

ECE 355 Introduction to Networks and Data Communications

Fall Semester 2008

COURSE OUTLINE

Instructor:	Manish Wadhwa
Office:	Kaufman Hall, Room 232
Phone:	757-683-3470
Fax:	757-683-3220
E-mail:	mwadhwa@odu.edu
Lectures:	Monday, Wednesday, Friday 10:00 – 10:50 am (OCNPS 202)
Office Hours:	MWF, 10:50 am – 12:00 pm (Kaufman Hall-232)
Prerequisites:	ECE 304 or an equivalent math or statistics course covering basic probability theory
Textbook:	“Computer Networking with Internet Protocols and Technologies,” William Stallings, Prentice Hall, 2004.
Class webpage:	www.blackboard.odu.edu
Grader:	Ashish Paul Bathini
Grader Email:	abath002@odu.edu
Grader Office Hours:	Tuesday, Thursday, 11:00 a.m.-12:30 p.m. (Kaufman Hall – 232)

COURSE GOALS: To introduce students with technical backgrounds to the major concepts, evolution trend, architecture, standards, technologies, design, and performance evaluation of telecommunication and computer networks.

COURSE OBJECTIVES: When a student completes this course, s/he should:

- Understand a broad range of telecommunication and computer network terminologies and technologies
- Equipped with the basic knowledge of data communication fundamentals critical for designing, selecting, or integrating these network technologies
- Understand circuit switching and packet switching technologies and their pros and cons with respect to different traffic types.
- Able to calculate transmission, propagation, and queueing delays.
- Understand the meaning and power of a layered architectural model.
- Able to apply and implement different types of addressing and routing techniques to be able to build basic probability models of network phenomena.
- Understand major network performance issues and be able to analyze the performance of basic LAN
- Able to explain Internet addressing, naming, congestion control, and QoS

ASSESSMENT OBJECTIVES:

- The broad education necessary to understand the impact of computer engineering solutions in a global and societal context.
- Recognition of the need for, and an ability to engage in life-long learning.
- Knowledge of contemporary issues.

- An ability to use the techniques, skills, and modern engineering tools necessary for computer engineering practice.

Grading

The grading will be based on two written exams (one midterm, one final), several homework problem sets, lab assignments, written in-class quizzes on the reading material, presentations and reports and overall participation. The final grade will be determined by weighing each component as follows:

- Final exam: 25%
- Midterm exam: 20%
- Homework: 20%
- Lab assignments: 10%
- Quizzes: 10%
- Presentations and Report (2): 10%
- Participation: 5%

Grading Scale

Percentage Letter Grade

90-100	A
87-89	A-
84-86	B+
80-83	B
76-79	B-
72-75	C+
69-71	C
62-68	C-
58-61	D+
55-57	D
50-54	D-
0-49	F

Make-up Tests and Late Assignments

Late homework and papers and make-up exams will not normally be permitted. I will give appropriate consideration to documented emergencies, but such arrangements must be made *prior to the due date* in any situations where the conflict is foreseeable.

Honor Code

All students are expected to abide by the ODU Honor Code. This means that all exams and assignments are to be the exclusive work of the student. An honor pledge will be required on all work which is to be graded. For more details on the ODU honor code, refer to the Honor pledge posted on the course web-page.

Homework

There will be several assignments during the semester, each weighted equally. You will have one week to work on each of the assignments. While the students are encouraged to discuss the problems, each individual should prepare their own answers. Any violation of this rule will be considered as cheating and will be dealt with accordingly.

Lab

This involves using ethereal, a network analyzer to experiment with networking protocols.

Presentations and Report

Since we are going to adhere to Assessment Objectives as given above, students will be asked to present relevant topics related to objectives 1 and 3 given above. There will be two presentations, one will be based on the knowledge of contemporary issues, and students may consider any contemporary issue related to networks and data communication. Second presentation will make students think as to how the computer engineering solutions are helping in global and societal context. For each presentation a report will have to be submitted by the due date. More information will be provided in class.

Class Participation

As a student enrolled in this class, you are expected to take an active role in the class. It does not necessarily mean that you ask questions frequently just to make your presence felt. However, when you do have a genuine question, or would like to share your networking experience in a related topic being discussed in the class, consider sharing your thoughts. Whenever I feel that a question being asked is irrelevant to the topic or if it will be answered in future, I shall postpone answering it to a later date. Sometimes, I may discourage questions or defer answering them due to time constraints. I will be monitoring your individual participation (in class and out of class) throughout the semester and allocate points at the end.

Course Outline

Tentative List of Topics to be Covered (Please note that we won't be covering all the sections of the following chapters. Within time constraints we will try to cover important sections from the following chapters.)

Chapter 1 Data Networks and Internet.

Chapter 2 Protocols and TCP/IP Protocol Suite

Chapter 3 Traditional Applications

Chapter 4 Modern Applications.

Chapter 5 Congestion and Performance Issues.

Chapter 6 Transport Protocols

Chapter 8 Internet Protocols

Chapter 11 Internet Routing Protocols.

Chapter 13 Wide Area Networks.

Chapter 14 Data Link Control.

Chapter 15 Local Area Networks

Data Communication

IMPORTANT DATES

EXAMS

Midterm Exam: October 20 (Class Hours)

Final Exam: December 8 (8:30 – 11:30 a.m.)

TENTATIVE WEEKS FOR PRESENTATIONS (Exact Dates will be announced later)

Presentation 1 (Assessment Objective 3): During September 22 – September 29

Presentation 2 (Assessment Objective 1): During November 10 – November 17

HOLIDAYS

September 1: Labor Day Holiday (Monday)

October 11-14: Fall Holiday (No Class on Monday)

November 26-30: Thanksgiving Holiday (No Class on Wednesday and Friday)

OTHER DATES

December 5: Last Day of Class (Friday)