

TEXAS A&M UNIVERSITY – CORPUS CHRISTI  
COLLEGE OF SCIENCE AND TECHNOLOGY  
FALL 2005  
GEOLOGY 3411 – MINERALOGY

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Text: *Introduction to Mineralogy*, by Nesse, William D., Oxford, 2000  
Class Meetings: Mondays and Wednesdays, 4:00 p.m. to 5:15 p.m., BH 111  
Lab. Meeting: Wednesdays, 5:30 p.m. to 7:30 p.m., CS 226  
Office Hours: by appointment.

### **Course Description**

This is a course in college-level Mineralogy primarily for students majoring in Geology or Environmental Science. The class is open to all who have the necessary prerequisites and an interest in the study of minerals. Prerequisites for this course are: Physical Geology and General Chemistry.

### **Course Objectives**

Upon successful completion of this course, the student should have obtained a good understanding of:

- 🌐 the study of minerals, including symmetry, crystal chemistry and crystal structure,
- 🌐 the basics of optical mineralogy,
- 🌐 the physical and optical properties of minerals,
- 🌐 and should be able to identify the most common minerals based on these properties.

### **Evaluation and Grade Assignment**

Your final grade will be based on a % curve from the following point distribution:

A) Lab Mid-Term Exam:	100 points	100 points
B) Lecture Mid-Term Exam:	100 points	100 points
C) Final Exams (Lecture and Lab):	2@100 points each	200 points
D) Chapter and Lab Quizzes	6@10 points each, lowest grade dropped	<u>50 points</u>
		<b>Total: 450 points</b>

A perfect score in this course would be to earn all 450 points available. At the end of the semester, I will take the highest point total in the class and will use that high score to calculate the percentage bonus required to bring this individual's total points up to 450. That percentage bonus is then applied to everyone's individual total.

Final grading will be as follows:

A = 450-403 points B = 402-358 points C = 357-313 points

D = 312-268 points F < 268 points

### **Exams, Chapter Quizzes, Research Project**

Exams can only be taken during the scheduled time, except in cases of emergencies. Documented proof is required of such emergencies. There will be NO make up exams or quizzes for unscheduled and unexcused absence! If you know you are going to miss a class or an exam and have a valid excuse, let me know BEFORE the fact, NOT after (by that time I already know...!)

Make-up exams cannot be taken after the graded test has been given back to the class. There will be no exceptions!

**Chapter Quizzes** happen randomly and are used to encourage regular attendance in class. The odds of a Chapter Quiz occurring on a given day are inversely proportional to the number of students present in class that day. Quizzes will consist of a short series of multiple-choice questions to be answered in approximately 5-10 minutes at the end of the class period. Chapter Quizzes may include material covered in previous lectures or in the reading assignment for that day. So please be prepared!

### **Class and Lab Policies**

While attendance of the lectures will not be recorded by the instructor on a regular basis, regular attendance is essential to the successful completion of this course. Most laboratory instruction cannot be conveniently repeated outside of the scheduled laboratory time. Therefore, **regular attendance of the lab sessions is required.** There will be no make-up labs.

Treat your co-students (and instructor) with respect. The college catalog contains the university statement on academic integrity. Cheating will not be tolerated and will result in a failing grade in the course and possible further disciplinary action by the university. **The use of cell phones, pagers, CD players, headphones and similar electronic devices is not allowed in class. If your cell phone/pager rings during lecture, you will be asked to leave the classroom!**

### **Special Needs**

The Geology Program complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you need disability accommodations in this class, please see me as soon as possible. Please have your accommodation letter from TAMU-CC Services for Students with Disabilities Office with you when you come see me. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office (located in Driftwood 101) at 825-5816. It is important that you contact them in a timely fashion as it may take several days to review requests and prepare accommodations

### **Reading Assignments**

All reading assignments are to be read prior to the class in which the material will be discussed. The following lecture schedule will be followed as closely as possible although some revisions may become necessary during the semester.

