

## **ECE 557 – Digital Image Processing Fall 2009**

- Instructor: Dr. Elisa H. Barney Smith  
Office: MEC 202C  
Phone: 426-2214  
E-mail: EBarneySmith@boisestate.edu
- Class Meeting Times: MW 10:40-12:00am  
ET 314  
[http://coen.boisestate.edu/EBarneySmith/Image\\_Proc](http://coen.boisestate.edu/EBarneySmith/Image_Proc)
- Office Hours: Monday & Wednesday 1:40-2:30  
I will also be available in my office at many other times. Stop by if you have questions.
- Prerequisites: ECE 350, COMPSCI 117 or COMPSCI 125, or Perm/Inst
- Text: Rafael C Gonzalez and Richard E Woods, "Digital Image Processing," second edition, © 2002, Prentice Hall, ISBN 0-201-18075-8  
-or-  
Rafael C Gonzalez and Richard E Woods, "Digital Image Processing," third edition, © 2008, Prentice Hall, ISBN 0-13-168728-8
- Grading:
- |                    |     |   |                        |
|--------------------|-----|---|------------------------|
| Homeworks          | 35% | A | guaranteed with a 90%  |
| Projects           | 55% | B | guaranteed with an 80% |
| Literature Surveys | 10% | C | guaranteed with a 70%  |
|                    |     | D | guaranteed with a 60%  |

Homeworks will involve solving problems from the text, or running experiments using pre-written software (either MATLAB or Java) and commenting on the results.

Projects will require the student to write a computer program to implement an algorithm discussed in lecture and to do experiments with that code.

- Learning Objectives: Students taking this course will
- gain an understanding of the principles of computer-based image processing;
  - gain skills in two-dimensional signal analysis and processing; and
  - gain the ability to use modern computer-based algorithms to design or evaluate potential imaging systems.
  - be able to explain various image representations, human visual perception, color space, and standards.
  - be able to write computer programs to perform image filtering, enhancement, restoration, and transform.
  - be able to calculate image geometrical transformation and perform camera modeling.
  - be able to implement algorithms to solve real-world image and video processing problems.

Learning Assessment: Assessment will be through homeworks, projects and writing.