APPLICANT: Richard Brill

E-MAIL: brill@hawaii.edu

COURSE ALPHA and NUMBER: GG101L

COURSE TITLE: Introduction to Geology & Geophysics

ESTIMATED NUMBER OF SECTIONS:
- Fall: 1
- Spring: 1

APPLICATION IS FOR:
- ☐ New Course
- ☐ Modified Course
- x Existing Course
- ☐ Re-designation
- ☐ Certification
- ☐ Re-Certification. Date of last certification:

DIVERSIFICATION AREA DESIGNATION SOUGHT:
- ☐ DA (Arts)
- ☐ DB (Biological Sciences)
- ☐ DH (Humanities)
- ☐ DL (Literature and Language)
- ☐ DP (Physical Sciences)
- ☐ DS (Social Sciences)
- x DY (Laboratory)

What percentage of the CONTENT of this course focuses on this diversification area? 100

What percentage of CLASS MEETINGS focuses on this diversification area? 100
1. Hallmarks and SLOs. Please explain how course-specific SLOs align with the diversification area's hallmarks.

For ease of comparison the SLOs will be referred to by number in the explanations below. The SLOs as listed in the syllabus are as follows:

1. Analyze the physical properties of minerals and rocks
2. Distinguish between and identify the mineral species and the rock types.
3. Interpret topographic maps to:
   • identify topographic features
   • identify and interpret geologic structures and hazards
   • understand surface water dynamics
   • identify surface water supplies
   • evaluate the subsurface condition that are favorable for the occurrence of groundwater and hydrocarbon resources
4. Judge the impact of human activity on our planet and make intelligent decisions that balance human need against the need for a healthy environment.

A list of course topics is at the end of the syllabus. The topics focus specifically and 100% towards the SLOs.

DY.1 uses the laboratory methods of the biological or physical sciences:

SLOs numbered 1 through 3 specifically employ the laboratory methods of geology, the mechanics of which differ from those of other physical sciences such as chemistry and physics.

DY.2 involves processes and issues of design, testing, and measurement:

SLOs numbered 1 through 3 deal employ testing and measurement. Geology laboratory methods rely on previous designs of experiments and methods.

DY.3 demonstrates the strengths and limitations of the scientific method:

All SLOs are directed to these strengths and limitations by the nature of the investigations, all of which show that there is not a great deal of precision in geological methods at this fundamental level. The lack of precision demonstrates the limitations of the scientific method, while the systematic and stepwise problem solving demonstrates the strengths. Emphasis is provided to students that higher order investigations are necessary for reasonable certainty of analyses.

2. Assessment strategies. Explain assessment strategies you have used (or plan to use) to measure the degree to which students exit the course with the course-specific SLOs. If there are multiple sections of the course taught by different instructors, please discuss how assessment is (or will be) carried out across instructors.

Quizzes on a lab manual publisher's Moodle website that are specifically matched to the SLOs in each laboratory inquiry account for 50% of assessment. Students are presented with randomly chosen questions from each lesson on any given quiz. Answers are sorted randomly as well. It is assured that no two students receive exactly the same set of questions. The quizzes are directed specifically at the lab exercises in the manual and online.

An "Earthwatch Log" that is a periodic journal of geological activity culled from various news sources online
or in print accounts for 10% of the assessment. This addresses SLO 4, but to a lesser extent the other SLOs as well, depending on the students selection of new items. The assessment is based subjectively on the periodicity of the entries, a diversity of sources, and content.

An end of the term a short report on a virtual field trip to a geological web site of their choosing accounts for 15% of the assessment. A list is provided but a student may choose his/her own with prior instructor approval. The assessment is based on the choice of site (relevancy to SLOs), the extent of the observations and how well the report demonstrates the student's learning in accordance with the SLOs.

A comprehensive end-of-semester objective exam that requires students to demonstrate competency in each of the semester's lessons accounts for 25% of the assessment. Exam questions are tuned specifically to the semester's lab exercises and therefore covers the range of the SLOs.

