COURSE SYLLABUS

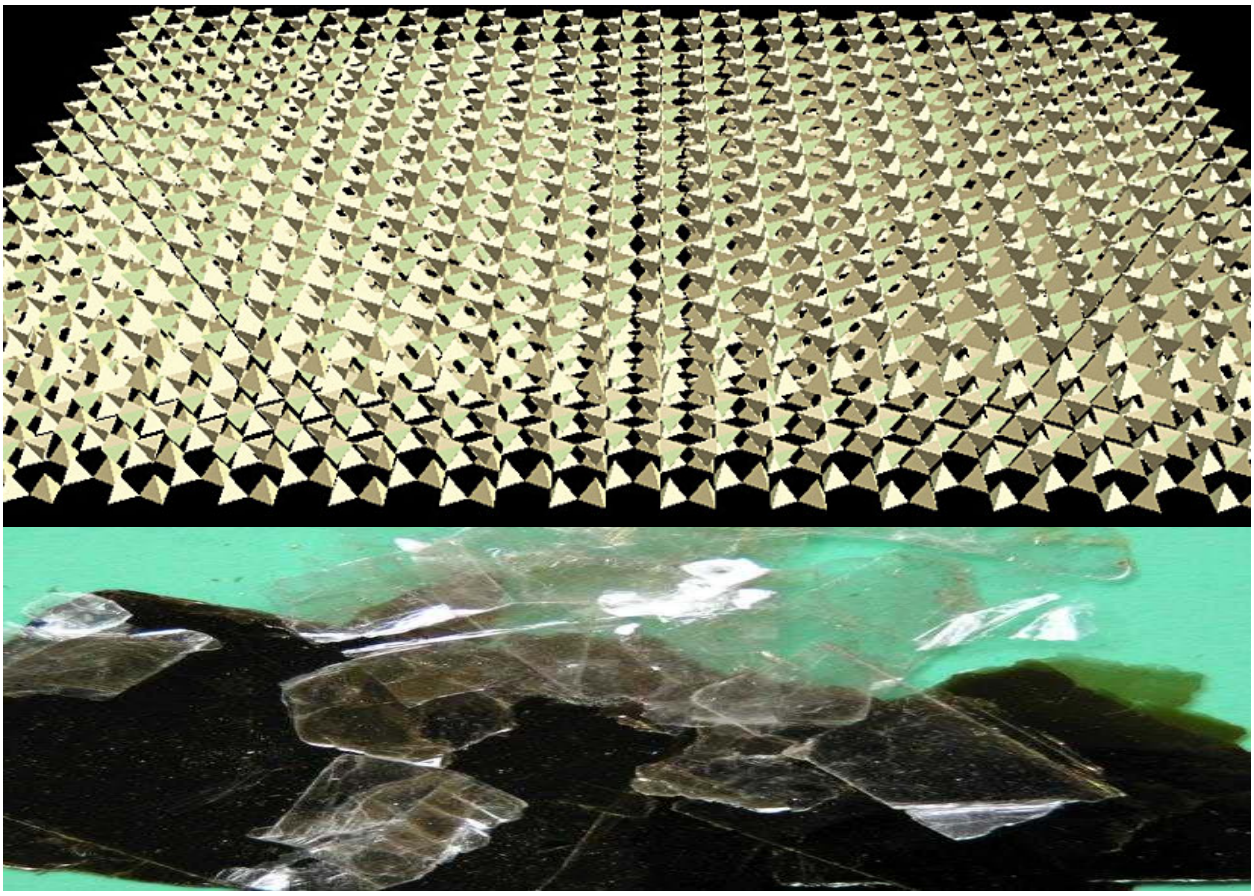
GEL 344

MINERALOGY

3 SEMESTER CREDIT HOURS

Fall 2007

Professor: Dr. Brian Cooper
(SHSU Tel: 41566)
(e-mail: bjcooper@shsu.edu)



COURSE SYLLABUS

GEL 344 Mineralogy

3 Semester Credit Hours
Fall 2007

Room: LDB 315
Classes meet: TuTh 8-11 (Includes Lab)
Professor: Brian Cooper
Office: LDB 300C
Tel: 41566
e-mail: bjcooper@shsu.edu
Office Hours: 11-11.50 T-days or by appointment

Course Description

1. Course emphasis = the principles, methods, and systematics of mineralogy
   = the recognition of minerals and knowing how to use your textbooks.

