SIO 120: Introduction to Mineralogy

Lecture: T/TH 9:30 AM – 10:50 AM
Lab A: T/TH 11:00 AM – 12:20 PM
Lab B: T/TH 4:00 PM – 5:20 PM
Instructor- Geoffrey Cook
Office- Vaughan 303
Phone- 534-3406 ; **Email**- gwcook@ucsd.edu
Office Hours- by appointment

Lab Instructors: Janine Roza and Cristian Virrueta

Note: This syllabus is an outline of proposed events. It is subject to change; however, never without notification, and never to advance the due dates of assignments.

Class Organization:

- The lecture portion of class will be worth 60% of your overall grade. It will consist of two exams: a midterm exam worth 100 points and a final exam worth 100 points. In addition, there will be several assignments totaling 75 points.
- The lab portion of the class will be worth 40% of your grade and will consist of regular lab exercises that will be due weekly. Two lab quizzes will be given as well.

The lecture text is *Manual of Mineral Science 23rd Ed.*, by Klein and Dutrow. The text is required and will supplement the lectures. You are responsible for reading the chapters assigned, and the exams will include material covered in the text. Please note, however, that there will be information covered in class that is not covered in the book.

Absences and Missed Work:

There will be no make-up examinations. In the case of legitimate conflicts, notification is required at least one week before the regularly scheduled examination. In the case of deaths, accidents, or sickness, notification is appreciated as soon as possible and is required within one week of the regularly scheduled examination time. *All excuses must be in writing.*

Classroom Conduct:

Disruptions during lecture will not be tolerated. Disruptive behavior including talking, excessive noise, poor behavior towards other students or instructors/TAs, arriving late/leaving early, reading newspapers in class, inappropriate language/comments in lecture/lab or on-line, or ringing cell phones will result in your being asked to leave the class. Continued disruption will result in a failing grade and denial of re-enrollment. It is to your benefit to arrive on time because most announcements and assignments occur at the beginning of lecture/lab.

Academic Integrity- Students' Responsibilities:

Students are expected to complete the course in compliance with the instructor's and university standards. No student shall engage in any activity that involves attempting to receive a grade by means other than honest effort. University policies, regulations, and standards of conduct can be found on the Academic integrity office website at http://www.ucsd.edu/current-students/_organizations/academic-integrity-office/.

Accommodations for Documented Disabilities:

Any student with a documented disability is welcome to contact me as early in the semester as possible so that we may arrange reasonable accommodations. As part of this process, please be in touch with the UCSD Office of Disability Resources (http://disabilities.ucsd.edu/).

SIO 120 Schedule (Subject to change as necessary)

LECTURE Topic:	**LAB Topic:**
WEEK 1: JAN. 5/7	
TU- Introduction to mineralogy: what is a mineral, why are they important? **TH-** Physical properties of minerals **(Ch.2)**	**TU**- **No Lab** **TH-** Hand sample identification of common minerals
WEEK 2: JAN. 12/14	
TU- Crystallography: symmetry operators, Hermann-Maugin notation, 32 crystal classes **(Ch. 6-10)** **TH-**Crystallography: 6 crystal systems, crystal axes, miller index **(Ch. 6-10)**	**TU-** Hand sample identification of common minerals **TH-** Crystallography I- Symmetry patterns
WEEK 3: JAN. 19/21	
TU- Crystallography: Miller index, defects, twins **(Ch. 6-10)** **TH-** Mineral chemistry and bonding **(Ch. 3+4)**	**TU-** Crystallography II- Crystal models and systems **TH-** Crystallography II- Crystal models and systems
WEEK 4: JAN. 26/28	
TU- Introduction to systematic mineralogy, Nesosilicates and sorosilicates **(Ch. 19)** **TH-** Cyclosilicates and phyllosilicates **(Ch. 19)**	**TU-** Crystallography III- Miller index **TH-** Nesosilicates and sorosilicates
WEEK 5: FEB. 2/4	
TU- EXAM #1 **TH-** Inosilicates and tectosilicates **(Ch. 19)**	**TU- LAB QUIZ 1 (mineral properties + crystallography)** **TH**- Cyclosilicates and phyllosilicates
WEEK 6: FEB. 9/11	
TU- Native elements, sulfides, oxides **(Ch. 15)** **TH-** Halides, carbonates, **(Ch. 16-17)**	**TU**- Inosilicates and tectosilicates **TH-** Native elements, sulfides, oxides

LECTURE Topic:	LAB Topic:
WEEK 7: FEB. 16/18	
TU- Sulfates, phosphates, arsenates, and vanadates **(Ch. 17)** **TH-** Analytical techniques in mineralogy **(Ch. 14)**	**TU-** Carbonates and halides **TH-** Oxides, sulfates, phosphates and vanadates
WEEK 8: FEB. 23/25	
TU- Optical mineralogy **(Ch. 13)** **TH-** Optical mineralogy **(Ch. 13)**	**TU-** Introduction to the petrographic microscope **TH-** Opaque and isotropic minerals in thin section
WEEK 9: MAR. 1/3	
TU- Optical mineralogy **(Ch. 13)** **TH-** Optical mineralogy **(Ch. 13)**	**TU-** Uniaxial minerals in thin section **TH-** Biaxial minerals in thin section
WEEK 10: MAR. 8/10	
TU- Minerals as natural resources and as hazards **TH-** Minerals as natural resources and as hazards	**TU-** Minerals in rocks **TH-** Minerals in rocks **AND LAB QUIZ 2 (systematic mineralogy and minerals in thin section)**

FINAL EXAM Tuesday, March 15th 8:00-11:00 AM in Vaughan 100