3. **Assessment of assessment.** How have you used (or plan to use) the assessment findings to modify or improve this course? If there are multiple sections of the course taught by different instructors, please discuss how review of assessment results is (or will be) carried out across instructors.

The current Moodle site questions have all been tested by the publisher and are periodically reviewed, modified and changed as necessary each semester. Instructor input to the publisher helps to questions. At the end of the semester each quiz is analyzed item by item by the instructor. The Moodle site allows the instructor to modify existing questions and add additional ones. Analyzing the questions missed on the quizzes helps the instructor to plan and refine interactions with next term's students.

The earthwatch logs are reviewed each semester in order for the instructor to ascertain whether the students are focusing their attention on relevant topics and to determine if the topics change throughout the semester as students become more acquainted with geological topics and methods.

Each semester the virtual field trip reports are scrutinized for clues as to what steps may be taken by the instructor to help the students focus on the SLOs. Since the online labs are self-directed and self-paced the instructor's interaction with students during the term is of extreme importance. Analysis of these reports, as with the Moodle quizzes, helps the instructor to better know what kinds of problems to expect and helps with next term's interactions.

The same can be said for the exam. The difference is that these questions are written by the instructor so that modifications are more quickly and easily done before the end of subsequent terms.
DIVERSIFICATION BOARD DECISION:

☑ Approved
Re-Certification Due: **Fall 2017**

☐ Not approved
If not approved, reasons for disapproval:

Diversification Board Chair Signature: [Signature]
Date: 10/28/12
Instructor: Richard Brill

Course Web Page: http://www2.honolulu.hawaii.edu/instruct/natsci/geology/brill2/

Prerequisite/Corequisite: GG 101, GG 103 or equivalent

Student Learning Outcomes

Upon completion of the course students will be able to:

1. Analyze the physical properties of minerals and rocks

2. Distinguish between and identify the mineral species and the rock types.

3. Interpret topographic maps to:
   - identify topographic features
   - identify and interpret geologic structures and hazards
   - understand surface water dynamics
   - identify surface water supplies
   - evaluate the subsurface condition that are favorable for the occurrence of groundwater and hydrocarbon resources

4. Judge the impact of human activity on our planet and make intelligent decisions that balance human need against the need for a healthy environment.

Specific objectives for each laboratory lesson are stated at the beginning of each lesson in the laboratory manual.

Catalog Description

The study of rocks and minerals, topographic and geologic maps and cross-sections.
Course Description

GG 101L is a general geology laboratory course which fulfills a natural science core requirement in the physical sciences area. It is designed to give a hands-on experience in the materials and methods of geology.

Successful completion of this course satisfies the physical science laboratory (DY) requirement for Honolulu Community College's General Education Core.

Text Materials

The text for this lab course is the "Lab Kit For Earth Revealed", (ISBN 0757504795) published by Kendall-Hunt (www.kendallhunt.com). It is available at the HCC bookstore and can be ordered online from the bookstore website (http://www.bookstore.hawaii.edu/hcc/). Follow the links to GG 101L. Be sure that you order the text for the online lab section.

The kit includes

- laboratory manual
- topographic map
- rock and mineral set
- identification tools
- video field trips

You will need to use additional supplies. These can be purchased inexpensively anywhere that sells school supplies:

- Ruler
- Drawing compass
- Protractor
- Calculator

Grading/Evaluation

<table>
<thead>
<tr>
<th>Activity</th>
<th>%</th>
<th>N</th>
<th>Pts @</th>
<th>Pts Tot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lessons</td>
<td>50%</td>
<td>10</td>
<td>25</td>
<td>250</td>
</tr>
</tbody>
</table>
Grades will be determined on points earned based on percentage as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>%</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>&lt; 40</td>
<td>0 - 199</td>
</tr>
<tr>
<td>D</td>
<td>40 - 55</td>
<td>200 - 274</td>
</tr>
<tr>
<td>C</td>
<td>55 - 70</td>
<td>275 - 349</td>
</tr>
<tr>
<td>B</td>
<td>70 - 85</td>
<td>350 - 424</td>
</tr>
<tr>
<td>A</td>
<td>85 - 100</td>
<td>425 - 500</td>
</tr>
</tbody>
</table>

