School of Business

Course Syllabus
MIS 320 Section 002 – Networks and Security
CRN 71978  Fall 2018
Fairfax: Robinson Hall B224, Tuesday and Thursday  12:00pm – 1:15 PM
(I reserve the right to make changes to the syllabus, as needed.)

Instructor Information
- Name: Dr. Andy Yao
- Email: ayao2@gmu.edu (Your email will be answered within 24 hours.)
- Office: Enterprise Hall 049 (Enter through 054)
- Office Hours: (8/27 to 12/6) Monday, Tuesday, Thursday 10:25am-11:45am
- Course Website: http://mymason.gmu.edu

Class Times & Location
- Times: Tuesday and Thursday 12:00pm to 01:15pm
- Location: Robinson Hall B224

Required Prerequisites
- A minimum grade of C in MIS 301, L301, MIS 303, or L303.
- Students with a class of Freshman may not enroll.
- Non-Degree level students may not enroll.
- Students with the terminated from BU major attribute may not enroll.

Textbook and Course Site
- This course uses open educational resources (OERs) and does not have a required textbook.
- Blackboard:
  - All assignments are posted on Blackboard and must be submitted via Blackboard by the
deadlines in order to receive credits. Assignments sent via email will not receive credits.
  - Assignments submitted after the deadlines will not receive credits.
  - All class notes and course materials are posted on Blackboard.
  - You are required to check the Blackboard course site and email on a daily basis.

Course Description
Introduces students to fundamentals of networking technologies and their role in businesses. Emphasis is on
understanding the business implications of different networking technologies and solutions. Students learn to
identify and understand the business requirements, and bring together the different technological components
to design the required communication solutions. Also focuses on the types of security threats to the business
network infrastructure, and approach to tackling such threats through business practices combined with
appropriate technological solutions. Notes: The course also includes lab work and exercises. Offered by
School of Business. May not be repeated for credit.

Course Overview
Computer network is one of the information system components needed to effectively support business
operations. Benefits that computer network may provide include:
- Cost reduction by sharing resources and downsizing the desktop computers
- Improved reliability by having multiple sources of supply
- Increased storage capacity
- Enhance communication
- Improved consistency
- Reduced errors and redundancy
- Overcoming geographic separation
- Centralized management
- Distributed processes
- Controlled security
- Share data/information/knowledge

Hence, a computer network is an essential component of every business's infrastructure. Professional workers, managers, and business owners are expected to have basic understanding of computer networks in order to effectively utilize computer networks in solving business problems and support business operations. MIS professionals, including those who are not directly involved in maintaining the operation of computer networks, must be in possession of computer networking knowledge and skills, such as network architecture, topology, standards, protocols, devices, virtualization, performance monitoring, and security mechanisms.

Course Objectives
Upon completion of this course, student should be able to
- Discuss network architectures and technologies as well as their applications in businesses
- Describe the principles, functions, and standards of communication networks
- Explain the OSI 7-layer reference model as well as the related standards and protocols
- Discuss network protocols and TCP/IP applications
- Articulate the impact and value of the virtualization and cloud computing to businesses
- Apply basic techniques in monitoring network operations and security
- Evaluate and select appropriate network devices to satisfy the business requirements

Mason Core Learning Outcomes:
- Students will understand the principles of information storage, exchange, security, and privacy.
- Students will become critical consumers of digital information; they will be capable of selecting and evaluating appropriate, relevant, and trustworthy sources of information.
- Students can use appropriate information technologies to organize and analyze information and use it to guide decision-making.
- Students will be able to choose and apply appropriate algorithmic methods to solve a problem.

ISOM Learning Goals
- Apply knowledge of information technology, operations, and business functions to assess, design and improve business processes.
- Develop data organization, storage, and processing solutions to support organizational needs for information management. Also develop skills in the area of business intelligence.
- Use knowledge of computer networks as part of IT solutions for improving business processes.

Course Format
This course consists of a combination of lectures, discussions, and hands-on practice sessions. Please see the topical outline for a tentative list of topics. There will be individual assignments, quizzes, and exams.

