

**UNIVERSITY OF MARYLAND
DEPARTMENT OF GEOLOGY
GEOLOGY 340: GEOMORPHOLOGY**

Professor: Dr. Karen Prestegaard, Room 3117 Geology, ph: 301-405-6982
kpresto@geol.umd.edu Office hours: Tues Thurs 11:00-12:30

Lecture: TuTh 9:30 – 10:45 am 1117 Plant Sciences

Lab: Wed 10:00 – 1:00 2107 Geology

Required Textbook: Anderson, R. and Anderson, S. *Geomorphology*: 2010
Cambridge University Press (paperback)

Lecture notes and additional readings will be posted on Canvas:
<https://elms.umd.edu>.

Assessment: Lab reports (50%), Exam I: (20%), Final Exam (30%),

Prerequisites: Geology 100, Mineralogy is recommended

Learning outcomes: The surface of the earth and other planets is modified by the movement of water, wind, and ice. This class will provide an introduction to: a) the mechanics of surface processes (e.g. landslides, river processes, coastal, and glacial processes), b) the landforms that result from these processes, and c) the role of surface processes in hazards mitigation, stream restoration, and other applied fields. Laboratory exercises will include theoretical, field, and experimental study of geomorphic processes.

Academic integrity: The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>. To exhibit your commitment to academic integrity, remember to sign the Honor Pledge on all examinations and assignments: "*I pledge on my honor that I have not given or received any unauthorized assistance on this examination (assignment).*"

Special Needs: I will make every possible effort to accommodate your request for special accommodations. Any requests must be submitted as soon as possible but no later than the end of the schedule adjustment period

Students with Disabilities: If you have a documented disability, you should contact Disability Support Services 0126 Shoemaker Hall. Each semester students with documented disabilities should apply to DSS for accommodation

request forms, which you can provide to your professors as proof of your eligibility for accommodations. The rules for eligibility and the types of accommodations a student may request can be reviewed on the DSS web site.

Religious Observances: The University System of Maryland policy provides that students should not be penalized because of observances of their religious beliefs, students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. *It is the responsibility of the student to inform the instructor of any intended absences for religious observances in advance.*

Course Evaluation: CourseEvalUM will be open for students to complete their evaluations. Students can go directly to the "<http://www.courseevalum.umd.edu/>" website to complete their evaluations, You will be alerted about open dates and provided more information closer to that time, and students will be alerted via their official university e-mail account. All students will complete these, please use this opportunity! Students who complete evaluations for all of their courses in the previous semester (excluding summer), can access the posted results via Testudo's CourseEvalUM, which provides a link for any course on campus that has at least a 70% response rate.

COURSE FORMAT

Lectures: Dr. Prestegaard will give lectures on physical and chemical processes that govern the movement of water and sediment on Earth's surface and influence the development of landforms.

Labs: In lab, we will conduct experiments, work with data sets, and go out to the field to examine and measure geomorphic processes. Although we will often collect data in groups or share data, you are responsible for completing your own individual lab assignment.

Syllabus		
Date	Topics	.Readings in Anderson²
Jan 24	Scope and Approach	Ch. 1, 2
Jan 29	Tectonic Framework	Ch. 3, 4
Feb 31	Climatic Framework	Ch. 5
Feb 5	Chemical Weathering	Ch. 7
Feb 7	Soils, soil evolution	Ch. 6; readings
Feb 12	Hillslope material properties	Ch. 10
Feb 14	Hillslope processes:	Ch. 10
Feb 19	Drainage Basin Morphology	Ch. 11; readings
Feb 21	Drainage Basin Hydrology	Ch. 11

Feb 26	Stream Hydraulics	p. 381-399
Feb 28	Stream Sediment Transport	Ch. 14
Mar 5	Meandering Channels	p. 401-415
Mar 7	Braided and boulder-bed channels	papers
Mar 12	Bedrock channels; profile evolution	Ch. 13
Mar 14	*****Exam I*****	
March 17-24	*****Spring Break, No Class*****	
Mar 26	Flood Plain Processes and big Floods	Ch. 17
Mar 28	Wind: Processes and patterns	Ch. 15
Apr 2	Periglacial processes and patterns	Ch. 9
Apr 4	Glacier Mechanics	p. 212-241
Apr 9	Glacial Erosion and Landforms	p. 246-257
Apr 11	Glacial Deposition and Landforms	p. 257-268
Apr 16	Climate change in the Arctic	p. 296-303
Apr 18	Karst Landforms	readings
Apr 23	Waves, Currents	p. 502-511
Apr 25	Coastal sediment transport	p. 512-520
Apr 30	Coastal Morphology (Beaches; Shorelines..)	p. 521-531
May 2	Tidal channels	readings
May 7	Integrated landscapes	
May 9	Review	
May 13	(Monday) *** Exam II*** 8-10 am	

Alternative Textbook: (cheaper option because you can purchase old editions)

Ritter, Kochel, Miller, 2002, Process Geomorphology, 4th edition. (Current edition is the 5th edition; you can purchase used editions of the 3rd 4th or 5th editions),

Other Optional Texts (also available in Libraries)

Leopold, L.B., Wolman, M.G., Miller, J., 1964, (Dover edition 1995) **Fluvial Processes in Geomorphology**: 535 p. ISBN: 0486685888; available in a paperback Dover edition from Amazon for \$15.59 (older, classic text).

Knighton, David, 1998, **Fluvial Form and Processes: A new perspective**: Oxford University Press: **Paperback**: 400 pages \$37.95 from Amazon, buy both this and Luna's book \$53.56

Selby, M.J., 1993, **Hillslope Materials and Processes**: Oxford University Press **Paperback**: 480 pages: available from Amazon for \$69.23

Hooke, Roger LeB, 1997, **Principles of Glacier Mechanics**: Prentice Hall: 248 pages **ISBN**: 0132433125: available from Amazon for \$65.00 (paperback)

Wright, J., Colling, A., Park, D., 2000, **Waves, Tides and Shallow-Water Processes: Butterworth-Heinemann**, **Paperback**: 227 pages: Amazon \$44.95