Schedule

Lesson quizzes are due at intervals that depend on the length of the course, ten days for fall and spring semester, three days for summer sessions. See schedule for due dates, lessons for resources for specific exercises, quiz page for links to quiz answer forms.

The lab exercises are designed to be completed as they would in the classroom laboratory.

Students should expect to spend a minimum of three hours to complete each exercise, just as in the classroom. In reality the exercise may take more time because you will be working on your own. Don't forget that an on-campus course would require additional time to drive to and from campus and find parking.
Method of Instruction

It is important to understand that although this is an introductory class, it is still college physical science and therefore by definition it is more rigorous than classes you may have taken in the past.

It is rare that a student relates to all of the material that is covered in even an introductory geology lab. Geology spans a much wider range of skills than most people realize, and you will be exposed to them at a fundamental level. Even so you may find some of the work difficult or even incomprehensible. Even students in the classroom have difficulty with many of the concepts and procedures, so do not feel that you are a 'failure' if you do not grasp everything.

Instruction is self-directed through the lab manual exercises. Additional resources are available online (see 'lessons'). The internet contains many useful tools for understanding the material covered in the lesson.

Lessons

The Virtual Field Trips in the lab manual are optional, but they may be used for the required VFT that is due at the end of the semester. See below for details.

You will have to read each paragraph carefully and refer to illustrations and diagrams. It will not be like the reading that you may be accustomed to. You may have to read the material several times and return to the illustrations again and again.

Exercises such as these require discipline and concentration. The lab manual does not explain the material in great detail, so you will need to our online resources. The geology textbook used in the pre/corequisite course will be helpful with many of the concepts.

Use a search engine such as Google to search for a particular topic online. Using an internet search engine is an acquired skill and may take some time to find useful information. The instructor can get you started, but you have to ask for help.

Students may confer with one another and with the instructor about the concepts of the lessons. Every student is encouraged to ask questions about the lessons via email. It is an important part of learning to ask questions, and it may be difficult to become accustomed to communicating at the necessary level via email.

All graded material must be done individually, including lesson quizzes. It is prohibited to get help from another person with any question on the quiz or final exam. See 'dishonesty' section below for more information.
Each lab exercise is evaluated by means of a twenty-five question quiz that is at the end of the lessons in the lab manual [see 'texts' section below].

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Earthwatch Log (EW)

Each student will keep an 'earthwatch' log to be submited in the form a description of 10 geological events that took place somewhere on Earth during the semester.

The information for each event will be kept and submitted as a single document at the end of the semester by the date shown in the online schedule.

Information about the event can be obtained from news sources or online. These may be any geological event including but not limited to earthquakes, landslides, floods, volcanic eruptions, tsunami.

The Sunday "Honolulu Advertiser" has an 'earthwatch' section each week that tracks some of these events. The log does not have to be elaborate, but merely enough to demonstrate that you are looking for geology in the 'real' world. It should describe the event, where and when it took place, and the impact on life, property, and the earth.

Each event needs to be in the range of 50 to 100 words. The events should not be "clustered" They should span the semester at approximately one week intervals.

Here is more information about the Earthwatch log.

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Virtual Field Trip (VFT)

A visit to an online geology site is required. (This is distinct from the self-guided field trip required in the accompanying geology course.)

The report should be in the neighborhood of 1000 words in format of the student's choosing.

