COMP476 Networked Computer Systems
Summer Session I 2011

Instructor: Dr. Kenneth A. Williams
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Prerequisites: COMP370 Introduction to Computer Architecture or ELEN327 Digital Logic

Text: *Computer Networks and Internets*, 5th edition, by Douglas E. Comer, Prentice Hall, 2009,
    ISBN: 0-13-606127-3

Communication: The web page for this class is http://williams.comp.ncat.edu/comp476
Assignments and information will also appear on the University's online Blackboard system,
http://blackboard.ncat.edu Email messages will be sent to the student's A&T email address. It is the
student's responsibility to regularly check their A&T email account.

Description:
     This course presents an overview of the technology, architecture and software used by systems of
network connected computers. The course will cover data transmission, local area network architecture,
network protocols, internetworking, distributed systems, security, and World Wide Web technology.
Students will write programs that run concurrently on multiple computers. The topics to be covered
include:

- transmission media
- local asynchronous communications
- Modems
- Packet Transmission
- Packets, Frames and Error Detection
- LAN Technologies and Network Topology
- Interconnecting LANs
- Protocols and Layering
- Internetworking
- Internet Protocol Addresses
- Address Resolution Protocol
- IP Datagram
- TCP
- Socket Interface
- Security
- Web Technology

Goals: Upon completion of this course, the student should be able to:
1. Calculate the expected transmission time and maximum bandwidth for a given network.
2. Understand the basics of network hardware and how software interacts with network hardware.
3. Design a local area network for a small business.
4. Write a distributed program using sockets.
5. Design a system to secure network traffic.
6. Describe the frames sent over a network to accomplish a given task.

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Grading : A student's grade in the class will be based on their performance on the exams, quizzes, programs and homework assignments. All work will be graded on a numerical scale from 0 to 100. The final grade will be the weighted sum of all work using the following weights:

assignments, programs and quizzes	20% combined
attendance	5%
2 exams	25% each
final exam	25% June 20, 2011

The lowest homework grade will be discarded. Homework must be turned in at the beginning of class on the assigned day for full credit, unless accompanied by a valid excuse. Homework turned in within one day of the assigned time will be penalized 10%. Homework turned in within two days of the assigned time will be penalized 25%. **No homework will be accepted after two days. Students who are absent** during a class period when a test is given, **will receive a score of zero** unless previous arrangements are made or a valid written excuse is presented.

Final letter grades will be based on the following scale:

A: 80 to 100   B: 70 to 80   C: 60 to 70   D: 50 to 60   F: less than 50

Students will be allowed one and only one 8½ by 11 inch page of notes during the exams. Both sides of the note page can contain information as small as the student desires. You are not allowed to use more than 187 square inches of paper surface to hold your notes. Any additional pages, fold outs, flaps or other means of extending the page of notes will be considered cheating.

Attendance: The lectures introduce the class material. Some material presented in the lectures is not covered in the text. Students are responsible for all class material covered or assigned in lectures. After the first class, students must attend 18 of the remaining 19 lectures to receive 100% of their attendance grade. For each class missed the attendance grade will be lowered by 5 points. If you come to class without your clicker, you will only receive half credit for your attendance that day. If your clicker comes to class without you, you will lose 75 attendance points.

Cheating: Instances of cheating will be handled according to departmental policy. Cheating covers any case in which a student has received unauthorized aid in his/her performance that contributes to a course grade or submits material contributing to a course grade with the intent to deceive the instructor or grader. If the unauthorized aid includes help from another student, then that student is considered to have cheated as well. Students are expected to submit assignments that are entirely their own work. A common example of cheating is to copy another person's program or homework assignment.

If a student cheats on a homework assignment, then he/she will receive a grade of zero (a grade of F) for that item as will anyone assisting him/her in an unauthorized way. If a student cheats on an exam or the final, he/she will receive a failing grade for the class. All cases of cheating will be reported to the Director of Undergraduate Studies. When a student cheats for the second or more time in any Computer Science class, he/she will receive an F in the class in which the most recent case occurred and will be referred to the University authorities for disciplinary action.

Students with special needs (e.g. hearing or vision difficulties) should inform the instructor at the beginning of the semester.

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Monday, May 16 Intro and motivation read chapters 1 & 2	Tuesday, May 17 Network Programming read chapter 3	Wednesday, May 17 Internet Applications read chapter 4	Thursday, May 19 **quiz**
Monday, May 23 Asynchronous comm. read chapters 5 & 6	Tuesday, May 24 Transmission media read chapters 7 & 8	Wednesday, May 25 Transmission modes read chapters 9 & 10	Thursday, May 26 **exam**
Monday, May 30 *Memorial Day Holiday* *No Class*	Tuesday, May 31 Multiplexing & LAN read chapters 11, 12 & 13	Wednesday, June 1 MAC layer & Ethernet read chapters 14 & 15	Thursday, June 2 **quiz** read chapters 16
Monday, June 6 Extending networks read chapters 17, 18 & 20	Tuesday, June 7 IP addressing read chapters 21 & 22	Wednesday, June 8 Datagram forwarding read chapter 23	Thursday, June 9 **exam** read chapter 24
Monday, June 13 UDP & TCP read chapters 25, 26 & 27	Tuesday, June 14 Telephones read chapters 28 & 29	Wednesday, June 14 Network Security read chapters 30	Thursday, June 16 **quiz**
Monday, June 20 **Final Exam**			