MIS 320-001: Networks and Security (3 credits)

SPRING 2014

1. **Meeting Time and Place**
   Location: Enterprise Hall, Room 276
   Time: Tuesdays 7:20 pm - 10:00 pm

2. **Instructor Information**
   Name: Pallab Sanyal, Ph. D.
   Email: psanyal@gmu.edu (*Please include "MIS 320" in the subject*)
   Office: Enterprise Hall, Room 148
   Office Phone: (703) 993-1888
   Office Hours: Wednesdays 2:00-3:00 PM, or by appointment.

3. **Required Course Materials**
   b. **Cases:** (i) CareGroup by McFarlan and Austin, and (ii) iPremier (A): Denial of Service Attack (Graphic Novel Version) by Austin and Short, Harvard Business School Publishing (HBSP).

   *I have created an MIS 320 course page in HBSP from where you can purchase (for $3.95 each) and download the two cases in PDF format. You can access the page by following this link:* [https://cb.hbsp.harvard.edu/cbmp/access/23450648](https://cb.hbsp.harvard.edu/cbmp/access/23450648)

4. **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.
5. Course Objectives
   a. Introduce the basic terminologies and concepts associated with computer networks.
   b. Examine the hardware and software components that make up a network.
   c. Introduce key architectural principles in computer networking.
   d. Discuss how to secure corporate networks.

6. Grading and Assessment

<table>
<thead>
<tr>
<th>Grade Distribution</th>
<th>Grading Scale</th>
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<tbody>
<tr>
<td>A/A-</td>
<td>Exams (2 x 25%)</td>
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<tr>
<td>B+/B/B-</td>
<td>Quizzes (5 x 4%)</td>
</tr>
<tr>
<td>C+/C/C-</td>
<td>Homework (4 x 5%)</td>
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<tr>
<td>D</td>
<td>Class participation</td>
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<tr>
<td>F</td>
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</table>

Split between +/- scores will be determined by the instructor based on clustering of scores.

Exams: Each exam will cover approximately one half of the course material (i.e., the second exam will not be cumulative) and will include materials covered in lectures, textbook, and other required readings. **Exams will be closed book and closed notes.**

Quizzes: A total of six quizzes will be given at the beginning of classes on the dates designated on the course schedule. Each quiz will consist of approximately ten true/false, multiple choices, fill in the blanks, or very short answer type questions based on the topics covered in class. Only your top five scores will be used in the final grade calculation. **Quizzes will also be closed book and closed notes.**

Homework: Instructions for the homework assignments will be posted on blackboard, and the completed assignments should be submitted via blackboard only.

Class Participation: You will be expected to participate in class discussions and complete in-class exercises. You will be evaluated based on your involvement in these activities. You are encouraged to ask questions in class.

The following factors will contribute positively to your participation score: (i) Arriving before the start of class and staying till the end, (ii) Listening actively to the instructor and peers, (iii) Asking good questions, (iv) Responding to questions asked to the class, (v) Neither dominating the conversation nor being too quiet, and (vi) Exhibiting a good sense of humor.

The following factors will contribute negatively to your participation score: (i) Arriving after the start of the class and/or leaving before the end, (ii) Lack of involvement, silence, detachment or disinterest, (iii) Distracting others by surfing the web, e-mailing, texting (iv) Not listening actively, and (v) Leading the discussion into unrelated topics.

10% of the class participation points will be awarded for submitting your resume in the proper format by the due date designated in the syllabus.

Semester Grade: Your semester grade will be based on the total points earned on the assignments described above; **no extra credit will be available.** You can request a review of any grade within a week following the assignment of grades. After that period no grade will be revised. You are also encouraged to keep all graded material that is returned to you till after the semester is over and you have checked your final grade. If there is a discrepancy between my records and your scores for any
of the graded material at any time, my records will be altered only if you can produce the graded material that I have returned to you as evidence—failing which no changes will be made.

7. Academic Integrity

GMU is an Honor Code university; all students are responsible for knowing and following the GMU Honor Code Statement: “Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.” In the event of a violation of the GMU Honor Code, the violating student will be reported to the GMU Honor Committee. Another aspect of academic integrity is the free play of ideas. Discussions are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. Please refer to http://honorcode.gmu.edu for further details. When in doubt (of any kind), please ask the instructor for guidance and clarification.

