

Introductory Scanning Electron Microscopy Training Policy Statement

Each individual must pass the Introductory Scanning Electron Microscopy course at CharFac in order to independently use the facility's SEMs.

A given offering of the course will focus upon one of the facility's four SEMs (JEOL 6500, JEOL 6700; Hitachi S-4700; Hitachi S-900). See "Which SEM is best for you to train on?" below to help make your decision. Chris Frethem (freth001@umn.edu) and Bob Hafner (hafne030@umn.edu) can help to further direct you if necessary.

The Characterization Facility front office (626-7594 charfac@umn.edu) can be contacted to schedule the course.

The Introductory Scanning Electron Microscopy course is a prerequisite for training in: Energy Dispersive Spectroscopy; Electron BackScatter Diffraction; Cathodoluminescence; and Cryo-SEM.

Individuals who pass the introductory training on one of the SEMs and wish to use another of the facility's SEMs can contact Chris Frethem or Bob Hafner for individual training. The charge will be staff and instrument time. The total time needed for the student to show competence on the new instrument will be determined by the instructor.

It is expected that students assimilate the information in the "Scanning Electron Microscopy Primer" prior to the hands-on training. The primer can be found in the "Education" section of the CharFac website (<http://www.charfac.umn.edu/>).

The Introductory Basic Scanning Electron Microscopy course will have a maximum of 3 students. The course will consist of 6 hrs of hands-on training on the microscope as a group (either two 3-hour or three 2-hour sessions). In addition, each student will subsequently have to arrange for a "one-on-one" session with the instructor within two weeks of the end of the group training. This session is included in the cost of the class and will require the student to pass a "driving test" on the microscope to demonstrate competence with sample loading, alignment, obtaining well focused and astigmatism corrected images, etc.

If the student fails the driving test, the instructor will determine whether the student must schedule more assist time or retake the entire course.

Which SEM is best for you to train on?

- The 6500 and S4700 can be considered as multipurpose SEMs.
- If you are subsequently interested in doing EDS (elemental analysis), EBSD or Cathodoluminescence: 6500
- If you are interested in high resolution imaging of conductive samples with an in-lens detector you may want to consider the 6700. It is much more available than the 6500
- If you are interested in very high magnification/resolution imaging and your sample is small (maximum 2 mm thick by 5 mm wide by 8 mm long) you would be well advised to look at the highest resolution SEM on campus: S900
- If you are interested in high resolution backscatter imaging: S4700 and S900
- If you are subsequently interested in doing cryo: S4700 and S900