Course overview:
From the NRC report Landscapes on the Edge: New Horizons for Research on Earth’s Surface (pg. 18): “Earth’s surface is a dynamic interface across which the atmosphere, water, biota, and tectonics interact to transform rock into landscapes with distinctive features crucial to the function and existence of water resources, natural hazards, climate, biogeochemical cycles, and life. Interacting physical, chemical, biotic, and human processes—‘Earth surface processes’—alter and reshape Earth’s surface on spatial scales that range from those of atomic particles to continents and over time scales that operate from nanoseconds to millions of years.

In this class, we will study many of the ‘Earth surface processes’ that govern landscape evolution. Our mantra will be “process from form.” That is, the form of a landscape can provide insight into the physical processes responsible for its creation. Specifically, we will study river, hillslope, glacier, and coastal processes.

Instructor: Jane Willenbring
Contact Info: email: jwillenbring@ucsd.edu
Office Hours: Call 612-270-6591 during compressed business hours 10:00 am-4:00 pm
Lectures: M/W 10:00 – 11:20 PM Lab: online content only

Text: P.R Bierman and D.R. Montgomery: Key Concepts in Geomorphology

Evaluation/Assignments:
7 lab exercises
Open Book, Open Notes, Take Home Final

Grading
Labs and problem sets can be done together in groups but each person will turn in their own assignment. You will receive one grade for the class (i.e. combined lab and lecture). The weighting of the assignments for the class is as follows

Open Notes, Open Book, Take Home Final – 50%
Labs – 50%

Attendance Policy: You are responsible for the material that is presented in class. It is in your best interest to attend class or watch the zoom recordings. I will not grade based on zoom attendance. If you miss a class, please look over the copy of lecture notes from a friend.

Distribution of Readings and Course Materials
For the labs and lectures, I will post materials on Canvas.

Course Schedule
Week 1

3/30/20 Lecture 1. Earth Features and Orogen Mass Balance (Ch. 12: p. 391-397)

No Lab today

4/1/20 Lecture 2. Bedrock rivers (Ch. 6: pp. 185-191)

Week 2

4/6/20 Lecture 3. Classical views of Geomorphology, Precipitation, Runoff and Hydrographs

Lab 1: Excel Basics


Assigned Reading for Class: USGS Fact Sheet 2004-3142

Week 3

4/13/20. Lecture 5. Alluvial Rivers II,

Lab 2: Titan Lab

4/15/20 Lecture 6. Hydrology

Week 4


Lab 3: Bedrock streams

4/22/20 Lecture 8. Debris Flows, Landslides 1

Week 5

Lab 4: Bank and cliff stability

4/29/18 Lecture 10. Soil Production and weathering processes

Week 6


Lab 5: Climate, Tectonics and the Morphology of the Andes

5/6/20 Lecture 12. Whole Landscapes II: Coupling of Hillslope and Channel Processes

Week 7


Lab 6: Glacial Geomorphology and Mechanics

5/13/20 Lecture 14. Glaciers II

Week 8

5/18/20 Lecture 15. Geochronology and Geomorphology I,

Lab 7: Steam Piracy Lab

5/20/20 Lecture 16. Geochronology and Geomorphology II

Week 9:

5/25/18 No Class, No lab – Memorial Day

5/27/18 Lecture 18. Coastal Processes / Geomorphology and Tectonics of San Diego
Week 10:

6/1/18 Lecture 19. Coastal Processes (continued) and Ecogeomorphology

Lab 8: Marine Terraces

6/3/18 Review of material

Take Home Final Posted

6/10/18, 11:59 PM, Take Home Final due via email (jwillenbring@ucsd.edu)

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD). Students are required to present their AFA letters to Faculty (please make arrangements to contact me privately) and to the OSD Liaison in the department in advance so that accommodations may be arranged.

Contact the OSD for further information:
858.534.4382 (phone)
osd@ucsd.edu(email)
http://disabilities.ucsd.edu(website)

Instructor Goals. At a minimum, I hope to pursue the following goals and solicit your open and timely feedback on how well I am meeting these goals:

- Communicate effectively and frequently;
- Be an enthusiastic, active and involved;
- Demonstrate a mastery of the discipline;
- Relate material to current practices;
- Clearly explain complex concepts and ideas;
- Provide a framework for lifelong learning;
- Strive to involve participant in class activities;
- Be available to assist participants in or out of class; and
- Have respect and concern for all participants.