

## CMPE 344 Computer Networks (Spring 2006/2007)

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<b>Instructors:</b>	(Gr 01) Asst. Prof. Dr. Doğu Arifler (coordinator) (Gr 02) Assoc. Prof. Dr. Alexander Kostin (Gr 03) Asst. Prof. Dr. Gürcü Öz-Akıncı
<b>Course Web Site:</b>	<a href="http://cmpe.emu.edu.tr/cmpe344">http://cmpe.emu.edu.tr/cmpe344</a>
<b>Office Hours:</b>	TBA. Please refer to the course Web site.
<b>Textbook:</b>	A. S. Tanenbaum, <i>Computer Networks</i> , 4th ed., Prentice Hall, 2003.
<b>Reference:</b>	L. L. Peterson and B. S. Davie, <i>Computer Networks: A Systems Approach</i> , 3rd ed., Morgan Kaufmann, 2003.

**Catalog Description:** Basic concepts of signals and information transmission. Fundamental features of transmission channels. Switching techniques for computer communication. Frequency and time division multiplexing for communication networks. Code division multiple access (CDMA) technique. Modulation, modems, and error detection. Types of transmission media. Wireless communication technology. ATM technology. Basic Reference Model of Open Systems Interconnection. TCP/IP protocol family. Internet core protocols. Routing of datagrams in the Internet. Basic services of Internet. Local Area Networks (LANs). Fundamentals of Ethernet LANs. Wireless LANs. Wireless ATM. New trends in computer communication and computer networks. (Pre-requisite: CMPE 343)

**Important Dates:** Midterms: 9–16 April 2007, Finals: 29–13 May–June 2007.

**Grading Policy:** Midterm 30%, Final 45%, 2 Quizzes 15%, Labs 10%

*There will be two 30-minute quizzes which will take place on 21 March 2007 and 2 May 2007 at 4:30 PM. Each quiz counts 7.5% of the total grade.*

**Lab Policy:** There are **no** exemptions from labs. Consult the course Web site for lab assignments and other lab policies.

**Make-Up Policy:** Only one **comprehensive** make-up examination will be given to those who miss any of the midterm or the final. There are **no** make-ups for missed quizzes and labs. The make-up exam will be given to only those who provide a valid excuse in writing within the next three working days following the missed exam. This rule is a University by-law, and we **will** enforce it. Students who miss an exam due to a serious medical condition are required to provide official documentation (doctor's report approved by the Student Health Center). However, eligibility to take the make-up exam will still be **subject to the approval of the course coordinator**.

**Academic Dishonesty:** Any conduct that attempts to gain unfair academic advantage is considered academic dishonesty. Copying labs and assignments, cheating during exams, substituting for another person are some examples of academic dishonesty. Cases of academic dishonesty **will not** be tolerated and will be punished according to EMU's disciplinary policies.

**Tentative outline:** Below is a tentative outline for this course. We reserve the right to adjust the pace and topics of the class as the semester progresses.

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<b>Week 1</b>	Introduction (Ch. 1)
<b>Weeks 2, 3</b>	The Physical Layer (Ch. 2)
<b>Week 4</b>	The Data Link Layer (Ch. 3)
<b>Weeks 5, 6, 7</b>	The Medium Access Sublayer (Ch. 4)
<b>Week 8</b>	Midterm Week
<b>Weeks 9, 10</b>	The Network Layer (Ch. 5)
<b>Weeks 11, 12</b>	The Transport Layer (Ch. 6)
<b>Week 13</b>	A Brief Overview of the Application Layer (Ch. 7)
<b>Week 14</b>	Review and Concluding Remarks

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Reading the textbook is a **must** for success in this course. Please schedule your reading according to the tentative outline given above.

Topics and related reading assignments from the textbook:

- **Chapter 1:** Introduction to uses of computer networks, network hardware/software, reference models, example networks (Read: §1.1-1.9)
- **Chapter 2:** Basics of data communication, transmission media, satellite communications, PSTN, mobile telephone system, cable TV (Read: §2.1-2.8)
- **Chapter 3:** Data link layer design issues, basic concepts of error detection and correction, elementary protocols, sliding window protocols, the data link layer in the Internet (Read: §3.1) (Overview: §3.2-3.4, 3.6-3.7) (Omit: §3.5)
- **Chapter 4:** Channel allocation, multiple access, Ethernet, wireless LANs, broadband wireless, personal area networks, link layer switching (Read: §4.1-4.4, 4.7-4.8) (Overview: §4.5-4.6) (Omit: Discussions related to performance analysis of pure ALOHA, slotted ALOHA, and the Ethernet)
- **Chapter 5:** Network layer design issues, a brief overview of routing, congestion control, the network layer of the Internet (Read: §5.1, 5.5-5.7) (Overview: §5.2-5.3) (Omit: §5.4)
- **Chapter 6:** Transport services and main elements, UDP, TCP (Read: §6.1-6.2, 6.4-6.5, 6.7) (Overview: §6.3) (Omit: §6.6)
- **Chapter 7:** A brief overview of applications: DNS, e-mail, WWW, multimedia (Overview: §7.1-7.5)