

**Klipsch School of Electrical and Computer Engineering
College of Engineering
New Mexico State University**

**EE 565: Pattern Recognition, 3.0 Credits
Spring 2008**

Class Schedule: M, W 2:30-3:20PM

Class Location: Thomas & Brown, Rm 303

Instructor:

Dr. Charles (Chuck) Creusere

Room 160D Goddard Hall

Phone: 646-3919

email: ccreuser@nmsu.edu

Office hour: M 9-10; by appointment.

Course Description:

This is an advanced, graduate level class in pattern recognition/classification. The major focus is statistically-based techniques, although other techniques like k-nearest neighbor and neural networks are also covered in detail. Some Matlab-based programming problems will be assigned.

Prerequisites: EE571 (random processes) or equivalent.

Textbook:

Duda, Hart, and Stork, *Pattern Classification*, 2nd Edition (2001), Wiley-Interscience, ISBN: 0-471-05669-3.

Software:

MATLAB (available in T&B 201 and 202). Purchase of MATLAB is optional.

Online Resources: WebCT site

Course Objectives:

After completing this course, the student should be comfortable with the theory and practice of pattern recognition including:

- Bayesian-optimal pattern classification
- Parameter/pdf estimation
- Non-parametric classifiers like k-nearest neighbor
- Feed-forward neural networks (overview)
- Unsupervised learning

Grading:

Homeworks: There will be weekly homework assignments consisting of textbook problems and/or computer simulation projects. Worth 20% of the final grade. Late assignments will not be accepted. Solutions will be available on webCT.

Project: There will be one project worth 25% of the final grade. The project will have two parts: a proposal worth 5% of the final grade and the final report/demonstration worth 20% of the final grade. **Due Dates**: Proposal-- Friday, March 7, 2008; Project report-- Friday, May 11, 2008 by 5:00 PM MST. You will also have to present your results during the last week of classes.

Exam: There will be one midterm exam worth a total of 25% of the final grade. **Date: TBD**

Final: The final, comprehensive examination is scheduled for Wednesday, May 7, 2008 from 1-3PM. Worth 30% of the final grade.

Re-grading: If a student feels that the grading on any assignment or exam is in error, they must bring the problem to the instructors attention **within 1 week** of receiving the graded assignment back from the instructor.

Policies:

I highly encourage you to discuss homeworks and projects with either myself or your peers. This discussion could include among other things, various approaches to a homework problem, algorithms for a software project, programming tips, and various theoretical insights. Be aware, however, that all submitted solutions to homeworks and projects must be written or coded (in the case of software) by the individual. There is to be no "sharing" of solutions. Any plagiarism or cheating will result in an automatic F in the course.

Students will be expected to attend at least 50% of regularly scheduled classes.

Rescheduled Classes:

Friday, week after Spring Break

Students with Disabilities:

If you have or believe you have a disability, you may wish to self-identify. You can do so by providing documentation to the Service for Students with Disabilities (SSD) office located in the Garcia Annex, room 102. The phone number is 646-6840. Appropriate accommodations may then be provided for you.

If you have a condition which may affect your ability to exit safely from the premises in an emergency or that may cause an emergency during class, you are encouraged to discuss this in confidence with the instructor and/or the coordinator of SSD. If you have general questions about the Americans with Disabilities Act (ADA), call the ADA coordinator at 646-3635.

Prepared by: C. Creusere, 01/15/08