One of the virtual field trips in the lab manual of the student's choosing, or another site if approved by the instructor beforehand, must be presented as a formal report. It must include a description of the site as if you had visited a place and were writing a report about the visit as well as any activities undertaken in completing the visit. The lessons web page has several alternative sites for the virtual field trip.

One and only one virtual field trip report is required. VFT quizzes from the lab manual are optional and will not be graded

Here is more information about the VFT.
Exam

There will be one exam at the end of the semester that assesses the outcomes of each of the ten lessons. Information will be sent at the end of the term on the date published on the schedule to all students who have completed a minimum of three lessons by the last date as published in the schedule.

Dishonesty: Plagiarism and Cheating

Every student in this class is required to certify that he/she has read, understands, and agrees to the University of Hawaii policy on academic dishonesty.

After reading the policy below copy the statement in the box, insert your name in the blank and send it to [mailto:ginger@hcc.hawaii.edu](mailto:ginger@hcc.hawaii.edu).

I __________________________ have read, understand, and agree to the conditions stated in the section of the University of Hawaii student conduct code pertaining to cheating and plagiarism.

Copy the above statement into an email with your name in the blank and send it to XXXXXXXXXX@hcc.hawaii.edu

Plagiarism is representing someone else's ideas or work as you own ideas or work. To avoid plagiarism when using someone else's data, arguments, designs, words, ideas, projects, etc., you must make it clear that the work originated with someone else by citing the source.

In an academic setting, it is most important that you do your own work on all class assignments. This will allow you to gain the maximum benefit from your education experience. Therefore, the following policy, which represents the minimum penalty, will be used for students who are guilty of cheating or plagiarism.

A student found guilty of cheating on a quiz or exam will receive a zero for that quiz or exam. Similarly, a student found guilty of plagiarism will receive a zero on that paper or exam. If there are two or more identical papers, exams or quizzes and it is impossible to determine who actually did the work and who copied, then all students involved will receive a zero for that grade.

University of Hawaii student conduct code policy on dishonesty and plagiarism:
1. Cheating includes, but is not limited to, giving or receiving unauthorized assistance during an examination; obtaining or distributing unauthorized information about an examination before it is given; using inappropriate or unallowable sources of information during an examination; falsifying data in experiments and other research; altering the record of any grade; altering answers after an examination has been submitted; falsifying any official University record; or misrepresenting the facts in order to obtain exemptions from course requirements.

2. Plagiarism includes, but is not limited to, submitting, in fulfillment of an academic requirement, any document that has been copied in whole or in part from another individual's work without attributing that borrowed portion to the individual; neglecting to identify as a quotation another's idea and particular phrasing that was not assimilated into the student's language and style or paraphrasing a passage so that the reader is misled as to the source; submitting the same written or oral material in more than one course without obtaining authorization from the instructors involved; or dry labbing, which includes obtaining and using experimental data and laboratory write-ups from other sections of the course or from previous terms or fabricating data to fit the desired or expected results.

The entire code is available for download as a pdf file at http://honolulu.hawaii.edu/pdf/scc.pdf

If there is any part of this code that you do not understand please contact me immediately for further explanation.

As members of the University community we have an agreement to abide by this code. I will and I expect you to as well.

Students are encouraged to discuss topic, concepts, processes, and products among themselves and with the instructor. It is important that there be no discussion about specific questions on quizzes or on the exam.

**Topics**

The lab exercises will cover various topics of geology including topographic maps, geologic structures, earthquakes, minerals, igneous, sedimentary and metamorphic rocks, surface and groundwater, alternative energy, waste disposal and pollution.

Updated 081312
Topics
Topographic Maps
Plate Tectonics
Rock Deformation & Mountain Building
Earthquakes and Seismology
Minerals
Igneous Rocks & Volcanism
Weathering, Soils & Sedimentary Rocks
Metamorphism & Metamorphic Rocks
Geologic Time
Mass Wasting
Streams & Groundwater
Oceans & Coastlines
Glaciers
Economic Geology & Resources