GEOL345 Internal Earth Processes Syllabus

Spring 2015
Lecture: Tue-Thur 10:05-11:20 EWS 209
Section 1 Lab: Tue 2:50-5:50 EWS208
Section 2 Lab: Fri 12:00-3:00 EWS208

This course provides a survey of geophysical and geochemical approaches to understanding the state of the solid earth, its genesis and evolution. Course content is at the intermediate level, so students are expected to have completed an introductory level course in geology, as well as GEOL202 or a similar course in mineralogy. Students should also have completed or be concurrently registered in MATH122 or MATH141. The main objective of this course is to learn how modern geophysical and geochemical methods are used to investigate the nature of the earth’s deep interior. Students will also be required to use library research tools for geoscientists (e.g. GeoRef, Science Citation Index), to investigate a research topic of their choice and present a poster on the results of their research.

Instructors
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Textbooks, Readings and Blackboard
Because no single textbook adequately covers all aspects of this course, there is no required textbook for this class. Readings may be assigned out of a variety of sources and will generally be posted to Blackboard. If you are interested in the subject matter for this course, and would like to purchase a textbook, we can recommend the following:


iClickers
Quizzes will be given in lecture on a regular basis. These will be administered with the iClicker electronic response system. If you do not already have an iClicker, please purchase one and be prepared to use it by the second week of class.
**Learning Outcomes**
Students completing this class will learn…
- how the solid earth formed and has evolved over its 4.55 Ga history
- how magmas form and evolved in different plate tectonic systems
- to interpret geochemical data in the context of the common igneous processes
- to identify igneous rocks and minerals in hand specimens and thin sections
- to identify the character of the Earth’s physical and compositional layers
- how the Earth’s magnetic field is generated and changes over time
- how the lithosphere moves and evolves

**Grades:** Course grades will be assigned on a curve. The extent of the curve depends on class performance, but in general, we find that the average course grade for GEOL345 is a low B. There will be two equally weighted lecture exams. The first will be given before spring break. The second will be given in the scheduled final exam time slot. Instructions on the preparation of the poster presentation will be provided during the first week of classes. Labs, quiz and homework points will be weighted equally. Quizzes will be taken by i-clicker during class. The overall weighting of course work and key dates are listed below.

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<thead>
<tr>
<th>Component</th>
<th>Weighting</th>
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</thead>
<tbody>
<tr>
<td>Lecture Exam 1</td>
<td>25%</td>
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<tr>
<td>Lecture Exam 2</td>
<td>25%</td>
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<tr>
<td>Poster Presentation</td>
<td>20%</td>
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<tr>
<td>Labs, Quizzes &amp; Homeworks</td>
<td>30%</td>
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**Attendance & Absence**
Our attendance policy is that of the university: “Absence from more than 10 percent of the scheduled class sessions, whether excused or unexcused, is excessive and the instructor may choose to exact a grade penalty for such absences.” Class attendance will be taken periodically. Students who are found to be absent from 3 classes or more will exceed this “10% rule” and will be subject to a penalty of up to one full course grade. Absence on an exam day will result in a grade of zero for that exam. Early exams can be arranged if you notify the appropriate instructor in person or by email at least one week prior to the exam date. Lab attendance is mandatory and essential to the successful completion of this class. If you know in advance that you cannot attend a particular lab date, you should arrange in advance to attend another lab section meeting that week. If you miss a lab meeting, due to an emergency, you should contact the lab instructor to arrange a makeup immediately.