

GG 214 FIELD GEOLOGY OF KAUAI AND NI'IIHAU

SPRING, 2015

FIELDTRIP DATES: MARCH 21 - 25, 2015

Dr. Floyd W. McCoy

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* a message is recorded here with current information concerning this field course

GUEST SCIENTISTS:

Dr. Gary Stice Professor Emeritus (Geology & Oceanography), UH-WCC
Dr. Chuck Blay Geologist; Director TEOK, Poipu, Kauai
Dr. David Burney Zoologist & Co-Director, Makauwahi Archaeological Excavation; Director Conservation, National Tropical Botanical Garden, Kalaheo, Kauai
Dr. Lida Pigott Burney Palynologist & Co-Director, Makauwahi Archaeological Excavation
Dr. Andrew Greene Assistant Professor, Environmental Science, Hawaii Pacific University

GOALS: To study the geology of the islands of Kauai and Ni'ihau by exploration and on-site observations during a supervised and guided field course, with focus on perception and appreciation of formative processes in island and landscape evolution, on the scientific method, on the interaction of the earth sciences with cultural history and practices.

OBJECTIVES: To spend 5 days on Kauai to study the geologic structure and history of this island and Ni'ihau observing landscapes and outcrops in the field that portray (1) construction of the volcanic shields of both islands (shield-building, pre-caldera and post-caldera stages), (2) post-erosional (rejuvenated) volcanics on Kauai, (3) post shield-building processes of erosion and deposition, and (4) the effects of catastrophic geological processes - landslides, hurricanes, tsunami - in shaping the landscape. Discussion will focus on how natural history has shaped, and continues to interface with, both the environment and man's tenure, ancient and modern, on this landscape. These objectives will be accomplished via visits to areas of geologic interest; dialogue in the field will expand upon lectures in GG 101 or 103 with special emphasis on current research and new information from this research. Participation by visiting geologists, geophysicists, hydrologists and archaeologists will contribute to the discussion. A trip to Ni'ihau cannot be done, thus we observe and discuss the geology of this island from Kauai.

Each field course involves one or more field exercises concerned with observations, measurements, and the interpretation of one or more geologic features on the island. This exercise may involve a short hike to the geologic exposure, working in difficult or wet terrain, brush clearing, and dusty/dirty/muddy surroundings at the exposure; additional laboratory work may be required at WCC. A course report will be required, deadline for submittal is the last day of classes - there can be no exceptions. Complete information concerning field and laboratory work, including report format, will be issued while on Kauai; all field equipment and supplies necessary for this task will also be provided. Field sites this year are at two locations where sedimentary deposits are reputed to have been left by tsunamis on Kauai, one at the Haena Dry Cave (Maniuholo) from the 1946 inundation, and the other from a prehistoric wave that washed into Makauwahi sinkhole near Poipu that was uncovered during archaeological excavations there.

PREREQUISITES: Completion or concurrent registration in GG 101 or GG 103; no recommended special preparation; basic reading and outdoor skills are required, the latter including a capability to traverse irregular terrain.

REQ. COURSE SATISFIES AT UH: Partially satisfies natural science requirement for Associate in Arts degree in the community college system and for the Bachelor of Arts or Bachelor of Science degree at the university.

CONSULTATION HOURS: WCC (live contact): office hours - Mon. & Tues., 2:00 - 4:30pm; Thurs. 2:00 - 3:30pm, or by appointment

WCC (remote contact): via e-mail, Lailima, or by appointment; voice message at 236-9115.

TEXTBOOK: ♦ Blay and Siemers; Kauai's Geologic History: A simplified Guide, TEOK.

Please note - this book remains the basic source of information concerning the geology of Hawaii but is considerably out-of-date:

♦ Macdonald, Abbott and Peterson; *Volcanoes in the Sea, The Geology of Hawaii*; Univ. Hawaii Press, 1983 (2nd edition)*, *or*

♦ Macdonald and Abbott; *Volcanoes in the Sea, The Geology of Hawaii*; Univ. Hawaii Press, 1970 (1st edition)

WAIVER AND MEDICAL FORMS: These are required, and must be submitted to Dr. McCoy before the field trip – you may not participate on the trip unless all forms are submitted. Do not submit forms to the WCC Business Office. Forms may be obtained from Dr. McCoy (HI 115). If you have already submitted these forms for another outer-island geology field course, there is no need to submit new forms - those on file will suffice.