### **Important Dates**

<b>August 24</b>	<b>Classes begin</b>
<b>October 19</b>	<b>Mid-term exams</b>
<b>November 24-25</b>	<b>Thanksgiving holidays (campus closed)</b>
<b>November 30</b>	<b>Lab Final Exam</b>
<b>December 06</b>	<b>Last day of classes</b>
<b>December 12</b>	<b>Final exam 4:00 p.m. – 7:30 p.m.</b>

## Lecture and Lab Schedule

(Schedule may change slightly as semester evolves)

### August

Wed	08/24	Introduction/Definitions, Preface/Chapter 1
Mon	08/29	No Class
Wed	08/31	No Class

### September

Mon	09/05	Labor Day. No Class
Wed	09/07	Crystallography I – Symmetry and Point Groups, Chapter 2, pp. 6-17.
Wed	09/07	Lab Crystal Symmetry and Morphology I
Mon	09/12	Crystallography II – Crystal Faces and Forms, Chapter 2, pp. 19-29.
Wed	09/14	Crystallography III – The Crystal Systems, Chapter 2, pp. 29-38.
Wed	09/14	Lab Crystal Symmetry and Morphology II
Mon	09/19	Crystallography IV – The Crystal Systems, Chapter 2, pp. 29-38.
Wed	09/21	Crystal Chemistry, Chapter 3.
Wed	09/21	Lab Introduction to the laboratory studies of minerals, Chapter 6.
Mon	09/26	Crystal Structure I, Chapter 4, pp. 57-65.
Wed	09/28	Crystal Structure II, Chapter 4, pp. 65-73.
Wed	09/28	Lab Native Elements, Sulfides and Related Minerals, Chapters 19/20.

### October

Mon	10/03	The Mineral Groups: Native Elements, Chapter 20.
Wed	10/05	The Mineral Groups: Sulfides and Related Minerals, Chapter 19.
Wed	10/05	Lab Oxides, Hydroxides, and Halides, Chapter 18.
Mon	10/10	The Mineral Groups: Oxides, Hydroxides, and Halides, Chapter 18.
Wed	10/12	The Mineral Groups: Carbonates, Chapter 17, pp. 326-340.
Wed	10/12	Lab Carbonates, Sulfates, Phosphates, Tungstates..., Chapter 17.
Mon	10/17	The Mineral Groups: Sulfates, Phosphates, Tungstates..., Chapter 17
<b>Wed</b>	<b>10/19</b>	<b>Mid-Term Exam</b>
<b>Wed</b>	<b>10/19</b>	<b>Lab Mid-Term Exam</b>
Mon	10/24	The Mineral Groups: Introduction to Silicates, Chapter 11.
Wed	10/24	Lab Framework Silicates, Chapter 12.
Wed	10/24	The Mineral Groups: Ortho-, Di-, and Ring Silicates, Chapter 15/16.
Mon	10/31	Chain-, Sheet- and Framework Silicates, Chapters 12/13/14.

### Novel

Wed	11/02	Lab Sheet- and Chain Silicates, Chapters 13+14.
Sat*	11/05	Optional Field Trip*
Mon	11/07	Optical Mineralogy I, Chapter 7, pp. 114-121.
Wed	11/09	Lab Ortho-, Di-, and Ring Silicates, Chapters 15+16.
Mon	11/14	Optical Mineralogy II, Chapter 7, pp. 121-129.
Wed	11/16	Optical Mineralogy III, Chapter 7, pp. 130-136.
Wed	11/16	Lab Optical Properties of Rock-Forming Minerals, Chapter 7.
Mon	11/21	Optical Mineralogy IV, Chapter 7, pp. 136-140.
Wed	11/23	Optical Mineralogy V, Chapter 7, pp. 140-151.

Wed 11/23 Lab Optical Properties of Rock-Forming Minerals, Chapter 7.  
Mon 11/28 Optical Mineralogy VI, Chapter 7, pp. 151-159.  
Wed 11/30 Optical Mineralogy VII, Chapter 7, review  
**Wed 11/30 Lab Final Exam**

### **December**

Mon 12/05 X-Ray Mineralogy/Chemical Analysis of Minerals, Chapter 8+9.  
**Mon 12/12 Final exam 4:00 p.m. – 7:30 p.m.**

\* Optional field trip weekend may be moved forward or backward to accommodate changing weather conditions, etc.

### **Drafting Supplies**

The lab exercises (and partially the lectures) will require the use of some basic drafting supplies. The following is a list of what's needed. Please bring these items with you to each session.

- ⇒ Mechanical pencil, lead size of 0.5 mm or finer (required)
- ⇒ Eraser (required)
- ⇒ Colored pencils (at least six colors, required)
- ⇒ 12" ruler with mm markings (required)
- ⇒ Protractor (required)
- ⇒ Triangle (optional)
- ⇒ Compass (required)