CS 445: Digital Image Processing (Spring 2002)

Instructor: K. Sivakumar  
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Office Hours: Tu Th 12:00 – 1:15 p.m., or by appointment (EME 403)  
Lecture Hours: Tu Th 1:25 – 2:40 p.m. (Sloan 161)

Teaching Asst.: Ty Palmer  
(More details will be provided later)

Course Webpage: (will be available shortly) http://www.eecs.wsu.edu/~cs445

Textbook:

References:

Course Outline:
This is an introductory course on image processing and analysis dealing with Mathematical Representation of Images, Image Sampling and Quantization, Image Transforms: Fourier, Karhunen-Loeve, etc., Image Enhancement: Statistical Techniques and Ad-Hoc Techniques, Image Restoration: Inverse Filtering, Statistical and Algebraic Approaches, Image Coding, Edge Detection, and Texture Analysis.  
We will cover Chapters 1-6, 8, and possibly some selected topics from Chapters 9-10 in the text.

Grading:
The grades in this course will be based on:
  
Homework: 10 %  
Midterm tests*: (Feb. 26, Apr. 16) 20 % each  
Projects (about 5): 25 %  
Final exam: (May 8, 1:00 to 3:00 p.m.) 25 %

*Dates are tentative

Prerequisites:  
By course: EE341 or CS330  
Math 315 (Diff. eq.)  
Stat 360 or Stat 443 (concurrent enrollment allowed)
By topic: Previous exposure to concepts from linear systems theory and some proficiency in computer programming (we will use Matlab for the most part). Familiarity with the Fourier transforms, complex numbers, linear algebra, and probability theory. These topics will be reviewed in class, as necessary.

Course mailing list: A mailing list for this course has been setup. Everyone enrolled in this course is required to subscribe to this list. You can do this via a web browser by connecting to: http://herbert.eecs.wsu.edu/guest/RemoteListSummary/cs445 and entering your preferred email address. You can change this address later, if necessary, using the same web site (unsubscribe your old email address and subscribe with your new address). Please subscribe as soon as possible, so that you don’t miss any announcements. It is necessary to subscribe to this list, since important course related information would be sent to this list. Please check your mail often (at least once a day, more often if feasible).

The mailing list is intended to be an open forum for any course-related announcement and discussion. Anyone subscribed to the list (students, instructor, TA) will be able to post messages to this list directly, by simply sending an email to cs445@eecs.wsu.edu. Feel free to post your queries to this list but do not abuse it. As a general rule of thumb: if your mail pertains specifically to you, send it directly to me or the TA as the case maybe; if you feel it would be of general interest to the class, send it to the list directly. If I feel the reply would benefit the whole class, I might send replies to individual queries to the whole list.

Note:

1. Computer Accounts: You are entitled to and are encouraged to setup an account in the EECS computer systems. If you don’t have one already, request an account from the EECS Systems staff (helpdesk is located in Sloan 354, or use the account request form on the web). Problems with your computer account, printing, and other systems related questions should be first addressed to the Systems staff. Questions about the software and other related issues should be brought to the instructor.

2. The Image Processing toolbox in Matlab will be our primary software resource. It is available only on the MS-Windows machines (in EECS), not on the Unix system.

3. You are free to use other computing resources. In that case, however, you may not get computing help or support from the EECS Systems staff or the instructor. Unavailability of non-EECS computing resources will not be a valid excuse for late assignments.

4. Academic honesty: Discussion of class material and, to a limited extent, homework problems among students is encouraged. However, it is not permitted, for any reason, to collaborate with other students in the class, when solving assigned homework problems. It is not permitted, under any circumstances, to consult or plagiarize past homework solutions. Cheating during an exam is considered to be a serious violation of ethical integrity. Any material you turn in for a grade must be your own work. Cases of academic dishonesty shall be dealt with in accordance with Academic Integrity Policy in the Student Handbook. If you are aware of any incidents of cheating by fellow students, please bring it to my attention, as soon as possible.

5. Late Homework: Late homeworks will not be accepted (except in very unusual circumstances). The lowest homework scores for each student will be dropped before
computing the final weighted score. This is intended to compensate for potential conflicts with other commitments.

6. **Make-up Exams:** Usually, make-up tests will **not** be given. If you cannot take the first midterm test for valid reasons, your score in the second midterm test, the final, and the appropriate class averages will be used to compute your score. If you miss the second midterm for valid reasons, your score in the final exam and the appropriate class averages will be used to compute your score.