

# **CSCI 434 – INTRODUCTION TO LOCAL AREA NETWORKS (SPRING 2014)**

*(Last updated: January 9, 2014)*

## **INSTRUCTOR**

Instructor: Jinoh Kim, Ph.D.

Office: JOUR 217

Office hours: M/T 10:00AM-12:00PM, T/F 1:00AM-3:00PM, or by appointment

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## **CLASS MEETING**

Location: EDS 134

Time: M 12:30–3:10PM (3 credits)

## **COURSE DESCRIPTION**

This course covers the basic principles and operations of Local Area Networks (LANs). Topics include basic data communications, the OSI model, protocols and topologies. In addition, students will have the opportunity to gain practical experience with the installation and administration of TCP/IP platforms.

Additionally, TCP/IP networking and protocols will be covered to understand the Internet core functions including routing, subnetting, and reliable data transfer. The Internet architecture and operations will also be reviewed with core services and applications.

## **EXPECTED STUDENT LEARNING OUTCOMES**

- Define and understand basic terms associated with Data Communications.
- Understand networking topologies, to introduce the OSI Model and the IEEE 802 standards.
- Gain practical experience with subnetting, the use of IP addresses, and the fundamentals of IP routing.
- Integrate data communications, OSI model, IEEE standards, subnetting, and IP routing into an understanding of modern local area network technology.

## **PREREQUISITES**

CSCI 152 – Programming Fundamentals II;

CSCI 241 – Machine Language and Computer Organization;

CSCI 270 – Data Structures

It would be helpful to take *CSCI 430 Operating Systems* before taking this course.

## COURSE MATERIAL

- **[KR] Computer Networking: A Top-Down Approach**, 6<sup>th</sup> edition, James Kurose and Keith Ross, ISBN: 0132856204, Addison-Wesley, 2012 (required).
- **[ZA] Networks of Computer Scientists and Engineers**. Youlu Zheng and Shakil Akhtar, Oxford University Press, 2001. (reference)

## EVALUATION

Quizzes	20%
Homework	30%
Midterm Exam	20%
Final Exam	30%

## GRADING SCALE

A	90-100
B	80-89.x
C	70-79.x
D	60-69.x
F	Below 60

## LATE POLICY

The deadline for any assignment can be extended with a 15% penalty per day. No deadline can be extended by more than two days. Assignments will NOT be accepted 48 hours after the due date.

## MAKEUP POLICY

There will be no makeup exams in general. Makeup exams may be given to students under extreme circumstances, such as hospitalization, serious injury, death in the family, etc, with prior notification and valid documents.

## COLLABORATION POLICY

Students are encouraged to talk to each other, to the instructor, or to anyone else about any of the assignments. Any assistance, though, must be limited to discussion of the problem and sketching general approaches to a solution. *Each student must write out his or her own solutions to the homework.* Consulting another student's or group's solution is prohibited, and submitted solutions may not be copied from any source. These and any other form of collaboration on assignments constitute cheating. If you have any question about whether some activity would constitute cheating, please feel free to ask.

## SCHEDULE (TENTATIVE)

WEEK	CONTENT	READING
1	Course introduction and overview	--
2	Computer networks overview <ul style="list-style-type: none"><li>○ Access networks</li><li>○ Network edge and core</li></ul>	[KR] Ch1.1-1.3
3	Protocols and performance <ul style="list-style-type: none"><li>○ Delay, loss, throughput</li><li>○ Protocol layers</li><li>○ Network security</li></ul>	[KR] Ch1.4-1.6
4	Physical layer <ul style="list-style-type: none"><li>○ Digitization, modulation, data encoding</li></ul>	(Slides will be provided)
5	Link layer <ul style="list-style-type: none"><li>○ Link layer services</li><li>○ Error detection and correction</li></ul>	[KR] Ch5.1-5.2
6	LAN protocols <ul style="list-style-type: none"><li>○ Multiple access protocols</li><li>○ CSMA/CD</li></ul>	[KR] Ch5.3
7	Midterm Exam	--
8	LAN practice (tentative)	--
9	LAN practice (tentative)	--
10	Switched LANs <ul style="list-style-type: none"><li>○ Addressing and APRs</li><li>○ Ethernet</li><li>○ VLANs</li></ul>	[KR] Ch5.4
11	Network layer <ul style="list-style-type: none"><li>○ Network layer services</li><li>○ Router</li></ul>	[KR] Ch4.1-4.3
12	IP routing and subnetting	[KR] Ch4.4
13	Routing algorithms and protocols	[KR] Ch4.5-4.6
14	Transport layer <ul style="list-style-type: none"><li>○ Transport layer services</li><li>○ UDP (User Datagram Protocol)</li></ul>	[KR] Ch3.-1-3.4
15	TCP (Transmission Control Protocol)	[KR] Ch3.5-3.7
16	Final Exam	--

## **ACADEMIC INTEGRITY**

Your commitment as a student to learning is evidenced by your enrollment at Texas A & M University-Commerce. "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Handbook, Policies and Procedure, Conduct). All phones, pagers, and other communication devices are to be turned off or place on silent mode during class. Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified.

*Anyone cheating will receive a zero on the work they are doing, and subsequent cheating will result in a failing grade.*

## **STUDENTS WITH DISABILITIES**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services  
Texas A&M University-Commerce  
Gee Library, Room 132  
Phone (903) 886-5150 or (903) 886-5835  
Fax (903) 468-8148  
StudentDisabilityServices@tamu-commerce.edu

## **BASIC TENETS OF COMMON DECENCY**

"All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (Student's Guide Handbook, Policies and Procedures, Conduct.) This means that rude and/or disruptive behavior will not be tolerated.

## **DISCLAIMER**

This syllabus is meant to provide general guidance of what to expect from this course. The instructor reserves the right to make changes as appropriate based on the progress of the class. All changes made to this syllabus during the semester will be announced. This document has been posted electronically. If you print a copy of it, please be sure to consult the last modified date of the online version to verify that your printed copy is current.