

# CS 320 – Internetworking

College of Information Technology & Engineering  
Weisberg Division of Engineering and Computer Science

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**Semester and Year:**

Fall, 2007

**Classroom Sections, Locations, and Meeting Times:**

Section: 101    CRN: 2104    Days: TR    Time: 3:30 – 4:45    Location: GH206A

**Textbook:**

Kurose and Ross, *Computer Networking: A Top-Down Approach, 4<sup>th</sup> Ed*, Addison-Wesley, ISBN 978-0-321-49770-8

**Course Description:**

Principles and issues in interconnecting multiple physical networks into a coordinated system, operation of Internet protocols in the interconnected environment, and design of applications to operate in this environment.

**Pre-requisite:**

CS 210 – Algorithm Analysis and Design

**Instructor:**

*Jonathan F. Thompson*

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**Course Outcome Objectives:**

At the completion of this course the student will be able to:

1. Explain the structure of OSI reference model and its significance
2. Describe architectures for internetworking and their implementation issues.
3. Demonstrate the role of TCP as a transport layer and its implementation.
4. Demonstrate the role of UDP as a transport layer and its implementation.
5. Given the computing environment of an organization, perform network design including address assignment.
6. Demonstrate how SNMP is used for measuring network traffic and application monitoring.
7. Demonstrate knowledge of developing Internet-based applications using the TCP/IP framework.
8. Explain network security mechanisms and vulnerabilities.

## Course Activities:

### *In-class Quizzes*

There will be a quiz for each chapter that we cover in the textbook this semester. Approximately twenty possible quiz questions regarding chapter material will be handed out a week in advance of the quiz. The student is expected to complete the chapter reading assignment and answer the quiz questions as they go to prepare for the quiz. Six of the twenty questions will appear on the in-class closed-book, closed-notes quiz. Each quiz will take about five minutes and will be given at the beginning of class.

### *Programming Assignments and Discussion*

There will be several programming assignments to demonstrate the implementation of the theoretical material presented in the text. You are expected to complete the assignments outside of class and submit them on or before the due date. You may be asked to present your solution to the class.

### *Homework Assignments and Discussion*

Homework will be assigned on a regular basis. You must bring in a copy of your homework on the due date (feel free to use the copier in GH112). You will be expected to turn in the original at the start of class and refer (and perhaps annotate) your copy during discussion of the problems. You may be asked to present your problem solution to the class.

### *Lab Assignments*

Each chapter has a lab assignment that provides you a chance to get hands-on experience with networking. We will provide in-class time to work on the lab assignment but if you do not get finished, you will be expected to complete the assignment outside of class. The computer science lab in Gullickson Hall Room 206A is available during non-class hours during the day Monday through Friday from 9:00 to 4:00. The lab is also open between 4:00 and 9:00pm, Monday through Thursday.

### *Exams*

There will be a 75 minute mid-term and a 120 minute final exam. The written portion of the exams will be closed-book but you will be allowed to bring in a page or two of hand-written notes. The programming portion of the exams will be open-book and open-notes.

### *Class Attendance, Participation, and Decorum*

Students are expected to attend all class sessions and participate in class activities. Students are also expected to maintain a certain level of decorum that includes turning off (or silencing) cell phones, arriving to class on time, not sleeping during class, and keeping side conversations to a minimum.

### Evaluation/Grade Computation:

Course grades are based on weighted percentage averages. Your final grade will be derived by multiplying each individual Student Activity score by the weighted percentage and summing all of the weighted percentage averages.

Student Activity	Individual Score	Weighted %	Weighted % Average
In-class quizzes		x 0.12	
Programming Assignments and Discussion		x 0.16	
Homework Assignments and Discussion		x 0.16	
Lab Assignments		x 0.11	
Midterm		x 0.20	
Final Exam		x 0.25	
Grand Total =			

Evaluation Scale				
90% & Above = A	80% - 89% = B	70% - 79% = C	60% - 69% = D	59% & Below = F

### Schedule of Topics:

Week		Tuesday	Thursday
1	20-Aug	Introduction to Networks	
2	27-Aug		
3	3-Sep	Application Layer	
4	10-Sep		
5	17-Sep	Transport Layer	
6	24-Sep		
7	1-Oct	Network Layer	Midterm Exam
8	8-Oct		
9	15-Oct		Link Layer
10	22-Oct		
11	29-Oct		Wireless Networks
12	5-Nov		
13	12-Nov		Network Management
	19-Nov	Thanksgiving Break (no class)	
14	26-Nov		
15	3-Dec	Last Class	

## Exam Attendance

Students are required to take exams at the scheduled class period. Students may take an exam at a different time under one of the following conditions:

- They present a University Excused Absence
- They present a valid medical excuse
- Other extraordinary circumstance as determined by the instructor

## Academic Conduct:

Working through the homework problems, the programming assignments, and the lab exercises is a key factor in assuring your command of the course material. To encourage completion of these assignments, a significant portion of the final grade (43%) will be based on your performance in these exercises.

You are allowed and encouraged to work with other students on the completion of these assignments, subject to the following constraints:

- copying someone else's work and submitting it as your own is plagiarism and will not be tolerated
- you may work with others to develop a solution to a problem but the material you submit must be your own work and you must acknowledge your collaborators
- unless designated as a team exercise, you may not sub-divide the tasks of an assignment; each student is expected to complete the whole assignment

It is your responsibility to satisfy the spirit of this conduct. If you have any questions, please ask one of the instructors for clarification. Depending on the severity of the offense, the instructors may:

- Take no action
- Penalize the student on the assignment in question
- Assign the student a failing grade in the course

## Communication:

Assignments, lecture notes, class communications (e-mail), etc, are all handled via the course WebCT/Vista site. Be sure to log into WebCT/Vista regularly to check for course news.

## Adaptive Methods for Disabilities:

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the instructors as soon as possible to better ensure that such accommodations are implemented in a timely fashion. A reasonable period of time must be given to the instructors when making your initial request for any accommodation.

## Bibliography:

Tannenbaum, Andrew, *Computer Networks, 4<sup>th</sup> Ed.* Prentice Hall, Upper Saddle River, NJ 07458

## Internet Web Sites:

Course Materials

[www.aw-bc.com/kurose\\_ross](http://www.aw-bc.com/kurose_ross)

Java software and documentation

[java.sun.com](http://java.sun.com)