GG200 Geologic Inquiry  

Spring 2015

  NOTE: This is a new edition. If obtaining this proves very difficult the 3rd edition  
  (2009) is an acceptable substitute.

Instructor: Greg Ravizza, POST 712, 956-2916, ravizza@hawaii.edu

Lecture: M W F 9:30 – 10:20  
  Lab: M 12:30 – 3:20 PM

Classroom for lecture and lab: POST 708

NOTE: On some days class meetings (lecture and lab) will take place in POST 733, the  
  GG computer room. This will be announced in advance of class meetings via Laulima.

Prerequisites: An introductory geology course (GG101 or comparable) and an  
  introductory geology lab (GG101L or comparable). The GG lab may be taken  
  concurrently, but this is not encouraged.

Course content and its relationship to student learning objectives (SLOs): Geologic  
  Inquiry (GG200) is a course designed for GG majors to build a strong foundation in  
  important geologic concepts, serving as a bridge between GG101 and upper division GG  
  course work. The course is open to non-majors who meet the prerequisites if space is  
  available. GG200 builds upon content introduced in GG101, such as the theory of plate  
  tectonics, geologic time, biogeochemical cycles and the fossil record. These concepts are  
  further developed in GG200 in the context of how geoscientists go about reconstructing  
  Earth’s history and understanding the processes responsible for changes in the Earth  
  system over time. In this course students will gain a better appreciation for the role of  
  geologic processes in maintaining conditions suitable for life on Earth and some of the  
  ways human activities are altering important natural processes (SLO 1). Students will be  
  introduced to making simple calculations in MS Excel and use these calculations to gain  
  an appreciation of how math, physics and chemistry can be applied to the study of the  
  Earth (SLO 2). Examples of how the scientific method is applied to testing hypotheses in  
  the geosciences will be presented (SLO 3). GG200 is taught as a writing intensive course  
  and students are required to develop their ability to express geologic information and  
  ideas in a written format (SLO 4).

Student Learning Objectives (SLOs) associated with the BA and BS degrees in  
  Geology & Geophysics.

1. Students can explain the relevance of geology and geophysics to human needs,  
   including those appropriate to Hawaii, and be able to discuss issues related to geology  
   and its impact on society and planet Earth.

2. Students can apply technical knowledge of relevant computer applications, laboratory  
   methods, field methods, and the supporting disciplines (math, physics, chemistry,  
   biology) to solve real-world problems in geology and geophysics.

3. Students use the scientific method to define, critically analyze, and solve a problem in  
   earth science.
4. Students can reconstruct, clearly and ethically, geological knowledge in both oral presentations and written reports.

5. Students can evaluate, interpret, and summarize the basic principles of geology and geophysics, including the fundamental tenets of the sub-disciplines, and their context in relationship to other core sciences, to explain complex phenomena in geology and geophysics.

**Tentative weekly schedule of lecture topics**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review: History of Geology &amp; Earth Structure</td>
<td>Chapters 1 &amp; 2</td>
</tr>
<tr>
<td>2</td>
<td>Review of Plate Tectonics &amp; Plate Motions</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>3</td>
<td>Diversity of Life</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>4</td>
<td>The Modern Earth System &amp; Paleoproxies</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>5</td>
<td>Geochemical Cycles</td>
<td>Chapter 10</td>
</tr>
<tr>
<td>6</td>
<td>Facies and Depositional Environments</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>7</td>
<td>Time Scale, Geochronology &amp; Paleomagnetism</td>
<td>Chapter 6</td>
</tr>
<tr>
<td>8</td>
<td>Evolution: Selection, Speciation &amp; Extinction</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>9</td>
<td>Hadean &amp; Archean</td>
<td>Chapter 11</td>
</tr>
<tr>
<td>10</td>
<td>Proterozoic: Rise of Oxygen, Snow Ball Earth, &amp; The First Animals</td>
<td>Chapter 12</td>
</tr>
<tr>
<td>11</td>
<td>Paleozoic Life: Cambrian Explosion to the Rise of Plants</td>
<td>Chapters 13-15</td>
</tr>
<tr>
<td>12</td>
<td>Paleozoic Tectonics: North American Mountain Building, Coal Swamps &amp; Pangea</td>
<td>Chapters 13-15</td>
</tr>
<tr>
<td>13</td>
<td>The Mesozoic and Mass Extinctions</td>
<td>Chapters 16 -17</td>
</tr>
<tr>
<td>14</td>
<td>The Paleogene</td>
<td>Chapter 18</td>
</tr>
<tr>
<td>15</td>
<td>The Neogene &amp; Holocene</td>
<td>Chapter 19-20</td>
</tr>
</tbody>
</table>

