

Department of Electrical & Computer Engineering
ECE 742/842 – Computer Communication Networks
Spring 2009

Credits:	3
Instructor:	Min Song
Office:	Kaufman 231M
Phone:	(757) 683-5294
Email:	msong@odu.edu
Classroom:	OCNPS 204
Class Hours:	Tuesdays and Thursdays, 3:00 – 4:15 PM
Office Hours:	Tuesdays and Thursdays, 12:00 – 3:00 PM or by appointment
Textbook:	Computer and Communication Networks, Nader F. Mir; ISBN-10: 0131747991, Prentice Hall; Copyright: 2007
Prerequisite:	ECE 642 (<u>a must requirement</u>) C/C++/Java

Course Description and Objectives:

This is an advanced graduate-level communication networking class focusing on cutting-edge technologies. Students will learn how to apply the fundamental knowledge to improve the network performance. The entire semester is divided into two parts: lectures and presentations. The objectives of this course are to:

- Learn how to identify research problems and apply the fundamental knowledge to solve problems
- Understand the significance of information security and develop network security protocols
- Study the fundamentals of mobile ad hoc networks and wireless sensor networks
- Explore the technique of network programming
- Learn how to control communication networks
- Examine the mechanisms of network performance analysis and improvement
- Learn the usage of network simulation tools, such as ns-2.

Tentative schedule:

Jan 13 & 15 (lectures)

- ECE 642 final examination solutions
- Packet-switched networks
- Reading assignment: chapters 1 & 2
- Term papers are assigned (INDIVIDUAL work)

Jan 22 & 22 (lecture & term-paper)

- TCP/IP
- Congestion control
- Presentation of your term paper plan
- Reading assignment: chapters 7 & 8
- 2-page term paper plans are due

Jan 27 & 29 (lectures)

- Cognitive networking
- ATM networks
- Reading assignment: chapter 2.4 & handout
- Submit 20 references that will be studied; 15 will be recommended by the instructor
- Network programming assignment is assigned (2-member team work)

Feb 3 & 5 (presentations - 1)

- Presentation of your term paper progress

Feb 10 & 12 (lectures)

- Switches & routers architectures
- WUGS
- Reading assignment: chapters 3 & 13 & handout
- Network programming assignment is due

Feb 17 & 19 (lectures)

- WLAN and mobile IP
- Bluetooth networks
- Reading assignment: chapters 6 & 19

Feb 24 & 26 (presentations - 2)

- Presentation of your term paper progress
- **Feb 26: Term-paper Sections 1 and 2 preliminaries are due**

Mar 3 & 5 (lecture & **mid-term exam**)

- Broadcasting in wireless mesh networks
- Reading assignment: chapter 6 & handout
- **Mid-term exam: Mar 5 (lecture materials)**

Mar 10 & 12

- No classes

Mar 17 & 19 (presentations - 3)

- Presentation of your term paper progress

Mar 24 & 26 (lectures)

- Packet queues and delay analysis
- Reading assignment: chapter 11

Mar 31 & Apr 2 (presentations - 4)

- Presentation of your term paper progress

Apr 7 & 9 (lectures)

- Wireless sensor networks
- Reading assignment: chapter 20 & handout

Apr 14 & 16 (presentations - 5)

- Presentation of your term paper progress

Apr 19 Term-paper due

- Email submission BEFORE 9:00 PM

Apr 21 & 23 (lectures)

- Network security
- Reading assignment: chapter 10

Apr 28 (lecture)

- Quality of service control
- Resource allocation
- Reading assignment: chapter 12

Apr 30 (**final exam**)

- Final examination
- **Time: 3:45 – 6:45 PM**

Required Work:

- 1 network programming assignment (5%)
- 5 quizzes (10%)
- 5 presentations (10%)
- 1 term paper (40%)
- 1 mid-term exam (15%)
- 1 final exam (20%)

Academic Honesty:

Students are expected to follow the ODU **Honor Code** for all assignments, projects, term papers, and examinations. All work that you turn in with your name on it should reflect your work; references are provided at the appropriate places. A first offense will result in the homework/examination/paper grade of zero for **all** participants. A second offense will result in a grade of **F** for the course for **all** participants.

Disability Statement:

If there is any individual in this class who is in need of academic accommodations because of disabilities, please make an individual appointment in the first week of class with the instructor to discuss accommodations. Upon individual request, this syllabus can be made available in alternative forms.

ODU Email accounts:

Please activate your email account. Important information about the class will be announced through your ODU email.

Attendance Policy:

It is mandatory to attend all classes. Two points will be subtracted from your final record for one absence. Should an emergency cause the absence, the instructor needs to be notified as soon as possible.

Make-up Examinations

Examinations can be re-arranged ONLY if you have a physical problem evidenced by your doctor's prescription.

Questions to Your Grades

You may request to reevaluate your examinations, term paper, and other course materials if you have any question to your course grade. This request must be formally submitted to the instructor within 14-workday after the grade was assigned.