Computers and Software Used in the Class - Required
- The School of Business undergraduate program requires every student to have access to a portable computing device that satisfies the requirements listed below and can be brought to class as needed. Note that as technology changes rapidly, these requirements may change during a student’s time in the School of Business. Many School of Business courses require the use of a computer during class. These are used to learn techniques, practice applications, and access Internet resources. While most students have a portable computer or access to one, some courses require specific requirements due to the use of specific applications during class. To address these requirements, a list of standard minimum requirements has been determined and will be reviewed annually. View the standard minimum requirements.
  (http://business.gmu.edu/undergraduate/policiesproceduresforms/)
George Mason University provides Microsoft Office 365 ProPlus to students at no cost via the Microsoft Student Advantage program. Office 365 ProPlus for PC users includes both Excel and Access 2016. Please visit [http://masonlive2.gmu.edu/MicrosoftStudentAdvantage/](http://masonlive2.gmu.edu/MicrosoftStudentAdvantage/) for more information. This link provides the tutorial for downloading MS Office for free through your Masonlive email account. Please follow the tutorial to install the software on your laptop.

**Grading Policy (No curving will be applied)**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Value</th>
<th>Semester Grade Scale</th>
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<tbody>
<tr>
<td>Homework (5)</td>
<td>30%</td>
<td>A 92% to 100%</td>
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<tr>
<td></td>
<td></td>
<td>C+ 77% to 79.99%</td>
</tr>
<tr>
<td>Project (1)</td>
<td>14%</td>
<td>A- 90% to 91.99%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C 70% to 76.99%</td>
</tr>
<tr>
<td>Quizzes (4)</td>
<td>16%</td>
<td>B+ 87% to 89.99%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D 60% to 69.99%</td>
</tr>
<tr>
<td>Exams (2)</td>
<td>40%</td>
<td>B 82% to 86.99%</td>
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<tr>
<td></td>
<td></td>
<td>F Below 60.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
<td><strong>No curving will be applied</strong></td>
</tr>
</tbody>
</table>

1% means 1% of your total grade. You have only 100% in your semester grade.

1. All assignments must be submitted via Blackboard by the deadlines in order to receive credits.
2. If you missed a deadline, you will not receive credits for the missed assignment.
3. It is your responsibility to ensure that your submitted solution satisfies all requirements. If your submitted solution failed to satisfy any of the requirements, you will not receive credits. There is no such thing as “partially correct solution”. A solution is either correct or incorrect. Grading will be based on facts, not on opinions. There is no such thing as a poor solution or a good solution, from grading point of view.
4. For “Homework”, you are allowed many submissions before the deadlines. Hence, you can revise and resubmit your solution before the deadline. For “Project/Quiz/Exam”, you are allowed one submission. (Blackboard allows you to upload many files in one submission.)
5. You must put your name in every submitted file; otherwise, you will not receive credits.
6. You must follow the file naming instruction; otherwise, you will not receive credits. This requirement has nothing to do with Item 5. Item 5 and Item 6 are two different requirements.
7. You are required to attend all classes and be prepared. Absence from class does not constitute a reason for being unprepared at subsequent class sessions or a reason to turn in work late.
8. You are required to check Blackboard course site and your email on a daily basis.

**Reading Assignments**

Students are required to read the course materials before coming to class meetings.

**Communications**

- For privacy and confidentiality, you are required to use your GMU email account to communicate to me. Your email will be answered with 24 hours. Assignments sent via email will NOT graded and will not receive credits. If you encountered issues with uploading your files via Blackboard, you can send me an email to receive a reasonable extension.
- Broadcast announcements posted via Blackboard are usually also sent to you via email.

**Policy on Electronic Devices**

Please keep cell phones and other communicative devices in silent/vibration mode. Laptops or other electronic devices should strictly be used for class related activities such as taking notes or following lectures. Engaging in activities not related to the course is strictly prohibited, such as sending/reading text messages, tweets, using apps, etc. **You will be asked to leave the classroom, should you violate this policy.**

**Inclement Weather and Other Emergencies**

Class will be cancelled when the campus is closed, either due to inclement weather or other situations. Please check GMU website for up-to-date information. Please register [Mason Alert](https://www.gmu.edu/masonalert) so that you can receive timely emergency notifications and warnings.

