MSE 170 Spring 2003

Instructor	E-mail Addresses	Office Location	Phone
Prof. Miqin Zhang	Sec. A B mzhang@u.washington.edu Office hour: 1:00-2:00 pm on Wed	302L Roberts	(206) 616-9356

Lab TA's

Sharon Wang (Lead TA)	swong52@u.washington.edu
Isaiah Ngigi Gatuna	gatunan@u.washington.edu
Chen-Luen Shih	shihcl@u.washington.edu
John K. Kamencik	jkk2@u.washington.edu

Office hour: 3:00-4:00pm on Wed

MS&E Engineering Technicians

Bob Smith	ras7@u.washington.edu
Kevin Soderlund	kevins@u.washington.edu

Lectures	LAB
Section A: 8:30 AM Mueller 153 MWF	Mueller 168
Section B: 12:30 PM Mueller 153 MWF	Mueller 168

TEXT: William D Callister, Jr., Materials Science and Engineering an Introduction, 5th, or 6th Edition

Course information in general found on the web at:
http:// courses.washington.edu/mse170

Grading:

Homework:	10%
Midterm	15%
Final	30%
Labs	15%
Journals	5%
Project	25%

HW: Homework is due at 5 PM every Wednesday. A box is provided in the MSE 170 Lab to turn in homework. NO LATE HOMEWORK WILL BE ACCEPTED. The solutions will be posted on the web site. There will be NO EXCEPTIONS to this policy. Students will be allowed to drop their lowest homework grade at the end of the quarter. Homework will be returned to your lab section box in the ENGR 170 lab.

Labs: You MUST attend the lab section for which you have enrolled. If you do not attend your lab section the first week and do not notify your respective lab TA or the lead TA, you may be DROPPED from the class list. Prior to each lab, you will be expected to print out a copy of the lab handout from the Web page, read the lab handout, be prepared to answer pre lab questions and make journal entry as discussed below. Some labs will only require answering questions and such; others will require a formal write-up. Labs are due at the beginning of your lab section the week following the completion of the lab.

Journals: Journals are due at the beginning of your lab section on the dates announced by your TA. Journals will include pre lab objectives and experimental summary, experimental observations and data, and all project information.
No late journals will be accepted.

Projects: One of the main portions of this class will be the group project. This will be done primarily with your lab section TA and MSE technical staff. Each lab section will be split into two or three groups for the projects. This will be done during the first week of lab. Each group will have to come up with a project (details of which can either be found on the Web or will be explained further in your lab sections). This project will be a combination of research and experimentation. Experiments will be designed with the help of the TA's and conducted during the quarter. A preliminary presentation will be required during Week 3 during which the group will present the results of their literary research, proposed experiments and results of any preliminary experiments. Experiments will be kept simple, and focus will be placed on analysis. Students will present their final posters the last week of lab sections.

Tentative Course Schedule - <u>CHECK WEB SITE WEEKLY FOR UPDATES AND CHANGES</u>

Week	Lecture Topic	Reading	Homework	Laboratory
Week 1 March 31	• Introduction • Bonding in Solids • Basic Crystal Structure	**1**: 1-5 **2**: 1-8 **3**: 1-7	***No homework due this week***	Lab tour/Safety Working in Teams
Week 2 April 7	• Ceramic Crystal Structures • Crystal Directions & Planes • Crystalline & Noncrystalline solids	**13**: 1-4 **3**: 8-11 **3**: 12-16	**2:** 13, 22 **3:** 6, 9, 14 April: 9	**Lab I:** What is in it and Why?
Week 3 April 14	• Imperfections in Crystals • Diffusion • Elastic Properties	**4**:1-10 **5**: 1-6 **6**: 1-6	**13**: 5, 7 **3:** 28,29,42 April: 16	Project Proposals week
Week 4 April 21	• Mechanical Properties • Slip in Crystalline Materials • Strengthening Mechanisms Recrystallization and Grain growth	**6**: 8-12 **7**: 1-6 **7**: 8-13	**4:** 1, 4, 12 **5:** 1, 3, 7 **6:** 4, 6, 26, 29 April: 23	**Lab II:** Symmetry and Structure
Week 5 April 28	• Fracture • Failure • Midterm Review	**8**: 1-9 **8**: 11-14	**7:** 5,6,7,9,23 **7:** 14, 24 April: 30	**Lab III:** Work Hardening
Week 6 May 5	• Phase Diagrams • **MIDTERM (May 7)** • Binary Eutectic Diagrams	**9**: 1-6 **9**: 7-12	**7:** 34, D5 **8:** 5,23 May 7	Project Development
Week 7 May 12	• Binary microstructures • Fe-C Phase Diagram • Phase transformation	**9:**13-15 **10**: 1-5; 7-9	**8:** 24,31,46 **9:** 1, 5, 7 May 14	Project Development
Week 8 May 19	• Thermal processing • Electrical properties • Electrical Properties	**11**: 1-7 19:1-9	**9**: 33,34,52,53 **10**: 5, 12,14,25 May 21	Project Development Day, Poster Making
Week 9 May 26	• No class (Memorial day) • Ceramics • Polymers	**13:** 7-10 **15**: 1-11	**11:** 4, 13, D8 **19:** 1,7 May 28	**Lab IV:** Electrical Properties
Week 10 June 2	• Polymer Properties • Composites • Final review	**16**: 1-5 **17**: 1-10	**19:** 12,32,34 **13**: 37,44 June 4	Poster Presentations
Finals	Section A	8:30-10:20am Tues,June 10		
	Section B	8:30-10:20am Thur,June 12		