

PHYS 594: Special Topics in Modern Physics – Introduction to Transmission Electron Microscopy

Instructors: Robert F Klie

Time: Monday 3:30 – 5:00 PM

Room: TBD

Labs: Dates TBD in the RRC East

Credit: 3 hours

Transmission electron microscopy (TEM) has become the primary tool for characterizing the atomic and electronic structures of many nano-scale materials. This course will introduce students to the fundamental principles underlying the formation of TEM and scanning TEM (STEM) images, as well as electron energy-loss (EELS) and energy-dispersive X-ray (EDX) spectroscopy. By the end of the course students will have an in-depth understanding of transmission electron microscope (TEM), electron diffraction, high-resolution imaging techniques, electron spectroscopy techniques, as well as scanning transmission electron microscopy (STEM) techniques. Basic image and spectrum modeling approaches will also be discussed.

This course consists of a 90 mins lecture and a 3 hour lab section per week. The labs will consist of TEM demonstrations to be held in the RRC-East, as well as take-home assignments.

This course registration will be limited to 15 students.

For more information regarding this course, please email: rfklie@uic.edu