

GG103 F 2014 things to know for the final. Note, these are not the exact wording of final questions, but if you can answer these, you'll have no trouble with the final. These will be updated after each class meeting, and posted at:

http://www.soest.hawaii.edu/GG/FACULTY/ROWLAND/GG103/study_guides/F14_final_rev.pdf

THE FINAL REVIEW SESSION WILL BE FRIDAY, DEC. 12, AT 1:30, LIKELY IN OUR REGULAR CLASSROOM

THE FINAL ITSELF IS TUESDAY OF FINALS WEEK (12/16) FROM 9:45-11:45 am.

1. What is the evidence for giant avalanches off Hawaiian volcanoes?
2. What is the evidence that the giant avalanches were catastrophic?
3. What is the difference between a giant avalanche and a giant slump? What are Hawaiian examples of each?
4. What are the arguments for and against the boulder deposit on the S. flank of Lānaʻi being derived by a giant tsunami?
5. Why would a tsunami from a Hawaiian volcano collapse probably not be devastating to the entire Pacific rim?
6. How would a tsunami from a Hawaiian volcano collapse be different from one generated at a subduction zone?
7. How does a gravity survey help find the location of an old volcano center (~magma chamber and/or caldera)?
8. What is the general structure (caldera, rift zones, flanks) of Koʻolau, and what is the geologic evidence?
9. What is the general structure (caldera, rift zones, flanks) of Waiʻanae, and what is the geologic evidence?
10. What is the significance of the Kolekole volcanics in Kolekole pass?
11. What is the general geological history of Koʻolau?
12. What is the general geological history of Waiʻanae?
13. How do we know that the Kolekole volcanics are post-erosional but not rejuvenation?
14. How do we know that the Nuʻuanu pali is not the scar of the giant Nuʻuanu avalanche?
15. What are some of the things you look for to identify rejuvenation-stage volcanism on Koʻolau?
16. How does the distribution of ages of Honolulu volcanic series vents enter into the explanation for why rejuvenation volcanism occurs?
17. What does a gravity survey tell you about the rocks underground?
18. How are gravity surveys typically interpreted with respect to understanding the structure of Hawaiian volcanoes?
19. How have gravity surveys helped us to understand the structure of Waiʻanae, Koʻolau, and Kauaʻi volcanoes?
20. What is the general structure of Kauaʻi?
21. What are some of the puzzling features of Kauaʻi's geology that the old geologic story doesn't do a good job of explaining?
22. What is the new story of Kauaʻi's geology, and how does it explain those puzzling features?

23. What are the old and new explanations for the following features on Kauaʻi: Waimea Canyon, Olokele plateau, Līhuʻe Basin. Be able to identify these and other large-scale structural features of Kauaʻi on a map or image.
24. How did the plain at Mānā form, and why is there a cliff inland of it?
25. What is evidence for sea level once being higher than it is today?
26. What is evidence for sea level once being lower than it is today?
27. How do waves behave as they move into shallower water?
28. How does sediment behave along natural shorelines?
29. How do people mess up the behavior of sediment along shorelines?
30. What are porosity and permeability?
31. How are porosity and permeability related? not related?
32. What is a water table?
33. What is the basal groundwater lens? (also called the Ghyben-Hertzberg lens)
34. What is dike-impounded water?
35. Why is dike-impounded water significant/important?
36. What is “caprock”? (what is it and why is it important)
37. What is an artesian well?
38. What are some reasons why some water wells in Hawaiʻi have had to be shut down?
39. Why are all these features important for our modern life on Oʻahu?
40. What processes have produced shelves offshore of Hawaiian volcanoes?
41. How are the shelves related to reefs, subsidence, and changes in sea level?
42. What is the difference between relative sea-level change and absolute sea-level change?
43. How do sea-walls affect coastlines, and why do people build them?
44. How have gravity surveys helped us to understand the structure of Niʻihau volcano?
45. What is the general structure of Niʻihau? (what parts of the island are the old shield, what parts are rejuvenation, etc.)
46. What are the origins of the pali on the E. side of Niʻihau? W. side?
47. How do we know that Kaʻula is a separate Hawaiian volcano rather than just a part of Niʻihau?
48. Why did Hawaiians back in the day venture all the way out to Kaʻula?
49. What are the general structures/shapes/etc. of Kaʻula, Nihoa, and Mokumanamana?
50. What is the explanation for the large area of shallow water that surrounds Kaʻula, Nihoa, and Mokumanamana?
51. How might we go about determining the original structures of what are now only remnants of Kaʻula, Nihoa, and Mokumanamana volcanoes?
52. What is an atoll, and how do they form?
53. What is the general structure of a Hawaiian atoll, for example Moku Pāpapa (French Frigate Shoals)? What is the rocky islet (pinnacle) in the middle of the lagoon? How do the islands around the periphery form?
54. Why are there no more basalt pinnacles past Pūhāhonu (Gardner pinnacles)?
55. Why are there no more atolls or islands past Kānemilohaʻi (Kure)?