

Geology 315 – Earth Surface and Near-surface Processes

MWF 10:10-11:00

EWS 209

Lab F 12:20-3:20

EWS208

This is focused on the surface and near-surface (upper few meters) physical components of the Earth environment. We will direct our efforts toward recognition and analyses of concepts in hydrology, earth materials, material transport and geomorphology. Our time scale of interest ranges from fractions of seconds to eons, and our spatial scale of interest ranges from hillslopes to mountain ranges.

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Textbook: The Earth's Land Surface, by Kenneth Gregory, SAGE, 2010. This book offers a philosophical and theoretical perspective on landscape dynamics.

Grading:	Project 1	(Due February 21)	15%
	Fieldtrips and Activities		10%
	Midterm	(March 30)	15%
	Project 2	(Due April 18)	15%
	Homework		10%
	Final Exam	(Wednesday, May 4, 9am)	15%
	Lab Exercises, Participation, Attendance		20%

All exams will be closed book and closed notes. The exam questions will be in the form of essay questions. The exam questions will come from the combined lecture and reading material. Typically, I will give you a set of about ten essay questions a few days in advance of the midterm exam date, and I will choose three or four from that set as the midterm exam. The final will have the same format but with more material and it will be cumulative. Note the lab grade is not a separate grade. Your lab grade will be averaged with the lecture grade as shown above.

Early or late exams can be arranged **ONLY** if you notify Professors Torres in writing (email is sufficient) at least 7 days prior to the exam date. Make up exams, late homework and late lab assignments will only be permitted with a note from the doctor or the undertaker. Missed, but excused exams, quizzes or homework must be made up within two weeks of the scheduled due date. It is up to you to make these arrangements with Professor Torres or the IA and to get your work done within the two week time interval.

IF YOU FEEL THAT ANY OF YOUR WORK WAS MARKED UNFAIRLY AND YOU DESERVE MORE POINTS YOU MUST RESOLVE THE DISCREPANCY WITHIN TWO WEEKS OF THE DUE DATE OR EXAM/QUIZ DATE. AFTER THAT NO GRADE CHANGES WILL BE GRANTED. FOR THE FINAL YOU WILL HAVE ONE WEEK TO REQUEST A REVIEW.

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Grading Cont: Homework assignments are due at the start of lecture. Lab attendance is **mandatory**. Lab work must be turned in at the end of lab. **No unexcused late homework or laboratory exercises will be accepted.** YOU HAVE TWO WEEKS FROM THE DUE DATE TO TURN IN ASSIGNMENTS THAT ARE LATE BECAUSE OF ILLNESS OR FAMILY MATTERS (as long as you have a note). All homework assignments should be neat and legible. If we cannot read your answer the question will be marked wrong. Final grades will be based on STRAIGHT PERCENTAGES, 90 - 100% = A, 80 – 89% = B, 70 – 79% = C, 60 – 69% = D and < 60% = F. If you are curious about how your are doing in class just add up the number of points you earned, divide by the total, multiply by 100% and check with above.

Topics Covered and Readings:

Finish the following reading assignments **before** the date shown:

Date	Topic	Reading	Homework
Feb. 1	Controls affecting the land surface	43-66	
Feb 14	Processes and Dynamics of the Land Surface	71-118	
Feb 21	The changing surface – evolution of landscapes	127-146	
Mar 4	Arid environments	213-228	1 st hmwk out
Mar 25	Humid and seasonally humid tropics	43-54	
April 8	Temperate and Mediterranean environments	185-209	1 st hmwk due
April 22	Urban landscapes	255-266	

Laboratory Exercises:

1. Hyetographs
2. Spatial variability in Rainfall
3. Topographic Maps
4. Making a Topo Map
5. Infiltration of water into soil
6. Prepare for trip to Big Bend
7. Rocky Branch Creek
8. Groundwater Flow
9. Flood routing
10. Presentations of river project

Learning Outcomes

By the end of the term, successful students should be able to do the following:

- Describe the different parts of the Earth surface and near-surface environment, how they interact, relative rates of interaction, and how humans interact with them and affect transport rates.
- Identify the reservoirs of water and sediment in the earth system.
- Understand basic components of earth material transport.
- Identify landscape features and their development.
- Explain the concepts of Earth surface process ↔ form
- Apply mass balance concepts to understand erosion of landscapes.