Curriculum Committee
Minutes

September 7, 2007

Attendees: Tom Doeppner, Chad Jenkins, Franco Preparata, Steve Reiss, John Savage (Chair), Warren Schudy

1. Replacement for CSCI 1950-F Introduction to Machine Learning

The committee received a proposal from John Hughes and Warren Schudy that we allow APMA 2610 Recent Applications of Probability and Statistics be used this semester as a substitute for our courses CSCI 1950-F Introduction to Machine Learning. The description of APMA 2610 follows.

APMA 2610. Recent Applications of Probability and Statistics

This is a topics course, covering a selection of modern applications of probability and statistics in the computational, cognitive, engineering, and neural sciences. The course will be rigorous, but the emphasis will be on application. Topics will likely include: Markov chains and their applications to MCMC computing and hidden Markov models; Dependency graphs and Bayesian networks; parameter estimation and the EM algorithm; Kalman and particle filtering; Nonparametric statistics ("learning theory"), including consistency, bias/variance tradeoff, and regularization; the Bayesian approach to nonparametrics, including the Dirichlet and other conjugate priors; principle and independent component analysis; Gibbs distributions, maximum entropy, and their connections to large deviations. Each topic will be introduced with several lectures on the mathematical underpinnings, and concluded with a computer project, carried out by each student individually, demonstrating the mathematics and the utility of the approach. There will be no exams.

After a lengthy discussion it was decided that the following would apply to the offering of AM2610 for this semester only.
Students may choose to count APMA 2610 either as a computer science course or as an applied math course (e.g. PhD outside minor) for computer science degree requirements, but not both.

For PhD students APMA 2610 can be used as a 200-level CS course in the D (AI) area.

For masters students APMA 2610 can be used as a 200 level course that does not provide significant programming; whether it gives theory and/or practice credit for masters students will be decided later.

Students may earn CS credit for both APMA 2610 and the CS machine learning course CSCI 1950-F.

2. Change in Requirements for CS32 and CS36

At the last revision of our AB and ScB concentration requirements in 2006 we decided that all concentrators should take one of CS32 and CS36 but that those taking an approved pair containing a systems course should take both courses. Last May the committee decided that we should revise CS32 by combining material from the current versions of CS32 and CS36. We then would require CS32 for both concentrations and CS36 would become optional.

The CS faculty has not yet voted on our recommendations. When they do, the question will arise as to whether students who have taken CS36 both not CS32 and completing an approved pair containing a systems course should now take the revised CS32.

After considerable debate, the committee decided to recommend to the CS faculty that it allow students to avoid taking CS32 as long as we highly recommend that the students taking an approved pair containing a systems course take the revised version of CS32. The instructor of CS32 will accommodate students who have taken 36 by providing them material that takes their background into account. Similarly, the CS32 instructor will make it possible for students who took CS32 (but not CS36) in earlier years to sit in on parts of the course and learn the new material added to CS32.

3. Meeting Times

A poll of the members present indicated that a good time for the regular meetings of this committee would be Thursday afternoons between 2:30 and 4pm.

4. Differential Interest in Fall and Spring Courses

We discussed the perception of students that fall courses are more interesting than spring courses. Warren suggested that faculty members may teach courses
related to their research interests in the fall because they want to attract stu-
dents to their area of research. No conclusions were drawn. This subject will
be revisited.