2. Three main themes will be covered in this course, each having a lecture and a lab component. Therefore, it is recommended that you either have six notebooks, or a loose-leaf binder that can be divided into six sections:
   Crystallography and Crystal Chemistry: Lecture and Lab
   Physical Mineralogy: Lecture and Lab
   Optical Mineralogy: Lecture and Lab

3. As can be seen in the point distribution the major emphasis in this course is the lab. The lectures are generally to prepare for the lab, and the lab is where you will learn the concepts. There are two labs each week, and each one concentrates on specific aspects of Mineralogy.

4. Tuesday labs generally concentrate on crystallographic and crystal chemical aspects of mineralogy. Note that there are two exams covering the material presented in the Tuesday labs.

5. Thursday labs generally concentrate on determinative mineralogy using physical and optical techniques used in the field and lab. You must have a hand lens, and should not show up in lab on Thursdays without access to a hand lens starting next week. Your recognition of minerals should be checked prior to leaving lab.
   Make an identification chart for use on mini-practicals and the final exam.
   Memorize assigned formulas of minerals.

Prerequisites: GEL 133/113 or 132/112, with GEL 134/114 highly recommended.
Methods: Lectures and Labs
Grading: **4 exams x 100 points each = 400 points. No extra credit.**
Grading Scale: 400-360=A; 359-320=B; 319-280=C; 279-240=D; ≤239=F
Objectives:

- Scientific thinking and analysis
- The recognition of over 100 minerals.
- The ability to identify unknown minerals.
- The ability to determine crystal symmetry.

- The ability to interpret X-ray powder diffraction patterns.
- The ability to quantitatively determine certain properties.
- The ability to determine a mineral's optical properties (more on this in Petrology).

Course text: Klein, C., Manual of Mineralogy, 23rd ed. (or older edition if you have one)
Nesse, W.D., Introduction to Optical Mineralogy, 3rd ed.

Attendance: Attendance is required. There are NO excused absences. No visitors
Each absence in excess of 3 absences costs 10 points off the final grade.
Three tardies count as one absence. If you miss a lecture, it is your responsibility to obtain the material presented in the lecture from a fellow student.

Make-up Exams: None. Other exams will be "re-weighted" at Dr. Cooper's discretion.

Grading:

850 - 1000 points = A
750 - 849 points = B
650 - 749 points = C
550 - 649 points = D
less than 550 points = F

(a "curve" is already built into this distribution so do not count on any more points)

Lecture:	First Exam	100 points
	Second Exam	100 points
	Final Exam	100 points
Lab:	Block Exam	50 points
	Cryst. Final	100 points
	Mini-practicals	100 points (2 of 'em x 50 each)
	Final practical	100 points
	Exercises	350 points
Total:		1000 points

Academic Conduct

University statement: *All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of academic dishonesty including, but not limited to, cheating on examinations or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.*

I assume that a basic honor system applies to this course and that you must take care to respect your fellow students. Cheaters will automatically fail. Please keep your eyes on your own exam. You get one warning, then you get a zero on the exam. See *Student Guidelines*

VISITORS IN THE CLASSROOM:

University statement: *Unannounced visitors to the classroom must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom. This policy is not intended to discourage occasional visiting of classes by responsible persons.*

Classroom Rules and Conduct

University statement: *Students are expected assist in maintaining a classroom environment that is conducive to learning. Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones and pagers must be turned off before class begins. Students are prohibited from eating or drinking in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.*

1. Class starts on time. Sleeping/reading in class = an absence.
2. Class ends when I say it ends. Leaving early without permission = a tardy.
3. Keep quiet when I am lecturing.
4. Raise your hand if you have a question or need to leave the room for any
5. During lectures and tests, cell phones and any other equipment capable of receiving, recording and/or transmitting information, must be put away in a book bag or purse. (In short, it must not be readily accessible or accessed during an exam.)
6. Assignments received after the due date receive the lowest grade obtained on that assignment thus far, minus one for each day late, minus whatever is missed on the assignment...which means a negative score is a very real possibility. No assignment = a zero for that grade.