**GG200 is designated as a writing intensive (“WI”) course this term.** Writing assignments will account for 45% of your final grade in the course. There are 3 types of writing assignments required for the course. All “WI” assignments must be handed in electronically as a Microsoft word document or a pdf file via Laulime to streamline revision and grading.

(1) **Figure Caption Writing:** Over the course of the semester each student will be required to write detailed figure captions to accompany 3 figures presented in lecture or lab. Each caption is to be approximately 300 words in length. This assignment is described in a separate hand out. It will be ongoing throughout the semester. (9% of course grade).

(2) **Essays related to course content:** Three brief (600-700 words) essays related to the content presented in the lab and lecture are required. These assignments will be peer reviewed and you will be given the opportunity to revise and resubmit these essays in order to improve your grade. (15% of course grade)
(3) **Events in Earth History**: The final product will be a brief summary of an important event in Earth History in encyclopedia format. Before preparing your final summary you will be required to compare and contrast different sources describing your event. A separate handout gives more detail on this assignment. This project is intended to help students develop the ability to read and think critically when they encounter conflicting viewpoints. (21% of the course grade; approximately 2000 words plus appropriate figures)

**Testing & Grading**: The final grade for the course will reflect the students’ performance on exams, lab assignments and on writing assignments outlined above. The weighting is as follows: mid-term (17%), final exam (18%), lab quizzes and assignments (not graded as WI; 20%), and writing assignments (45%; detailed above).

**Laulima**: Course resources (power point images from lecture and handouts) will be posted on Laulima under the “resources” link on the course site. In addition all writing assignments must be turned in electronically by posting either a MS word or pdf document. To do this follow the “drop box” link to access your personal folder. To access the Laulima course web site use a web browser to visit the following address: [https://laulima.hawaii.edu/portal](https://laulima.hawaii.edu/portal). Click on the tab with the heading: GG200-001 [MAN.81248.SP13]. NOTE: We cannot see this site in the same way that students do. Be sure and tell us right away if you encounter problems

**Attendance**: Although attendance is not formally scored, regular attendance is expected. A pattern of poor attendance can negatively affect your grade. Students should attend lecture because not all material included in exams is contained in the text. In addition individual student assignments are given during lectures. Students are responsible for completing these assignments by the due date given. *Attendance at the lab is required.* One important reason for having a lab is to expose you to a variety of maps, as well as rocks & fossils as hand specimens. If you miss the lab, you miss this part of the course content & will be marked down accordingly.
LATE POLICY FOR GG200 ASSIGNMENTS
In order to motivate people to turn in their work in a timely manner the following policies regarding turning in lab assignments will be used throughout the semester.

1. All lab assignments must be turned into the course instructor at the start of lab on the day they are due.
2. Late assignments will be marked down.
3. If you are sick you need to use your grace period days. If you become very ill we will accept medical excuses from a doctor.
4. Note that assignments that are required for in class work will not receive any credit for being late. This is especially important for peer review of written assignments in lab.

Requirement to submit quality work: In addition if labs come in with questions incompletely answered or written so sloppily that they are difficult to read they will be marked down. Specifically extremely sloppy or badly written labs will be marked down by 15%.

Student Learning Objectives

Things you need to do now:

1. In the lab on Friday you will fill out the schedule questionnaire and will have a short quiz. We need this information to assess your level of knowledge and to set-up meeting times with students.
2. Fill out the form to get an account and pass code to access the computer room (POST 733) that is attached to this packet and turn it in BEFORE you leave class.