

The Violent Earth Final Exam Study Guide

Material for the exam will be drawn from the lectures, in-class exercises, and required reading. Although the bulk of the questions will deal with material covered since the midterm exam, the final will be comprehensive. The following is a short list of some of the more important topics we covered since the second midterm. This should serve only as a rough guide and is not meant to be complete. Just because material is not on this list DOES NOT mean it won't be on the final.

The exam will be composed of roughly 3/4 multiple choice, matching, and true false questions, and 1/4 short answer questions. As a note, if a question asks you to “discuss” or “evaluate” an issue, then I am expecting more than a few words or a phrase for the answer and not a list of terms/ideas.

When reviewing, consider the following (in no particular order):

- 1) Review the midterm exam. If you answered any questions incorrectly, make sure you know the correct answer and that you now understand the question and why the correct answer is correct. Refer to the exam key too — if you got full credit for an answer on the exam, it doesn't mean the answer was necessarily 100% complete or 100% correct...
- 2) Review your in-class exercises and the on-line keys to those exercises. Make sure you understand what you did incorrectly and what the correct response is.
- 3) Review lecture slides and reading material to refresh your memory and clear up any confusion about incorrect answers on exams and in-class exercises.
- 4) See the list of terms and topics from the lectures after the midterm on the back of this page.
- 5) All the lectures, in-class exercises, links to relevant web sites, midterm review sheets, and most keys are posted on the course web site now. Keys to exercises turned in today will be posted online later this morning.

Have questions about the final ready on Thursday and before the final exam. I will be happy to answer any questions before the test begins. Feel free to also e-mail short or simple questions to me at leech@sfsu.edu (I probably won't answer complicated questions via e-mail but will address any of those issues in class).

Good luck!

Water and Floods

- What are drainages and drainage basins?
- How do flash floods and regional floods differ?
- What are the primary characteristics of flash floods? Where do they occur? What are some of the more common ways people die from flash floods?
- What are the primary characteristics of regional floods? Where do they occur?
- Are flash or regional floods more dangerous? Which causes more damage (monetary damage)? Which causes more deaths?
- What kind of flood hit SFSU in February? What was special about the rainfall in San Francisco that led to that flood?
- What is a floodplain? What are 100-, 1,000-, and 10,000-year floods? What are their associated annual probabilities?
- What are aquifers and aquicludes? Does groundwater flow? What are some of hazards associated with heavy pumping of groundwater?
- What are some of the characteristics of a river that will change in order to maintain the equilibrium we discussed in class? In particular, review discharge, load, gradient, and channel pattern.
- What are some of the ways people try to engineer rivers to avoid floods? Think about dams and levees specifically.
- What effect does urbanization have on flooding?

Mass Movements

- What is the angle of repose?
- What is creep? What causes creep? (Think about expansion and contraction of the land)
- How is creep different from slope failure?
- What are three external causes of slope failure? What are 4 internal causes to slope failure?
- Water is an important factor in determining if a slope will fail, be prepared to discuss some of the ways that water affects slope stability.
- How are slides, flows, falls, and subsidence differentiated? Think wet vs. dry materials, speed of a flow, etc.
- Translational and rotational slides?
- What is a debris flow? How fast do they move and what do they contain? How are debris flows different than volcanic mud flows/lahars?