Course Description and Syllabus
Welcome to Mineralogy! In this course you will learn about the structure and chemical makeup of Earth materials. We will concentrate on the physical and chemical properties of minerals, from macroscopic to microscopic. Since this is a geology course, we will investigate how geologic materials and processes influence mineral occurrence, stability, and composition. The course is divided into five modules. The first reviews relevant chemistry, the second investigates how and why minerals are classified and introduces symmetry, the third presents optical mineralogy, the fourth introduces us to major rock-forming minerals in a systematic progression, and the fifth investigates crystal growth.

Course Information

Credits: 4
Semester: Fall 2015
Lecture: MWF 11:30 am- 12:20 pm POST 703
Lab: Tuesday 1:30 – 4:20 pm POST 703

Instructors:
Dr. Przemyslaw Dera
   office: POST 819E
   office Phone: 956-6347
   email: pdera@hawaii.edu
   office hours: Monday 1-2:30 pm and by appointment

Dr. Bin Chen
   office: POST 819B
   office Phone: 956-6908
   email: binchen@hawaii.edu
   office hours: Wednesday 1-2:30 pm and by appointment

TA: TBD
   office:
   phone:
   email:

Required Texts:
   Nesse *Introduction to Mineralogy* 1st Ed. (2nd Edition ok, but page numbers of assignments may differ)

Optional Texts and Resources available in POST 703:
   Perkins *Mineralogy* 2nd Ed.
   Perkins and Henke *Minerals in Thin Section* 2nd Ed.
   Deer, Howie, and Zussman, *An Introduction to the Rock Forming Minerals*
   Nesse *Optical Mineralogy*, 2nd Ed.

Prerequisites:
   GG 200
CHEM 162 and CHEM 162L or CHEM 171 and CHEM 171L or CHEM 181A and CHEM 181L

Course Objectives and Components

Goals of this course include understanding:
(1) the characteristics of major mineral groups in hand specimen and thin section
(2) formation environments and associations of rock-forming minerals
(3) crystal symmetry, crystallography, and atomic structure

Lecture

Use of the texts and all supplemental reading is critical. Lecture will not be a forum where basic material from the text is reiterated. During lecture we will clarify parts of the reading that are not being understood, develop concepts from the text, and work together to solve problems. You are required, therefore, to read the assigned text before class.

Bring a calculator to class each day. We will work problems out in real-time together. Colored pencils or pens may be helpful.

Lab

Lab is scheduled for 3 hours on Tuesday afternoons. Several of the labs explore lecture material by directing your observations of mineral specimens. We will also use calculations, computer programs, and physical models to learn concepts. Labs will be integrated with lecture material to the greatest possible extent, usually following what we have discussed in lecture. Therefore, lab material will be incorporated with lecture material for the five quizzes. Quizzes will be in part “practical”, that is, requiring microscopes and other lab materials.

All labs are designed to take 3-6 hours to complete. Students who arrive prepared, having read the lab assignment, read the associated text, and completed any pre-lab exercises, may finish the lab activity during the 3-hour session. Anticipate spending additional time on many of the labs. Labs should be handed to the TA on time. Unless there is a good excuse, late penalties apply! At the beginning of each lab, Elise will go over the weaker or less well understood points from the previous week. Students are encouraged to ask LOTS of questions!

You are required to obtain a hand lens for this course. You will use this tool frequently, not only in this class, but also in many of the upper division Geology courses. (A geologist always has a hammer, notebook, and a hand lens when going into the field!)

Grading

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<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Labs</td>
<td>(30%)</td>
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<td>Quizzes</td>
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<td>Homework</td>
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<td>Reading Questions</td>
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<tr>
<td>Lecture preparedness</td>
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