CS 640 Introduction to Computer Networks **Spring 2007**
http://www.cs.wisc.edu/~cs640-1/index.html

Course Description

Handed out: January 23, 2007

Overview

This course will cover the basic principles of networking with a focus on protocols, implementations, and issues specific to the Internet. We will study how LANs, routing, transport, and various network protocols and applications work using a number of examples. As a departure from the typical CS 640 we will cover in detail technologies related to web application development: HTML, XML, Javascript, AJAX, ASP.Net, C#, ODBC/ADO.Net, web services (SOAP and REST).

General Information

Class Time: Tuesday and Thursday 9:30AM-10:45AM, in 1240 CSS.

Final Exam: Friday May 18, 7:45 AM.

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

Teaching Assistant: Mohamed Eldawy Email `eldawy@cs.wisc.edu`. Office: CSS 5384
Office Hours: Mondays TBD, Wednesdays TBD

Textbook: Computer Networks: A Systems Approach (3rd Edition) by Larry Peterson and Bruce Davie. Morgan Kaufmann, 2003. ISBN: 1-55860-832-X.

Each week I will specify relevant sections of the required text which I will cover in class. Other useful books:

- TCP/IP Sockets in C: Practical Guide for Programmers by Michael Donahoo and Kenneth Calvert. Morgan Kaufmann, 2003. ISBN: 1-55860-826-5.
- TCP/IP Illustrated, Volume 1 by W. Richard Stevens. Addison-Wesley. ISBN: 0-201-63346-9.
- Computer Networking: A Top-Down Approach Featuring the Internet by Jim Kurose and Keith Ross, Addison-Wesley. ISBN: 0-201-61274-7.

Course Work

Syllabus: The following is the broad set of topics that will be covered in this course (roughly in the specified order):

1. Networking basics and protocol layering.
2. Network services and applications — DNS, SMTP, MIME, etc.
3. Web application development — HTTP, HTML, ASP.NET, Javascript, Web services, etc.
4. Physical and Link layer — Framing, Checksums, Aloha, Ethernet, Token Ring, Wireless LANs, etc.

Grading criteria for the class	
Criterion	Weight
Comprehensive final exam	40%
Programming assingnments	5+5+5+5+5=25%
Quizzes	(best 6 of 7) = 30%
Class participation	5%
Total	100%

5. Routing — Distance Vector, Link State, etc., IP service model, Internet addressing.

6. Transport — UDP and TCP.

7. Advanced topics — Overlays and P2P, Node mobility, Security, NATs and Firewalls.

Grading: The course will have a comprehensive final exam, five programming assignments and biweekly quizzes. The assignments will involve writing web pages, web applications, and socket programming (you will implement a simple client, and a simple server).

The class participation component is to encourage you to voice your opinions, raise questions, and actively involve in discussions in the class and in the mailing list.

Mailing List: The class mailing list is compsci640-1-s07@lists.wisc.edu. It should be used for all course related discussions, e.g. assignments, exams, or any topic related to networking.

Prerequisites: CS 537 or consent of instructor.

Collaboration and Academic Honesty: You may *discuss* programming assignment problems for general solution strategies with your classmates. But the formulation and exposition of the solutions *must* entirely be your own.