

MSE 5322, Microstructural Characterization of Materials

Fall, 2009 Every Friday, 2-5 pm; ITE, room 127.

Instructor: Prof. Bryan D. Huey
IMS Plaza, Room 158, 486 3284, bhuey@ims.uconn.edu
Office Hours: Monday 1-2, or by appointment

Teaching Assistant: Luke Autry
IMS Surface Analysis Lab, UTEB Room 269 860-986-9191, autch97@gmail.com
Office Hours: Thurs 3-5

Course Web Page: <http://www.ims.uconn.edu/~bhuey/>

Required Textbook: 1) Microstructural Characterization of Materials, 2nd edition
by D. Brandon and W.D. Kaplan, John Wiley and Sons, Inc. (2008).

Goals: To introduce fundamental concepts of microstructural characterization, including concepts, interpretation, equipment, and limitations. This course will therefore help you to identify appropriate characterization techniques for research and analyze their results.

Lab Projects: None, though several lab visits will be arranged (optional but highly recommended).

Assessment: Grading is based on performance on homework assignments and the comprehensive final exam. Important note: plagiarism is NOT TOLERATED—copies of text/answers are NOT acceptable.

Homework: Assignments handed in *after the start of class* lose credit depending on the timing. You may work together on homework assignments, BUT, you must hand in your own work, in your words. You MAY NOT work together on the final exam.

Lecture	Date	Topic	Chapter	Remarks
1	4-Sep	Course Details; Microstructure; Crystallography	1	
2	11-Sep	Optical Microscopy	3	
3	18-Sep	Scanning Electron Microscopy	5	HW1 due
4	25-Sep	Scanning probe microscopy	7	
5	2-Oct	Lab Visits (No Class)		HW2 due
	9-Oct	No Class		
6	16-Oct	Diffraction I	2, handout	
7	23-Oct	Diffraction II	2, handout	
8	30-Oct	Transmission Electron Microscopy	4	HW3 due
9	14-Nov	Chemical Analysis in EM: EDAX and EELS	6	
10	20-Nov	Focused Ion Beam, He ion microscope	handout	HW4 due
	27-Nov	Thanksgiving Week: No Class		
11	4-Dec	Surface Analysis-XPS, AES, Raman	8	HW5 due
	14-Dec	MONDAY: Take-home Final Exam due <u>4:30 pm</u>		