Syllabus for CSE107-01: Intro to Digital Image Process

Fall 2017
Instructor: Shawn Newsam

Designation:	Introduction to Digital Image Processing
Catalog Description:	Overview of digital image processing including visual perception, image formation, spatial transformations, image enhancement, color image representations and processing, edge detection, image segmentation, and morphological image processing.
Text Books and Other Required Materials:	Gonzalez and Woods, Digital Image Processing, 4th Edition, Prentice Hall, 2018.
Course Objectives/ Student Learning Outcomes:	This course introduces digital image processing. It focuses on the theory and algorithms underlying a range of tasks including acquisition and formation, enhancement, segmentation, representation, and recognition.
	The Course Objectives are: 1) to give students an appreciation of the underlying theory and mathematics; 2) to demonstrate how the theory and mathematics is implemented to achieve desired results; and 3) to provide another domain for them to be exposed to the essential mathematics taught in their lower division coursework such as linear algebra, calculus and statistics.
	The Student Learning Outcomes are: By the end of the course through lectures, reading, homeworks, lab assignments and exams, the students will demonstrate: - An ability (1) to analyze an image analysis problem to identify the requirements of its solution; (2) to apply knowledge of mathematics and computing to design a solution; and (3) to implement and evaluate the solution using modern programming practices. - An ability to apply design and development principles in the construction of software systems of varying complexity. - An ability to use current techniques, skills, and tools necessary for computing practice. - An ability to apply mathematical foundations, algorithmic principles, and computer science theory to the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices.
Program Learning Outcomes:	
Prerequisites by Topic:	Math 24, Math 32, and CSE 31, or consent of the instructor.
Course Policies:	Unless otherwise specified, ALL WORK IS TO BE YOUR OWN. This includes the homework and lab assignments.
	Unless otherwise specified, homework assignments are to be turned in by hardcopy during lecture on the day they are due. Unless otherwise specified, lab

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	assignments are either to be turned in by hardcopy during lecture (preferred) or emailed as a single document by midnight on the day they are due. Late homework and lab assignments can be turned in one day late for 10% off. Assignments that are more than one day late will not be accepted.
Academic Dishonesty Statement:	a. Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy. Any work submitted by a student in this course for academic credit will be the student's own work.
	b. You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e mail, an e mail attachment file, a diskette, or a hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action.
	c. During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.
Disability Statement:	Accommodations for Students with Disabilities: The University of California Merced is committed to ensuring equal academic opportunities and inclusion for students with disabilities based on the principles of independent living, accessible universal design and diversity. I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with Disability Services Center to verify their eligibility for appropriate accommodations.
Topics:	Topics include: visual perception, image formation, spatial transformations, image enhancement, color image representations and processing, edge detection, image segmentation, and morphological image processing.
Class/laboratory Schedule:	
Midterm/Final Exam Schedule:	
Course Calendar:	
Professional Component:	
Assessment/Grading Policy:	Lecture attendance and participation: 5% Homework assignments: 25% Lab assignments: 25% Midterm exam: 20% Final exam: 25%
Coordinator:	
Contact Information:	snewsam@ucmerced.edu
Office Hours:	