8. Learning Goals

Learning goals for the Undergraduate Programs

a. Our students will be competent in their discipline.
b. Our students will be aware of the uses of technology in business.
c. Our students will be effective communicators.
d. Our students will have an interdisciplinary perspective.
e. Our students will be knowledgeable about global business and trade.
f. Our students will recognize the importance of ethical decisions.
g. Our students will be knowledgeable about the legal environment of business.
h. Our students will be knowledgeable about team dynamics and the characteristics of effective teams.
i. Our students will understand the value of diversity and the importance of managing diversity in the context of business.
j. 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.

9. Learning Disabilities

If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Center (DRC) at 703-993-2474, at the beginning of the semester. All academic accommodations must be arranged through the DRC.
10. Other Course Policies
   a. **Attendance:** Attendance in class is mandatory. If you are absent, it is your responsibility to find out from a classmate what you missed (both course material and announcements).
   b. **E-Mail Correspondence:** Outside of the designated class time and office hours, e-mail is the easiest and quickest method to contact me. Consistent with federal privacy laws, I do not respond to non-GMU e-mails with confidential information. *Any email that you send me must include "MIS 320" in the subject and your full name in the body.*
      Feel free to refer to this resource on wikihow: How to Email a Professor
   c. **Laptops and hand-held devices:** Technology can greatly assist learning, but it can also be a distraction. Laptops or any other hand-held devices should strictly be used for class related activities such as taking notes or following lecture slides.

11. Course Schedule *

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Assignments **</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1/21</td>
<td>The OSI Model (Ch. 2)</td>
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<tr>
<td>2.</td>
<td>1/28</td>
<td>The OSI Model (Ch. 2); Cabling and Topology (Ch. 3)</td>
<td>Resume</td>
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<tr>
<td>3.</td>
<td>2/04</td>
<td>Ethernet (Ch. 4 &amp; Ch. 5)</td>
<td>Quiz 1; HW1</td>
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<tr>
<td>4.</td>
<td>2/11</td>
<td>IP Addressing (Ch. 7)</td>
<td>Quiz 2</td>
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<tr>
<td>5.</td>
<td>2/18</td>
<td>IP Addressing (Ch. 7)</td>
<td>HW 2 (Caregroup Case)</td>
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<tr>
<td>6.</td>
<td>2/25</td>
<td>IPv6 (Ch. 13); Routing (Ch. 8); Review for Exam 1</td>
<td>Quiz 3</td>
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<tr>
<td>7.</td>
<td>3/04</td>
<td><strong>Exam 1 (starts at 7:30 pm)</strong></td>
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<tr>
<td>3/11</td>
<td></td>
<td><strong>NO CLASS – SPRING BREAK</strong></td>
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<td>8.</td>
<td>3/18</td>
<td>Transport Layer Protocols (Ch. 9)</td>
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<tr>
<td>9.</td>
<td>3/25</td>
<td>Application Layer Protocols (Ch. 9); DNS (Ch. 10)</td>
<td>HW 3</td>
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<td>10.</td>
<td>4/01</td>
<td>Remote Connectivity (Ch. 14)</td>
<td>Quiz 4</td>
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<td>11.</td>
<td>4/08</td>
<td>Wireless Networking (Ch. 15)</td>
<td>Quiz 5</td>
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<tr>
<td>12.</td>
<td>4/15</td>
<td>Network Security (Ch. 11 &amp; Ch. 16)</td>
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<tr>
<td>13.</td>
<td>4/22</td>
<td>Network Security (Ch. 11 &amp; Ch. 16)</td>
<td>HW 4 (iPremier Case)</td>
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<tr>
<td>14.</td>
<td>4/29</td>
<td>Network Security (Ch. 11 &amp; Ch. 16); Review for Exam 2</td>
<td>Quiz 6</td>
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<tr>
<td>5/06</td>
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<td><strong>NO CLASS – READING DAY</strong></td>
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<tr>
<td>15.</td>
<td>5/13</td>
<td><strong>Exam 2 (starts at 7:30 pm)</strong></td>
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*The schedule is tentative and subject to change.

**Homework assignments are due by 7pm on the designated dates.*