How can YOU use DIGITAL IMAGES?
Find out in PtyS 449/549 in Spring 2010

"Image Processing for Scientific Discovery"
Prof. Richard Greenberg, Planetary Sciences

Learn image processing as a tool for exploration, discovery, and analysis in a wide range of subjects including geosciences, biology and biomedicine, astronomy, planetary sciences, meteorology, physics, and chemistry, as well as the arts, communications, and graphics. The class is intended for both science and non-science majors. It is also designed to meet the needs of education majors planning to teach science, who want to increase their level of sophistication in an area of technology that can be used as a learning tool in schools.

The course is activity-based and covers techniques of digital image processing with real-world applications. The labs will involve extensive image processing on Macintosh computers with activities in many subject areas. Through these activities and discussions, students will learn the fundamental underlying quantitative processes, so as they go on to apply image processing to their own interests, they will understand in a meaningful way what their computers will be doing to their images.

Topics to be covered are:

1. The importance of image processing as a tool for exploration, discovery, and analysis.
2. Digital vs. analog images
3. Acquisition of digital imagery.
4. Image processing in the physical and biological sciences, as well as in the arts.
5. Image processing theory.
6. Image enhancement.
7. Techniques for quantitative image analysis.
8. Animation for exploration and discovery.
9. Color reconstruction, theory, false color, and multi-spectral analysis.
10. Image processing in education.

For term projects, each student will identify and investigate an application for image processing in scientific research, the arts, industry, business, education, or any other field of personal interest.

Contact Prof. Greenberg (greenberg@lpl.arizona.edu or 621-6940) for information on schedule, content and format of the course.

THE ACTUAL MEETING TIME OF THE CLASSES MAY BE CHANGED TO FIT STUDENTS' SCHEDULES.
FIRST CLASS MEETS WEDNESDAY, JANUARY 13 AT 4:00 PM IN ROOM 330, SPACE SCIENCE BLDG.