Course Objectives: In this class, we will consider the description, classification, mineral and chemical composition, petrogenesis, and tectonic setting of igneous and metamorphic rocks. Lectures will consist of powerpoint presentations that focus on the principles and theories behind the origin of igneous and metamorphic rocks. Lab sessions will involve hands-on activities focused macroscopic and microscopic observations of various petrologic rock suites. A particular focus of the lab (and the topic of a final lab report) will be petrographic study of student-collected samples from the Sonju Lake Intrusion.

Textbook:
An Introduction to Igneous and Metamorphic Petrology
by John D. Winter, Prentice Hall, 2001
Support Website: http://www.whitman.edu/geology/winter/

Recommended Textbook:
An Introduction to the Rock-forming Minerals
by Deer, Howie and Zussman, Pearson, 1992

Lectures: Monday, Wednesday, and Friday 11-11:50 AM, Heller Hall 216

Labs: Tuesday and Thursday, 10-11:50 AM, Heller Hall 118

Computer Lab: Some lab and homework exercises will require access to computers in the Geology Computer lab (Room 108). User Name: geol; Password: Agate#! (case sensitive). You may also use these computers for other classwork this semester.

After-hours Lab Access: We will be the only class using this lab this semester and you are encouraged to use the lab any time, day or night. If this lab (or the computer lab) is locked, you can get a lab key from the Kirby Information Center desk.
Attendance: Expected - although the lectures will largely follow the textbook, it will be important to attend lectures as you will be routinely (every two weeks) quizzed on information emphasized in the lectures. It is even more important that you attend all the lab sessions, as these will involve brief lectures and hands-on work. It is likely that not all lab exercises can be completed during the allotted time. Therefore, you should expect to spend additional time in the lab.

Lectures: Most lectures will be given as powerpoint lectures, which will linked to the class website. When possible, photocopies of the powerpoints will be handed out in advance of the lectures in note-taking format.

Lecture Quizzes: A total of six quizzes will be given every other Friday. The quizzes will be limited to 25-35 minutes. The quizzes will test knowledge of the content of the previous five lectures and assigned chapters in the textbook.

Homework Exercises: A total of six homework exercises will be assigned during the course. These exercises are intended to give you a more applied understanding of the concepts and principles of petrology. The homework exercises will typically be due one week after they are assigned.

Lab Exercises: Approximately 20 of the lab sessions will require completion of petrographic reports or a worksheet. You will be notified of the due date for the exercise when it is assigned (usually one week).

Lab Computer: Occasionally, petrographic data collected for a lab exercise will need to be entered into a spreadsheet on the lab computer or photomicrographs must be taken off the instructor microscope. To access the appropriate folder, you must log on as a student using the password Agate#!09 and open the GEOL3212_09 folder on the desktop.

Late Penalties: There is a lot of content to be covered in this course. In order to motivate you to keep up with coursework, there will be substantial penalties for late assignments. Lab and homework exercises that are turned in up to two weeks after the due date will receive a 15% reduction in grade. Exercises will not be accepted beyond two weeks after the due date. Permission to turn in assignments late will only be granted for special circumstances and must be requested in advance of the due date.

Field Trip: You will be required to attend a two-day field trip for full credit.
Date: Saturday & Sunday, May 2-3 (may leave late Fri, May 1 if UP trip)
Destination: Upper Michigan or Central MN
- Overnight camping required
- Meals will be provided; Grub and Camping Fee ~ $35
- Transportation will be by van.
Supplies: Although all supplies and equipment you will need for the lab sessions and field trip will be provided, you are strongly encouraged to purchase the following items, especially if you are planning to continue in the geological sciences:

- 10x Handlens ($12 - $35; at bookstore or www.minerox.com)
- Transparent cm-scale ruler with a protractor
- Pen Magnet ($5; at bookstore)
- Field Notebook ($4 -$8; at bookstore)
- Geologic rock hammer or 2-3 lb sledge hammer.

Final Report on the Sonju Lake Intrusion: At various times throughout the lab, you will be acquiring petrographic and geochemical data from the samples collected from the Sonju Lake Intrusion. These will include samples collected last fall, as well as samples collected from previous studies. The data you collect from these samples will be integrated with other data your classmates collect as well as other geochemical data you will be given. This database will form the basis of a final lab report you will produce at the end of the course that summarizes the petrology of the Sonju Lake Intrusion. More information about the content of this report will be given over the course of the semester.

Grading: Scores for the various components of the class will be weighted as follows:

- Lecture Quizzes 30%
- Lab Exercises 40%
- Homework Exercises 12%
- Field Trip Notebook 3%
- Final Report on Sonju Lake 15%

Letter grades will be based on the following range of total class percentage scores:

- A (Outstanding) 100-95%
- A- (Outstanding) 95-90%
- B+ (Above Average) 90-85%
- B (Above Average) 85-80%
- B- (Above Average) 80-75%
- C+ (Average) 75-70%
- C (Average) 70-65%
- C- (Average) 65-60%
- D+ (Below Average) 60-55%
- D (Below Average) 55-50%
- F (Failing) <50%

I Incomplete An incomplete grade will be assigned if a failing grade is due to lecture tests not taken or more than 4 lab exercises/quizles not turned in.

Students with Disabilities: Individuals who have any disability, either permanent or temporary, which might affect their ability to perform in this class are encouraged to inform the instructor at the beginning of the semester. Adaptions of methods, materials, or evaluations may be made as required to provide equitable participation.

This syllabus is subject to change.