

GEOSCIENCES 262: ROCKS AND MINERALS

FALL 2006

INSTRUCTOR: Mary Keskinen

NSci 340 X7769

TIME: LECTURES - MW 10:30-11:30 a.m. LAB - W 2:00-5:00 p.m.

PLACE: NSci 237

CLASS DESCRIPTION: An overview of mineral & rocks - their identification, classification, mode of formation, & economic applications.

CLASS FORMAT: lectures twice a week, one of which may be a discussion/group learning exercise. Reading assignments are to be read before the class for which they are assigned. The once-a-week Lab will emphasize practical techniques for mineral and rock identification such as physical properties, X-ray diffraction, and optical characteristics. A few videos and very short field trips will be included. GUEST LECTURES ARE POSSIBLE.

READING ASSIGNMENTS will be from the textbook, Rocks and Rock Minerals, by Richard Dietrich and Brian Skinner (1979), John Wiley.

<u>date</u>	<u>lecture topic</u>	<u>reading assignment</u>
9/6	Introduction to minerals & rocks	
9/11	mineral properties and classification	pp. 1-26
9/13	non-silicate minerals 1	pp. 70-86
9/18	non-silicate minerals 2	pp. 87-98
9/20	silicate minerals 1	pp. 27-70
9/25	silicate minerals 2	
9/27	crystallography in one easy lesson	
10/2	exam 1 (minerals)	
10/4	rock classification	pp. 101-126
10/9	igneous rocks	pp. 126-146
10/11	occurrence of intrusive igneous rocks	pp. 146-170
10/16	occurrence of volcanic igneous rocks	
10/18	ore-deposits and igneous rocks	
10/23	sedimentary rocks	pp. 170-203
10/25	sedimentary processes	pp. 203-230
10/30	sedimentary environments	
11/1	exam 2 (igneous & sedimentary rocks)	
11/6	metamorphic rocks	pp. 232-247
11/8	occurrence of metamorphic rocks	pp. 248-273
11/13	structure and properties of metamorphic rocks	
11/15	diagenesis and weathering	pp. 274-298
11/20	clay mineralogy	
11/22	soil development	
11/27	soil classification	
11/29	economic uses of rocks and minerals	

12/4 rock properties and engineering
12/6 review session, special topics
12/11 exam 3 (Comprehensive)

date **LABORATORY TOPICS**

9/12 mineral classification & diagnostic properties
9/19 non-silicate mineral identification
9/26 silicate mineral identification
10/3 FIELD TRIP TO MUSEUM, computer exercise
10/10 crystallography & x-ray properties of minerals
10/17 * mineral quiz *
10/24 volcanic rocks
10/31 plutonic rocks and associated ore deposits
11/7 clastic sedimentary rocks
11/14 non-clastic sedimentary rocks
11/21 metamorphic rocks
11/28 microscopic examination of rocks
12/5 rock lab quiz

GRADING: GRADES WILL BE BASED ON BOTH LAB AND LECTURE PARTICIPATION. LECTURE IS WORTH 2/3 OF THE FINAL GRADE, BASED ON THE 3 EXAMS, OCCASIONAL HOMEWORK ASSIGNMENTS, AND THE ODD POP QUIZ, AS WELL AS ZEAL AND CLASS PARTICIPATION. THE LAB 1/3 WILL BE BASED ON LAB QUIZZES, OCCASIONAL LAB WRITE-UPS, AND ATTENDANCE.