

# GEOLOGY 421 / 621 -- MINERALOGY LAB 2007

## COURSE INFORMATION AND TENTATIVE SCHEDULE

<b>Time:</b>	Wednesday, 12:00 pm — 1:50 p.m.
<b>Instructor:</b>	B. Saini-Eidukat, office 129 Stevens Hall, ext. 1-8785 email: bernhardt.saini-eidukat@ndsu.edu
<b>Office hours:</b>	Tuesdays 2:00 - 4:00 p.m. and by appointment.
<b>Text:</b>	C. Klein and B. Dutrow, <i>Manual of Mineral Science</i> , 23rd ed. [enrichment: T. Zoltai and J. Stout (Z&S), <i>Mineralogy: Concepts and Principles</i> (copies available in 134 Stevens)]
<b>Web Site:</b>	<a href="http://www.ndsu.edu/instruct/sainieid/min/">http://www.ndsu.edu/instruct/sainieid/min/</a>

This course provides an introduction to applied mineralogy. The prerequisites are Geology 420/620 (or concurrent registration). We will examine minerals from crystallographic, chemical, and physical points of view. We will learn how to identify and classify crystal structures and minerals, and how to measure mineral properties using hands-on exercises.

Aug. 22	Lab 1: Physical Properties
Aug. 29	Lab 2: Symmetry and Crystal Systems
Sep. 5	Lab 3: Crystal Classes and Forms
Sep. 12	Lab 4: Crystal Morphology using Shape
Sep. 19	Field Course
Sep. 26	Lab 5: X-ray Diffraction
Oct. 3	Lab Exam 1
Oct. 10	Lab 6: Elements and Sulfides
Oct. 17	Lab 7: Oxides, Hydroxides, Halides
Oct. 24	Lab 8: Carbonates, Sulfates, other -ates
Oct. 31	Lab 9: Nesosilicates, sorosilicates, and cyclosilicates
Nov. 7	Lab Exam 2 (covers labs 5 – 8)
Nov. 14	Lab 10: Inosilicates, phyllosilicates
Nov. 21	Lab 11: Clay Mineralogy
Nov. 28	Lab 12: Tectosilicates
Dec. 5	Lab Exam 3 (covers labs 9 – 12)

### **Intended Student Outcomes:**

- To be able to identify common rock forming minerals
- To understand the Earth processes that form minerals
- To understand chemical, physical, and crystallographic properties of minerals
- To understand mineral classification schemes
- To be familiar with analytical tools such as X-ray diffraction

### **Examinations and Grading:**

Grading will be based on laboratory assignments and three exams (short answer, problem solving, identification). Graduate students will be required to do an independent project.

Exams 1-3	50%
Lab assignments	50%

The final letter grade will be assigned based on the following table, unless the class average deviates significantly from 75%. In the latter case, a "curve" will be applied.

A = 90-100; B = 80-89; C = 70 - 79; D = 60-69; F = <60

"Borderline" cases will be judged individually, based on grade improvement, demonstrated effort, class participation, etc.

Special Needs: Students who need special accommodations for learning or who have special needs are invited to share these concerns or requests with the instructor as soon as possible.

Academic Responsibility: All work in this course must be completed in a manner consistent with NDSU University University Senate Policy, Section 335: Code of Academic Responsibility and Conduct ([www.ndsu.nodak.edu/policy/335.htm](http://www.ndsu.nodak.edu/policy/335.htm)).