Americans with Disabilities Act:

University statement: *It is the policy of Sam Houston State University that no otherwise qualified disabled individual shall, solely by reason of his/her handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. Disabled students may request assistance with academically related problems stemming from individual disabilities by contacting the Director of the Counseling Center in the Lee Drain Annex or by calling (936) 294-1720. Any student seeking accommodations should go to the Counseling Center and Services for Students with Disabilities in a timely manner and complete a form that will grant permission to receive special accommodations.*

Religious Holidays:

Students who are absent from class for the observance of a religious holy day are allowed to take an examination or complete an assignment scheduled for that day within reasonable time after the absence. The period of time during which assignments and exams will be excused includes travel time associated with the observance of the religious holy day. A student who wishes to be excused for a religious holy day must present the instructor of each scheduled class that he/she will be absent from class for religious reasons with a written statement concerning the holy day(s) and the travel involved. The instructor should provide the student with a written description of the deadline for the completion of missed exams or assignments. In such cases, the student will be required to take the test or submit the assignment early—unless there are good reasons for not being able to do so and the instructor has agreed to those reasons.

GEL 344 MINERALOGY (V.14)
COURSE OUTLINE
Lectures

WEEK OF:	TOPICS
August 21	Introduction
August 23	Physical Mineralogy
August 28	Crystallography and Symmetry
August 30	Physical and Optical Mineralogy
September 4	External Symmetry
September 6	Mineral Classification/Optics
September 1	Crystal Classes
September 13	Physical and Optical Properties
September 18	Crystal Forms
September 20	Physical and Optical Properties
September 25	Internal Symmetry
September 27	Physical and Optical Properties
October 2	**FIRST LECTURE EXAM**
October 4	Mineral Chemistry
October 9	Space Groups
October11	Chemical Analysis
October16	Packing and Crystal Structures
October18	X-ray Diffraction Techniques
October23	Crystal Chemistry
October25	Optical Mineralogy
October30	Crystal Chemistry
November 1	Optical Mineralogy
November 6	Chemical Bonding
November 8	Color in Minerals
November 13	**SECOND LECTURE EXAM**
November 15	Mineral Assemblages
November 20	Chemical Bonds in Minerals
November 22	**THANKSGIVING**
November 27	Real Crystals
November 29	Mineral Assemblages
December 4	**Crystallography/Optical Mineralogy Final**
December 6	Review
December 11	**FINAL LECTURE EXAM** 8 - 10 am

MINERALOGY LABS

WEEK OF:	TOPICS
August21	Introduction
August23	Physical Properties of Minerals (Physical Geology Review)
August 28	Planar Symmetry
August 30	Nonsilicates I
September 4	External Symmetry I
September 6	Nonsilicates II/Introduction to Mike
September 11	External Symmetry II
September 13	Nonsilicates III/Isotropics I
September 18	External Symmetry III
September 20	Nonsilicates IV/Isotropics II
September 25	Internal Symmetry I
September 27	Silicates I/Optical Properties I
October 2	Internal Symmetry II
October 4	**Mini-practical I**/Silicates II/Optical Properties II
October 9	**External Symmetry Exam ("Block Exam")**
October 11	Silicates III/Minerals in Thin Section I
October 16	Internal Symmetry III
October 18	Silicates IV/Minerals in Thin Section II
October 23	X-ray Crystallography
October 25	Silicates V/Minerals in Thin Section III
October 30	X-ray Crystallography
November 1	Mineral Assemblages
November 6	Density
November 8	**Mini-practical II**/Mineral Assemblages
November 13	Chemical Analyses
November 15	Mineral Assemblages
November 20	Problem Solving
November 22	**THANKSGIVING**
November 27	Problem Solving
November 29	Mineral Assemblages
December 4	**Crystallography/Optical Mineralogy Final** (Clear your schedule for this exam)
December 6	**Final Mineral Practical (including mineral assemblages)**