



**Center for Research on Interface Structures and Phenomena
Materials Research Science and Engineering Center-Yale/SCSU/BNL**

MIMER: SPECIAL OPPORTUNITY FOR RESEARCH TRAINING

Mini-course in Transmission Electron Microscopy

Course summary: Taught during the Spring semester, this laboratory course introduces students to the operation of the transmission electron microscope (TEM), as well as associated techniques and equipment. Successful completion of the course allows students continued access to the TEM for research projects in subsequent semesters.

Course description: Transmission electron microscopes are capable of achieving very high magnifications (e.g., 1,000,000X), and thus permit the examination of materials at the nano level. In this hands-on course, students learn how to prepare specimens for electron microscopic study, how to use the TEM to examine and digitally photograph them, and how to interpret the resultant images. The theory behind these techniques and the use of the TEM also will be considered. This course is ideal for students interested in independent research in materials science, but is open to other students as well. Enrollment is limited to 4. (3 credits). Text: Transmission Electron Microscopy, Williams & Carter.

Format: The course meets for one lab period per week, specifically Monday from 4-7pm, but students must plan to invest the time equivalent of at least one additional lab period every week in order to practice the techniques and to meet with the study sponsor. Practice time is essential for success in this course. Students will also be required to conduct a thorough literature search and to present findings.

Prerequisites: Pre-reqs include patience, persistence, and a meticulous nature, plus permission of the instructor. Students must submit a written proposal describing (1) their reasons for wishing to learn about TEM and (2) a specific topic of interest. Proposals are due to Prof. Broadbridge by Thursday, December 1, 2005.

Instructors: C. Broadbridge (Independent Study Sponsor) and A. Lehman (Program Manager for the CRISP NanoCharacterization Facility at SCSU).

For more information contact C. Broadbridge @ broadbridge@southernct.edu and A. Lehman @ lehmana1@southernct.edu.