

Course Description

Handed out: September 5, 2006

Overview

This course will give you a broad view of the current state of computer networking research. Through papers assigned for each class we will cover the following topics: Internet design and architecture, network security, quality of service, congestion control, mobile and wireless networking, peer to peer networks, network algorithmics, and network measurement. The class will also have a project component. You will work in teams of two to produce a small research paper.

General Information

Class Time: Tuesday and Thursday 9:30AM-10:45AM, in 119 Noland.

Instructor: Cristian Estan. Email estan@cs.wisc.edu. Office: CSS 7387. Office Hours: TBD

Prerequisites: The prerequisite for this course is CS 640 or a similar undergraduate-level course in computer networks. In particular I expect you to (1) already understand the basics of computer networks and (2) have experience in implementing non-trivial systems projects. If you have not taken CS 640, then, minimally, you should have taken a course that introduced you to the basics of networking: protocol layering; the ISO seven-layer model; rudiments of IP and related protocols such as TCP, UDP, and ICMP; routing protocols and the domain name system. You should already know what RFCs and Internet-Drafts are, and have some practice in the art of reading and getting information out of them.

Grading:

- **Exams:** There will be two in-class midterms and a final, and the best two of these three exams will count for 20% each. There will be a test-midterm on the 12th of September, but it will not contribute to the final grade.
- **Project:** The project will count for 40%. You will work in teams of two. I will discuss a few possible project topics in class, but you are encouraged to define your own ideas. There are four deliverables for the project. By the first class in October you should hand in a problem statement that clearly defines the research question, describes the relevant background and related work, and outlines how you plan to proceed. By the second class in November you should hand in a progress report and schedule a meeting to discuss the status of your project. By the third class in December you should hand in your report written in the style of a research paper. Make it coherent, well-structured and grammatically correct. Last week of classes, each group will give a 20 minute in-class presentation of their project.
- **Summaries:** Paper summaries will count for 10%. For each class with assigned reading, you will have to put together a summary of 500-1000 words describing the problem addressed by the paper, the solution proposed, and its advantages and drawbacks. Submit the summaries by email *the day before class*. On days with more than one papers assigned, you should read them all, but send in a summary just for the first one.
- **Class participation:** Class participation will count for 10%.