MIS 320: Networks and Security
Summer 2016 Course Syllabus
Lecture Section A01 (May 16-June 17, 2016) MWF 2:00-5:00 PM, Mason Hall D003

This syllabus is tentative. I reserve the right to add, remove or alter this syllabus as needed.

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Fax: (703) 993 – 1809
E-mail: adutt@gmu.edu
Office Hours: By Appointment and before or after class.

Prerequisites:
Grade of C or higher in MIS 301 or MIS 303. Degree status

Required Texts and Learning Materials:

Course Description
Networks have become the key component of any organization’s infrastructure. They are not just used for linking organization’s information systems but have become the central platform for all communications—be it data or voice. In this context, it is necessary for MIS professionals to learn appropriate methodologies that allow them to better analyze the business requirements, conduct analysis of the existing networks, and also be able to understand the design and performance of alternative network architectures. In this course, we will examine the fundamental principles that guide the architecture of computer networks. Further, as business networks expand to allow integration with other business partners and customers, they also become vulnerable to security lapses. Therefore, integral to understanding computer networks is the understanding of security implications. We will discuss several mechanisms that are used to secure large corporate networks.

While the course is about digital technology and how it works, it is not a training course in particular equipment and/or applications. While there will be demonstrations of relevant technologies, the course is not equipment intensive and will not involve special technology needs beyond the normal access to computers, the Internet and web.

Course Objectives:
1. Introduce the basic terminologies and concepts associated with computer networks.
2. Examine the hardware and software components that make up a network.
3. Introduce key architectural principles in computer networking.
4. Discuss how to secure corporate networks.
Undergraduate program learning goals (those in bold will be addressed in this class):

1. Our students will be competent in their discipline.
2. Our students will be aware of the uses of technology in business.
3. Our students will be effective communicators.
4. Our students will have an interdisciplinary perspective.
5. Our students will be knowledgeable about global business and trade.
6. Our students will recognize the importance of ethical decisions.
7. Our students will be knowledgeable about the legal environment of business.
8. Our students will be knowledgeable about team dynamics and the characteristics of effective teams.
9. Our students will understand the value of diversity and the importance of managing diversity in the context of business.
10. Our students will be critical thinkers.

Learning Goals of the Information Systems and Operations Management Program

a. Apply knowledge of information technology and business functions to understand its application in assessing, designing and improving business processes.
b. Develop data organization, storage and processing solutions to support organizational needs for information management. They will also have the option of developing skills in the area of supporting decision making through business intelligence solutions.
c. Use knowledge of computer networks as part of the IT solutions for improving business processes. They will also have option of developing more advanced skills in the areas of network and security.
d. Effectively manage information technology projects.
e. Understand the overall systems development life cycle and be able to recommend IT system solutions accordingly. They will also have option of learning appropriate development tools to develop prototype of IT solutions for business management.

Course Policies:

- Access to the internet and a computer is required. Many of the course material will be online in our Blackboard course. A third of this class will be doing analysis in Excel, so having access to a computer with Excel is required. Also the quizzes and some part of the tests will be administered through Blackboard. **Hence, you must bring your laptop to class every day.**
- It is necessary that you are able to install two software applications – Visual Route and Wireshark in your computer.
- **Computers, laptops and cell phones may NOT be used during class lectures or discussions unless it is specifically directed by the instructor.**
- Communication will be via Blackboard and/or your GMU e-mail only; also please make sure that you mention your class and section number in the subject. I will only respond to gmu.edu e-mails and will not respond to e-mails written on a private account.
- **You must finish the assigned reading for the week before classes every week. The week 1 is an exception. You should be able to discuss the reading material in class and your participation grade will be dependent on that.**
• Attendance will be taken at every class and it is mandatory. Any class material missed by the student is the student's responsibility to acquire.

• **There will be one midterm test and a final test.** The format of the tests will be discussed in class. No makeup examination will be given. There will also be a few Quizzes administered through Blackboard. Quiz with lowest grade will be dropped.

• All the assignments are due on the previous day of a class at midnight. Late assignments will receive at least a 10% penalty unless prior approval is given. No assignment will be accepted more than 1 week late without my approval.

• All academic accommodations due to disability must be arranged through the Office of Disability Services (ODS). If you are a student with a disability and you require academic accommodations, please contact ODS at 703-993-2474. I will cooperate fully with the ODS to accommodate a student’s special needs.

• Students with differing abilities should arrange to meet with me by the end of the first week of classes to arrange for reasonable accommodations for their learning needs.

• Athletes with travel schedules should meet with me by the end of the first week of classes to discuss any necessary arrangements that need to be made.

• Arrangements for any religious observances or GMU sanctioned activity must be arranged with the instructor at least one week prior to the event.

• By remaining registered in the course through drop/add period, you agree to all terms and policies set forth in the syllabus.

