Instructor: Dr. Kenneth A. Williams  
email: williams@ncat.edu  
office: 503 McNair Hall  
office phone: 334-7245 x 450  
home phone: 674-0535  
office hours: TR 11:30 to 12:30  
Mondays 11:30 – 1:30  
other times by appointment  

Prerequisites: COMP370 Introduction to Computer Architecture or ELEN327 Digital Logic  

Text: Computer Networks and Internets, 5th edition, by Douglas E. Comer, Prentice Hall, 2009,  

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