

## ERE 596 - Digital Image Analysis

liluo@syr.edu - gmountrakis@esf.edu  
http://blackboard.syr.edu

### Syllabus

**Instructor:**

Giorgos Mountrakis  
419 Baker Hall  
E-mail: gmountrakis@esf.edu

**Teaching Assistant:**

Lori Luo  
E-mail: liluo@syr.edu

Course delivered through BlackBoard: <http://blackboard.syr.edu>

**Lectures:** Tuesday and Thursday 10:00 - 10:50 BAKER 437

**Lab:** Tuesday 3:30 - 6:20 BAKER 434

**Office Hours:** The instructor will be available after lectures or email him for an appointment.

**Course Description:**

Topics covered in this class include elements of digital image processing and analysis systems: Digital image representation, visual perception, sampling and quantization, pixel connectivity, Fourier transforms, image enhancement, filtering, image segmentation, edge detection, thresholding, representation schemes, descriptors, morphology, recognition and interpretation, elements of video processing. General programming experience and quantitative background are required. All assignments will use Matlab software package, though no prior knowledge of Matlab is required.

**Course Objectives:**

The class aims to provide understanding of:

- The basic principles and concepts in digital image processing
- The application of digital image analysis moving towards image interpretation
- Customization of taught methods as applied to student-chosen problems

**Course Outcomes:**

Upon successful completion of the course students should be able to:

- Describe the fundamental concepts and process flow of digital image analysis
- Appropriately apply digital image analysis techniques to their research
- Enhance their critical thinking skills

Note: Becoming an expert in Matlab or any other software is NOT an expected outcome.

**Grading:**

Homeworks (25%), Midterm (20%), Final (20%), Project (30%), Paper Presentation (5%)

**Textbook:**

Digital Image Processing (3rd Edition) by Rafael C. Gonzalez, Richard E. Woods  
Publisher: Prentice Hall, ISBN-10: 013168728X, ISBN-13: 978-0131687288 [Available at SU's bookstore].