

GG 210 O'AHU FIELD GEOLOGY

1 Credit

Wednesday, 1430-1730

INSTRUCTOR: Prof. Floyd W. McCoy
OFFICE: Hale Imiloa 115
OFFICE HOURS: Mon. 2:00 – 4:00; Tues. 4:00 – 5:30; Tues.-Th. 10:00-11:30
TELEPHONE/E-MAIL: 236-9115/fmccoy@hawaii.edu
EFFECTIVE DATE: Fall, 2015

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

CATALOG DESCRIPTION

Fifteen half-day field trip and laboratory sessions relating to the geology of O'ahu.

Activities Required at Scheduled Times Other Than Class Times

Completion of laboratory and/or field reports, and the practicum, may require repeat visits to the laboratory and field sites. Especially significant or unusual events related to this course that do not occur during class time may require alterations to the class schedule to incorporate these events, and result in a regularly-scheduled exercise to be either cancelled or re-scheduled.

STUDENT LEARNING OUTCOMES

The student learning outcomes for the course are:

- Understand through field observation, with field and laboratory exercises, geological processes that construct, modify, and destroy the Hawaiian landscape.
- Realize the hazards, mitigation of these hazards and benefits of Hawaiian volcanism, and its relationship to island culture(s).
- Appreciate current research and studies of Hawaiian volcanism through visits to appropriate museums and research laboratories.
- Understand the vastness of geological time applied to Hawaii, and how time is measured thus the time-scale known.

COURSE CONTENT

Concepts or Topics

- Identification of common rocks and minerals with focus on those found in Hawaii.
- Recognition in the field of the common rock and sediment types found in Hawaii, with an understanding of their origin.
- Recognition in the field of landscape features, with an understanding of their origin.
- Geologic time.
- Stratigraphic relationships.
- Interpretation of geological features in terms of their origin and preservation.
- Application of concepts noted above to the geologic history of O'ahu.
- Use of various types of instruments in the field for mapping and acquiring information on geological structures.

Skills or Competencies

1. Understand the scientific method, and how it is used and applied.
2. Observe and interpret geologic and landscape features.
3. Apply descriptive and interpretive observations into a coherent and understandable report.
4. Appreciate geologic time, and its recognition in Hawaii's geology.
5. Appreciate the geologic past with the capability to predict a geologic future.

COURSE TASKS, ASSESSMENT AND GRADING

- Examinations:** No examinations will be given. One practicum may be given either at a field site, or in the laboratory, at the end of the course, usually during the last scheduled field trip. This practicum may revisit a field site requiring a summary report of a page or two concerning the geology and geologic history, with sketches and maps where appropriate. The practicum might, instead, involve laboratory work.
- Grading Scheme:** Participation during 13 class sessions is required. At 3 points/class for attendance and 5 points for the subsequent report, this = 80 points. The final practicum = 20 points. Total possible points = 100. An alphabetic grade will then be assigned with:
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|---------------------|---|
| A = 100 - 90 points | D = 69 - 60 points |
| B = 89 - 80 points | F < 59 points |
| C = 79 - 70 points | C/NC = credit/no credit for those so registered |
- N = course not completed due to unforeseen difficulties, this grade rarely given
 I = incomplete; assigned only after discussion with instructor; must be changed to an A - D letter grade the following semester, or the I becomes a permanent F grade (unless otherwise noted by the instructor).
- Extra/Special Credit:** Various meetings, symposia and exhibits can be used in lieu of scheduled field trips and laboratory sessions. These may be mentioned in class, but please see the instructor before assuming some activity may count for extra/special credit.

LEARNING RESOURCES

- Textbooks (optional):** 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)

- Ancillary Reading and Events:** Supplementary, non-required reading is in libraries at all campuses, both on reserve and on open shelves; you are encouraged to peruse this literature; numerous seminars, talks, symposia and exhibits occur throughout the university system and at various museums, you are particularly encouraged and welcomed to these; announcements made in class, posted on the Marine Option Program bulletin board in Hale 'Imiloa at WCC, or listed on the website; posters depicting various aspects of geology and field trips are on bulletin boards in the Hale 'Imiloa foyer.

Especially encouraged is the SOEST Open House at UHM, Friday & Saturday, October 21 & 22.

Additional Information

- Logistics:** Class time 1430 - 1730 Wednesday afternoon; one or two meetings may be on a Friday afternoon or Saturday morning; for field trips, every effort will be made to finish by 1730, but there may be occasions when remoteness of field areas or traffic prevents finishing on time (also consider additional time needed for driving home after field trips).
- Meeting Time & Place:** 1430 in Hale 'Imiloa building at WCC, room 113; you may also meet us at a field site but be sure you know the location for rendezvous, that you have any appropriate passes/permissions for entry, and that there have been no last-minute changes.
- Transportation to Field Sites:** Via personal vehicle or car-pool.
- Field Conditions:** Field sites are all accessible by good roads and car; all hikes are over somewhat smooth ground and good trails; be prepared for hot sun and little shade; no sites are accessible for the handicapped; all sites may be considered dangerous in that they are adjacent to cliffs, coastlines, etc., and caution is required.
- Weather Problems:** Field trips may be rescheduled or cancelled due to severe weather (heavy rain island-wide, strong winds, high surf, etc.), to problems related to site access, or to scheduling problems by visiting scientists.
note: check the recorded message at 236-9115 each week for updates.

Reports:

for field trips - a written report must be submitted after each field trip, of at least one page in length, that summarizes briefly, succinctly and thoroughly, the purpose and observations made during the trip; please follow this format: (1) a statement identifying the problem(s) being observed; (2) hypotheses on how this has come to be in terms of earth processes, including the factor of geologic time; (3) our observations, including a presentation of data collected to interpret these observations (if data are collected); (4) results and conclusions, with discussion. Sketches and/or maps are encouraged. Submission deadline is the week following the field trip; for each week the report is late, there will be a decrease of one alphabetic grade unit; reports may be submitted at the next class meeting, at Hale 'Imiloa, room 115, or via e-mail.

for laboratory meetings – exercises will be done in class and submitted at the end of the class meeting.

Other Field Trips:

Not required but highly recommended, all have the same prerequisites as this (GG 210) field course; each requires registration at WCC; 1 credit awarded for each course; to obtain credit, you must participate on all four days of the trip (five days for GG 213) and pass either a written final examination at WCC or an examination administered on the internet; complete course descriptions are given in the WCC catalog, on the WCC website; titles in bold letters below are courses offered this semester.

GG 211 - Big Island Field Geology: fall semester; four days during either Veteran's Day week-end or Thanksgiving Day week-end; involves short hikes and one difficult hike onto lava flows, with one day on the summit of Mauna Kea (a harsh, cold, high-altitude environment).

GG 212 - Maui Field Geology: spring semester, 2013; during first four days of spring recess; involves a difficult one-day hike into Haleakala.

GG 213 – Molokai, Lanai and Kahoolawe Field Geology: spring semester, 2014; during first five days of spring recess; involves hiking to Kalaupapa and possibly one night there in rustic accommodations, a one day hike around the Kalaupapa peninsula, and four-wheel driving over rough roads on Lanai.

GG 214 - Kauai and Ni'ihau Field Geology: spring semester, 2015; first four days of spring recess involves short easy hikes.

A tentative schedule of field and laboratory meetings will be distributed at the first class meeting.

