The purpose of this course is to give a practical introduction to a range of fundamental image processing algorithms. Prerequisite for this class is graduate standing, or good mathematics, data structures and algorithm background and experience in C/C++ programming (or MATLAB for graduate students outside the department).

- Image manipulation and smoothing
- Histogram modification and thresholding
- Color image processing
- Edge detection
- Fourier transform and image filtering
- Hough transform
- Feature extraction, boundary and region representation.
- Image formation and geometric optics
- Image/video/3D acquisition labs
- 2D/3D recognition paradigm including deep learning
- Feature extraction, boundary and region representation
- Image formation and geometric optics
- Image/video/3D acquisition labs
- 2D/3D recognition paradigm including deep learning

The text is the book by Milan Sonka et al, "Image Processing, Analysis and Machine Vision", Cengage, 2015 (fourth edition), a comprehensive text covering a lot of topics. We will use it as well as handouts and class notes.

- Time: 12:30-1:45 pm, Mon/Wed, Room: NES 108
- Instructor: Dmitry B. Goldgof, office: ENB326, phone: 974-4055, email: goldgof@mail.usf.edu
- office hours: see course website
- TA: see course website

GRADING:

- Computer Assignments and Lab 50%
- Quiz 1 25%
- Quiz 2 25%
- Grading is A, B, C, D and F, i.e. there is no +/- grading
- Grading scale: A: 90 - 100 points, B: 80 - 89, C: 70 - 79, D: 60 - 60, F: 60 or fewer points
- Penalty for ANY unethical activity is a FF. The definition of unethical activities include, but is not limited to, copying or sharing information on tasks meant to be completed individually as well as copying text and images from articles, books or web sources without proper citation. Unless specified otherwise, all tasks in this course are to be complete individually.

ATTENDANCE:

Class attendance is required although not checked. Students are responsible for all information communicated during class. This information will not necessarily be duplicated in the web page for the class.

MISSED TESTS, QUIZZES, AND ASSIGNMENTS:

A test (or quiz) missed due to illness (or work) will be made up when proper documentation is provided in writing. Programming and other assignments must be submitted by the due date. Late assignments will be penalized 20% per day. Students who anticipate being absent from class due to religious observance should inform the instructor by the second class meeting.

RELEVANT DATES:

Quiz 1: On or about October 4 - exact date will be announced in class.
Quiz 2: On or about November 29 - exact date will be announced in class.
Other due dates will be announced on the course web page.