photo by Bill Hughes

Jim Ehrman and Alan Huffman use a scanning electron microscope fitted with an X-ray attachment to analyze the elemental content of a mineral sample. Ehrman is a research associate with the Electron Microscopy Center at A&M and Huffman is a graduate student in geophysics.

Continued from page 9

undergraduate course, Biol 430, doesn't have.

"In the undergraduate course, we don't have the time, money or facilities to teach at that level," Neumann says, "so we teach the theory of microscopy — the ideas of refraction, diffraction, lenses, refractive index and operation of the microscope itself."

In Biol 430, students learn electron microscopy by learning light microscopy first. The similarity helps students understand electron microscopy.

"We've got the same principles but different entities to deal with," Neumann says. "We simply give the student the theory that the operator must have in order to know which dial to use and what he must do to get the image or the information he needs from the specimen."

Neumann says that while the undergraduate theory course is instructive, it in no way makes a person a competent electron microscope operator. Getting to "tweek" the knobs is reserved for those who take one of the graduate level courses or a special course.

"I've got students who do special projects (for instance a 485)," Neumann says, "in which they've had the theory and I can take them (to the center), show them the operation of the scope, show them the photographic techniques and show them the specimen preparation so that they get the hands-on training.

"At the end of the term, they know the techniques and they're familiar with the scope, although they're not checked out to operate it on their own. They can change magnification, focus, change the image enhancement, etc., as well as go from latent image to positive print for publication purposes. They do get some practical application."

Jim Ehrman is an example of a student who took his electron microscope training to the professional level. He got involved in electron microscopy at the University of Nebraska where he took a course in TEM.

After coming to A&M in 1979, Ehrman took the graduate SEM course and had such a good time that he was chosen as the teaching assistant the following semester.

When a position as a technician opened up at the EM center, Ehrman applied and was hired. After about three years in that position, Ehrman was hired for his current research associate position.

Ehrman has worked on all kinds of projects from minerals to plastics to his particular field of training —biology. He holds a master's degree in biology from A&M.

The biological projects that Ehrman's worked on have been for departments like forestry and entomology.

As a research associate, Ehrman guides proposed projects brought to the EM

See "Micro," page 12