since then”). We will also learn to use a number of tools and develop skills that are used in many other field science disciplines. These tools and skills may include: surveying, mapmaking, GIS (geographic information systems), GPS (Global Positioning Systems), spreadsheet analysis, simple numerical modeling, and

topographic map interpretation. We may also be reading and analyzing a number of articles from the scientific literature. In addition, you will work collaboratively on laboratory exercises, design and implement an independent research project and give a short oral presentation on your work. Those who choose to attend optional field trips will gain field research techniques and experience, learning how to use GPS, surveying and geologic mapping tools, field collection techniques and more.

The student who successfully completes this course can:

- appreciate the interdisciplinarity of landform analysis.
- recognize the methodologies, tools and data sources used by geomorphologists and physical geographers.
- identify basic landforms from tectonic, volcanic, fluvial, glacial, aeolian and coastal environments.
- determine the physical, chemical and biological processes controlling the modern evolution of identified landforms.
- apply basic landform analysis techniques to their own research interests.
- communicate the importance of fundamental geomorphic principles and findings to the wider academic community.
- apply for advanced courses in geomorphology, structural geology and geophysics.

### **RECOMMENDED TEXT BOOK**

This course is based on material from the following two text books. It is recommended that students purchase one of the following for reference.

*Physical Geography A Landscape Appreciation*, 12<sup>th</sup> Edition, Darrel Hess, 2017. Pearson.

- ISBN-13: 978013419542
- 11<sup>th</sup> or 10<sup>th</sup> Editions are acceptable.

*Surface Processes and Landforms*, 2<sup>nd</sup> Edition, Don J. Easterbrook, 1999, Prentice Hall.

- ISBN-10: 0138609586

### **REQUIRED COURSE LAB MANUAL**

*Physical Geography Laboratory Manual*, 12th edition, Darrel Hess, 2017. Pearson.

- ISBN-13: 9780134561011 (\$77.80)
- ***You must have your lab manual for the first day of class.***

### **GRADES**

Grades will be based on class participation, laboratory assignments, student presentation, one mid-term exam, and one final exam.

Participation:	10%
Lab Exercises:	30%
Student Presentation:	10%
Mid-term exam:	25%
Final exam:	25%

### **RULES and POLICIES FOR LECTURE AND LAB**

All students are expected to abide by the following policies when in lecture or lab in order to provide a more respectful and productive learning environment.

- Attendance in lecture and lab is mandatory.
- All cell phones must be turned off or switched to silent mode. If you must take a call please excuse yourself quietly from the room. Please refrain from texting.
- Laptops are permitted for note taking purposes only.
- No electronic devices or reference materials will be permitted on the desk during exams.
- Lab exercises are due, in lab, at the next lab meeting. Late labs will have the grade reduced 20 points for each day they are late unless you have a valid excuse that can be documented.

### **Hunter College Statement on Academic Honesty**

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

See the following report by the Hunter College Senate for more details:

<http://www.hunter.cuny.edu/senate/assets/Documents/Hunter%20College%20Policy%20on%20Academic%20Integrity.pdf>

### **ADA Policy**

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical, and/or Learning) consult the Office of AccessABILITY, located in Room E1214B, to secure necessary academic accommodations. For further information and assistance, please call: (212) 772- 4857 or (212) 650-3230. 5

## CLASS STRUCTURE

Lecture: 2 hr 30 min (10 min break)

Laboratory: 1 hr 10 min (05 min break)

Schedule of Topics, Readings, Laboratory Exercises and Field Trips						
Month	Date	Day	Topic	Reading		Lab Exercises
				Easterbrook	Hess	
Feb	01	Wed	Intro-Landform Analysis, Basic Concepts	Ch 1,2	Ch 13	28, 29, 30
	08	Wed	Tectonic Landforms and Processes	Ch 8	Ch 14 p.416	32, 33
	15	Wed	<b>Monday Schedule</b>			
	22	Wed	Volcanic Landforms and Processes	Ch 11	Ch 14 p.428	34, 35
	24	Sat	<b>Field Trip Palisades Sill</b>			
Mar	01	Wed	Faulting/Folding; Topographic Expression of Folded Strata	Ch 9,10	Ch 14 p.441	36, 37
	04	Sat	<b>Field Trip Inclement Weather Date</b>			
	08	Wed	Weathering and Mass Wasting	Ch 3	Ch 15	38
	15	Wed	Weathering and Mass Wasting	Ch 4	Ch 15	
	22	Wed	<b>Exam</b> , Fluvial Processes and Landforms	Ch 5	Ch 16	39, 40
	29	Wed	Fluvial Processes and Landforms	Ch 6	Ch 16	41, 42
Apr	05	Wed	Glacial Processes and Landforms	Ch 12, 13	Ch 19	47, 48
	12	Wed	<b>Spring Recess College Closed</b>			
	19	Wed	Quaternary Climate Change; Periglacial Landforms	Ch 14, 15		TBD
	26	Wed	Groundwater, Karst and Hydrothermal Processes	Ch 7	Ch 17	44
May	03	Wed	Desert Processes and Landforms	Ch 17	Ch 18	45, 46
	10	Wed	Coastal Processes and Landforms	Ch 16	Ch 20	49
	17	Wed	Student Presentations			
	24	Wed	<b>Final Exam</b>			