

# Course Policies for Biology 326

## Electron Microscopy Techniques for Biology

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Biol. 326 Home | [Biol 326 Topics](#)

### GOALS

The goal of this course is to learn the basis and techniques of electron microscopy as it is used in biology. The department has transmission electron microscope (a Hitachi H600) and scanning electron microscope (a Hitachi S3400). The course will consist of a series of lectures on technique, laboratory technique demonstrations, and time to learn how to prepare specimens and learn how to use the microscopes, in particular the TEM H-600. Most of the skills demonstrated in the lab you will be expected to learn, and demonstrate some degree of competence. In many cases the lab demonstrations will be one on one. It is expected that you all will be self-motivated in this course. In many respects the lab will be conducted as a normal research lab, this means that you will be in charge of your own schedule and will need to be considerate of your labmates and cooperate with them as needed.

### GRADING:

90+=A, 80-89.9=B, 70-79.9=C, 65-69.9=C-, 0-64.9=F

Grades in this course will be based on

### BASIC SKILLS

The completion of the basic skills to prepare specimens for electron microscopy.

The following skills have been identified and include:

Skills for the transmission Electron Microscopy

Primary fixation

Dehydration and infiltration

Specimen embedding

Knife making

Block trimming

Cutting and staining thick sections

Making a knife with a water boat for ultrathin sections

Cutting and collecting ultrathin sections

Staining ultrathin section on grids

Turning the microscope on and setting it up for use

Focusing the microscope

Recording a micrograph on film

Developing the film

Scanning the film negative into the computer

Printing the image digitally

Printing the image with conventional photographic paper

Interpreting the micrograph

Completion of each skill is worth one point 17 points total. You will be graded on your three best micrographs for an additional 3 points, 20 points total. At the end of the semester scores for each skill will be added together. A percentage will be computed and applied to the grading scale.

#### EFFORT

Effort will also be measured. Each student is required to keep a log documenting the work they do in this course. Regular class meets 7 hours per week. Since this is a skills course, each student is expected to work in lab at least an additional 3 hours per week. A total of 150 hours. A percentage grade will be computed for effort. Because sectioning is the most difficult skill to master, a large portion of this work will be focused on cutting ultrathin sections at the ultramicrotomes. You will record both classroom time and homework (or study) time.

#### TEXTBOOKS

The rental texts for this course are:

Electron Microscopy, Principles and Techniques for Biologists, 2nd Edition

By John J. Bozzola and Lonnie Russel, 1999, Jones and Bartlett pub.

Cell and Tissue Ultrastructure, A Functional Perspective

By Patricia Cross and K. Lynne Mercer, 1993, WH Freeman Co.

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