FIELD CONDITIONS: Sunny and warm (hopefully); expect rain and cool weather in the mountains at Koke'e; most field sites are only a short hike from the vans/cars; all field excursions are during daylight; proper shoes (canvas, jogging, Tivas, etc.) are needed if you plan to do the short hike to the Kalalau valley overlook and Pihea Peak, or into the sinkhole archaeological site; swimming at Polihale may be an option if there is time. All field sites are visited regardless of weather conditions, thus raingear is advisable. Expect dusty/dirty/muddy conditions at the archaeological site within the sinkhole – access to this site is through a small cave that requires crawling for about two meters. The road to Kipu Kai (if we go there) is difficult, steep, narrow, and tricky, and there are very limited facilities here.

LOGISTICS: *Lodging and food:* this is your responsibility. The class will assemble every morning for a lecture prior to field work, at the hotel where Dr. McCoy will be staying (announced later). Lunch will be in the field, purchased at a store that morning, or at a local restaurant – see the itinerary for details. Breakfast and dinner are your choice.

Transportation: to and from Kauai is your responsibility. On Kauai, during field course activities, all students registered in the course must ride in rented vans. We share in the costs of these rented vans, including gasoline, which is incorporated into the amount of the laboratory fee noted below.

Expenses and travel arrangements: students are responsible for all expenses - air transportation, ground transportation, lodging and food; estimated total costs (for everything, course fee, airfare, rental vans, lodging, food) might be on the order of \$400 depending, of course, on where you stay, your appetite and other extracurricular activities; you are responsible for making your own air travel arrangements and paying for them.

LABORATORY FEE: A fee covers those expenses engendered by the Univ. of Hawaii in organizing and conducting this field laboratory – details and descriptions on these expenses are noted above under **LOGISTICS**.

ADDITIONAL NOTES AND CONSTRAINTS: This is a University of Hawaii accredited course, thus no liquor or drugs are allowed during official activities. You must participate on all days, at all field stops, complete and submit all field exercises/reports for credit.

Rented vans are driven by drivers assigned and employed by the University of Hawaii; no others may drive these vans.

Spouses and children may come along, but realize their interests may not match yours (i.e., they'll want to go home early), and your full participation (i.e., every field stop) is required for credit. Spouses and children may not ride in the vans unless they are enrolled in the course; they are not encouraged to be at sites where field exercises and study are being conducted, nor is UH responsible for their safety at these sites.

This is a one (1) credit course. No special preparation is required. Recommended basic skill-levels are college level reading capability. At WCC, this course partially satisfies AA degree requirements and counts as a laboratory course in physical science. At UH, this course partially satisfies the requirement in the General Education Core, as well as in the College of Arts and Sciences.

Portions of the trip involve hiking, sometimes over difficult terrain, as well as other strenuous activity, that can be physically demanding in dangerous settings. Be aware that your participation requires appropriate physical prowess, clothing and conditioning.

Safety concerns are paramount, and will be discussed at each morning lecture prior to departing. Personal problems, family visits, and such, must be handled in the evening - it is important to follow the schedule and itinerary.

GRADING SCHEME A course grade will be determined by participation, by field/laboratory reports(s), and through successful completion of a written final examination following the field course. Grades assigned with: **A** = 90-100 points, **B** = 80-89 points, **C** = 70-79 points, **D** = 60-69 points; less than 60 points = fail (**F**). Under special conditions, with consent of the instructor, a grade for no credit (**N**) could be given. An incomplete (**I**) grade may be given by request, but must be satisfied by submittal of the field/laboratory report writing before the posted deadline during the following semester. Extra/special credit is not routinely awarded.

MEET AT DR. MCCOY'S HOTEL (TBA) 0930 MARCH 21, 2014

A DETAILED ITINERARY WILL BE PROVIDED LATER.