**Academic Integrity:** It is expected that students adhere to the George Mason University Honor Code as it relates to integrity regarding coursework and grades. The Honor Code reads as follows: “To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University community and with the desire for greater academic and personal achievement, we, the student members of the University Community have set forth this: Student members of the George Mason University community pledge not to cheat, plagiarize, steal and/or lie in matters related to academic work.” More information about the Honor Code, including definitions of cheating, lying, and plagiarism, can be found at the Office of Academic Integrity website at [oai.gmu.edu](http://oai.gmu.edu)

Mason takes instances of academic dishonesty very seriously. While the faculty have the authority to recommend the academic and educational sanctions for Honor Code violations listed below, there can be additional consequences based on the College your program is housed in. At the very least a **disciplinary record is created** whenever a student is found responsible for violating the honor code.

Typical academic sanctions include but are not limited to:

1. A Grade Reduction on the assignment
2. A rewrite of a paper with a grade reduction
3. Zero on the assignment
4. A grade reduction in the course
5. F in the course
6. Academic suspension
7. Permanent dismissal from the institution
Methods of Student Evaluation:
Students will be evaluated based on homework, quizzes, exams, and class activities.

<table>
<thead>
<tr>
<th>Item</th>
<th>Test</th>
<th>Final</th>
<th>Quiz</th>
<th>Homework, Assignments</th>
<th>Participation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points</td>
<td>100</td>
<td>150</td>
<td>75</td>
<td>150</td>
<td>25</td>
<td>500</td>
</tr>
</tbody>
</table>

Course Grade
1. Students must be officially registered in this section to receive a grade. It is the sole responsibility of the student to verify their own registration status. (I will not verify your registration.) Specifically, you will not receive a grade if your name does not appear on the official class list. (Don’t wait until the end of the semester to be surprised.) Registration problems should be directed to either the SOM Office of Student Services.

2. The final letter grade will be calculated according to the following scheme:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>92.5%-100%</td>
<td>A</td>
<td>81.5%-87.49%</td>
<td>B</td>
</tr>
<tr>
<td>89.5%-92.49%</td>
<td>A-</td>
<td>79.5%-81.49%</td>
<td>B-</td>
</tr>
<tr>
<td>87.5%-89.49%</td>
<td>B+</td>
<td>77.5%-79.49%</td>
<td>C+</td>
</tr>
<tr>
<td>below 59.49%</td>
<td>F</td>
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</table>

A+ may be awarded for exemplary performance

TENTATIVE COURSE SCHEDULE: THIS SCHEDULE MAY CHANGE.

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics</th>
<th>Reading and Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5/16</td>
<td>Course Orientation, Binary Numbers, Networking models</td>
<td>Chapters 1 &amp; 2</td>
</tr>
<tr>
<td>2</td>
<td>5/18</td>
<td>Quiz #1, Cabling and Topology, Ethernet Networks</td>
<td>Chapters 3, 4 &amp; 5</td>
</tr>
<tr>
<td>3</td>
<td>5/20</td>
<td>Quiz #2, Ethernet Networks</td>
<td>Chapters 4 &amp; 5, Assignment 1 Due 5/21</td>
</tr>
<tr>
<td>4</td>
<td>5/23</td>
<td>Layer 3: IP Addressing—Structure and Function</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>5</td>
<td>5/25</td>
<td>Quiz #3, Layer 3: IPv6 transition; Routing</td>
<td>Chapters 8 and 13, Assignment 2 Due 5/26</td>
</tr>
<tr>
<td>6</td>
<td>5/27</td>
<td>Quiz #4, Layer 3: IP Addressing—Subnetting</td>
<td>Chapter 7</td>
</tr>
<tr>
<td></td>
<td>5/30</td>
<td>Memorial Day – No Class</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>6/1</td>
<td>Layer 3: IP Addressing—Subnetting, Test-1</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>8</td>
<td>6/3</td>
<td>Transport Layer</td>
<td>Chapter 9, Assignment 3 Due 6/4</td>
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<tr>
<td>9</td>
<td>6/6</td>
<td>Quiz #5, Application Layer Protocols; DNS; Wireless Networking</td>
<td>Chapters 9, 10 &amp; 15</td>
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<tr>
<td>10</td>
<td>6/8</td>
<td>Wireless Networking, Remote Connectivity</td>
<td>Chapters 15 &amp; 14, Assignment 4 Due 6/9</td>
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<tr>
<td>11</td>
<td>6/10</td>
<td>Quiz #6, Remote Connectivity</td>
<td>Chapter 14</td>
</tr>
<tr>
<td>12</td>
<td>6/13</td>
<td>Network Security</td>
<td>Chapters 11 &amp; 19</td>
</tr>
<tr>
<td>13</td>
<td>6/15</td>
<td>Quiz #7, Network Security</td>
<td>Chap 11,19;</td>
</tr>
<tr>
<td>14</td>
<td>6/17</td>
<td>Course Wrap Up and Final</td>
<td>Assignment 5 Due 6/18</td>
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MIS 320, Spring 2016, Abhijit Dutt