

ECE 465/565

Computer Networks and Protocols

Fall 2006

Instructor: Dr. Thinkh Nguyen

Credits: 4

Meeting Time: TR: 8-9:50 AM

Location: Kelley 1001

Office Hour: TR: 10- Noon

Text: Kurose and Ross, Computer Networking: A Top-Down Approach Featuring the Internet, **Third edition**, Addison Wesley.

Website: <http://web.engr.oregonstate.edu/~thinkh/teaching/ece465/fall06/fall06.html>

Course Description:

This course covers the basic concepts of networking layers and their functionalities. These include network architectures, routing algorithms, and link and transport protocols.

Prerequisites:

By course: ECE 375, CS 261, or instruction's permission.

By topic: Basic knowledge of computer organization, programming skills.

Graduate student must demonstrate the ability to

1. Design and implement a sophisticated, reliable transport protocol.

Topics:

- Introduction to computer networks and the Internet
- Basic probability theory
- Application layer
 - http
 - FTP
 - SMTP
 - DNS
 - P2P
 - Socket programming
- Transport Layer
 - Principles of reliable transport
 - UDP
 - TCP
 - Congestion control
- Network Layer and Routing
 - Routing principles
 - IP

- Routing in the Internet
- Link Layer and Local Area Networks
 - Error detection and correction
 - Multiple access protocols and LANs
 - LAN address and ARP
 - Ethernet
 - IEEE 802.11 LANs (Wireless)
- Physical Layer
 - Router design overview
 - Optical communication overview

Grading:

Assignments (written and programming assignments)	20%
Midterm 1	25%
Midterm 2	25%
Final	30%