

Final Concept Sketch – Geomorphology 2011

We have come to the end of this year's Geomorphology class and it is time for the final project. The goal of this project is to allow you, in pairs, to integrate your knowledge of hillslopes and rivers into a coherent view of the landscape and the processes that shape Earth's surface over time and space. To that end, the final project will be cumulative and will require that you draw on the entire semester's worth of lectures, labs, and exercises. This is a synthetic final exercise; you should study for it by reviewing all your class notes, textbook chapters, and lab exercises.

Here are the instructions.

1. The final concept sketch should be done with the same partner as the mid-term sketch.
2. The final concept sketch will use the same image that we used for the mid-term. We will supply to you a clean poster on Monday November 14 but you should begin organizing your ideas today.
3. The concept sketch will be presented to your peers on Friday November 18, starting at 1145pm. We will be meeting in the front lobby of Delehanty Hall that day. If you can, please bring food or drink to share with the group. I'll grab bread and cheese for sandwiches so you all can concentrate of things like veges, chips, fruit and carbohydrates (deserts).
4. There will be two integrated parts to the final concept sketch. The first, worth 60% of the grade, will be a revision of the mid-term concept sketch that focused on rivers and river processes. We will use the same instructions (attached again) and the same rubric. We expect that you will use the constructive criticism on your rubric to improve, through revision, your work on rivers. The second part of the final concept sketch will be new work focused on hillslopes. Attached are the instructions for the hillslope section that will be worth 40% of the grade. We will evaluate the hillslope section using a similar style of rubric.
5. To do well on the final concept sketch, it is critical that you do the following:
 - a. Follow all directions explicitly as these directions form the basis of our grading rubric.
 - b. Include all requested items in your sketch.
 - c. Make thorough and responsive revisions to your Rivers mid-term concept sketch.
 - d. Make sure that your captions are titled and include the question number or letter, are linked to objects on the image, and that each **clearly articulates all four levels of thinking** (identification, process, prediction, and interactions).

Geomorphology Mid-Semester Project

What to include

The sketch that you and your partner submit together should identify and include information about the following concepts, actions, and landforms. Please review the attached sheet about concept sketches and make sure that your captions include all four levels of thinking (identification, process, prediction, and interactions). Each one of these eight features should be captioned and connected to the sketch with an arrow. EACH NUMBER and LETTER below SHOULD HAVE A LABEL OR TITLE.

1. Point bar/cut bank pair and meandering
2. Flood deposits
3. River Terraces (3)
4. Flood Plain
6. Human modification of channel
7. Biotic interaction/woody debris/riparian zone
8. Sediment sourcing and transport

In addition, your concept sketch should include at least several embedded smaller sketches. Each of these smaller sketches should be labeled with concise but informative explanations and each should include all four levels of thinking (identification, process, prediction, and interactions).

- A. An interpreted **cross section** through the channel and including the banks along A to A'.
- B. An interpreted **long profile** along the tributary labeled B to B'.
- C. Schematic and interpreted **soil pit profiles** at sites **C-Pit1**, **C-Pit2**, and **C-Pit3**.

Evaluation

Your projects will be evaluated using the following criteria.

- a. (20%) *Overall appearance and readability* – The best sketches will be clear, easy to read and to the point but with sufficient detail and correct spelling and grammar. Feel free to type out and attach your descriptions if your handwriting is unreadable.
- b. (80%) *Content*- sketch includes required information (1 to 8 and A to C in above lists)
 - each caption includes identification, process, prediction, and interactions
 - captions are factually correct
 - each caption includes a label indicating which question it is answering

Geomorphology FINAL Project

What to include

The sketch that you and your partner submit together should identify and include information about the following concepts, actions, and landforms in ADDITION TO THOSE LISTED FOR THE MID-TERM. Please review the attached sheet about concept sketches and make sure that your captions include all four levels of thinking (identification, process, prediction, and interactions). By including all of these levels, you will have gone beyond locating the feature and will have demonstrated that you understand how it formed and its interactions with other landscape elements. Each one of these five locations should be captioned and connected to the sketch with an arrow. EACH NUMBER and LETTER below SHOULD HAVE A LABEL OR TITLE.

9. A location where overland flow dominates.
10. A location where evapotranspiration greatly influences the hydrologic cycle.
11. A location where root strength greatly influences slope stability.
12. A location where soil creep is likely to occur.
13. A location where hillslopes have responded significantly to the most recent base-level fall.

In addition, your concept sketch should include at least several embedded smaller sketches. Each of these smaller sketches should be labeled with concise but informative explanations and each should include all four levels of thinking (identification, process, prediction, and interactions).

- D. A hillslope profile between D and D'. On this profile, identify where diffusive processes dominate and where adjective process dominate.
- E. Consider infiltration rate at sites E-1, E-2, and E-3. For each site, draw a plot of infiltration over time for a heavy thunderstorm occurring after a long dry spell.
- F. At site F, diagram the flow of water in a rainstorm in and on the slope and adjacent terrace tread considering at least 4 flowpaths as well as losses and gains of water from the site.
- G. At site G, the sandy-silt is marginally stable and could suffer a shallow planar failure if the right set of conditions occurred. Show a force balance diagram for this site and indicate under what specific set of circumstances a landslide is most likely to occur.

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- b. (80%) *Content*- sketch includes required information (9 to 13 and D to G in above lists)
 - each caption includes identification, process, prediction, and interactions
 - captions are factually correct
 - each caption includes a label indicating which question it is answering

Concept Sketches –Creating the Best Sketch

Concept sketches are an annotated diagram that describes a system and how it works. Concept sketches deal with spatial and temporal information in a variety of ways that not only identifies landforms and features but explains processes and makes predictions while identifying inter-relationships between labeled objects and places.

The best concept sketches will have the following characteristics.

1. The best sketches will be neat, with clear diagrams and readable, concise captions.
2. The best sketches will have concise captions rather than extended transcriptions of field notes. Every caption should include four specific levels of thinking.
 - a. The caption should identify geomorphic feature in concise terms.
 - b. The caption should explain the relevant processes and/or history.
 - c. The caption should make predictions about the future evolution of the feature.
 - d. The caption should identify inter-relationships and linkages with other features.
3. The best sketches will avoid numerical keying of observations and instead use arrows and balloons to link ideas to locations on the sketch.
4. The best sketches will be attractive, well organized, and easy to read and understand. Some will include small sketches within the overall sketch to illustrate detailed morphology or processes. Others may include the use of color if it clarifies concepts. Captions may be handwritten or typed but must be readable.