**Disability Accommodations**
If you are a student with a disability and you require academic accommodations, please see me and contact the Office of Disability Services (ODS) at (703) 993-2474 (http://ods.gmu.edu/), at the beginning of the semester. All academic accommodations due to disability must be arranged through the ODS and should be made during the first two weeks of the semester.

**Academic Integrity**

George Mason University has the following clearly described [University Honor Code](http://ods.gmu.edu/) administered by the Office for Academic Integrity: “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, or lie in matters related to their academic work.


As a student you are responsible for upholding these standards for this course. It is your responsibility to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. In your work on all written assignments, keep in mind that you may not present as your own the words, the work, or the opinions of someone else without proper acknowledgement. You also may not borrow the sequence of ideas, the arrangement of material, or the pattern of thought of someone else without proper acknowledgement. Faculty are obligated to submit any Honor Code violations or suspected violations to the Honor Committee without exception. Any suspected case of honor code violation will be reported to the Office of Academic Integrity immediately. In such a case, I will withhold from grading your assignments until after the case is cleared by the Office of Academic Integrity. All students are expected to adhere to this code. All acts of academic dishonesty will be dealt with in accordance with the provisions of this code.
The recommendations for honor code violations for non-freshman undergraduate students adopted by the School of Business faculty on May 2016 are as follows:

<table>
<thead>
<tr>
<th>Type of Violation</th>
<th>First Offense</th>
<th>Second Offense</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plagiarism</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Failure to cite/attribute sources</td>
<td>An F in the class; referral to Writing Center; and Academic Integrity Seminar completion</td>
<td>An F in the class; referral to the Writing Center; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension or expulsion</td>
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<tr>
<td>2. Representing someone else’s work as the student’s own (e.g., copying and pasting)</td>
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<tr>
<td><strong>Cheating</strong></td>
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<td></td>
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<tr>
<td>1. On a minor assignment (e.g., homework, quizzes)</td>
<td>An F in the class; and Academic Integrity Seminar completion</td>
<td>An F in the class, Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension or expulsion</td>
</tr>
<tr>
<td>2. Cheating on a major assignment or exam, submitting course work from another class as original work</td>
<td>An F in the class; and Academic Integrity Seminar completion, and at least one semester suspension</td>
<td>An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension or expulsion</td>
</tr>
<tr>
<td><strong>Lying</strong> (e.g., providing fraudulent excuse documents, falsifying data)</td>
<td>An F in the class; and Academic Integrity Seminar completion, and at least one semester suspension</td>
<td>An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and at least one semester suspension or expulsion</td>
</tr>
<tr>
<td><strong>Egregious Violation</strong> (e.g., stealing an exam; submitting coursework from another class as original work across multiple courses; lying to an employer about academic performance, false identification or posing as another, in person or online)</td>
<td>An F in the class, Academic Integrity Seminar completion; termination from the School of Business; and at least one year suspension</td>
<td>An F in the class; Academic Integrity Seminar completion; termination from the School of Business; and expulsion</td>
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</tbody>
</table>

*Note: The Academic Integrity Seminar used by Office of Academic Integrity costs $100.*
### MIS 320 Section 002
### Classroom: Robinson Hall B224
### Tue. & Thu. 12:00-1:15pm

**Topical Outline**
(I reserve the right to make changes, as needed.)

<table>
<thead>
<tr>
<th>Week / Date</th>
<th>Chapter / Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Aug. 28 &amp; 30)</td>
<td>Chapter 1: CompTIA Network+ in a Nutshell&lt;br&gt;Chapter 2: Network Models</td>
</tr>
<tr>
<td>2 (Sep. 4 &amp; 6)</td>
<td>Chapter 3: Cabling and Topology&lt;br&gt;Sep. 6: Quiz #1 (Laptop is required)</td>
</tr>
<tr>
<td>3 (Sep. 11 &amp; 13)</td>
<td>Chapter 4: Ethernet Basics</td>
</tr>
<tr>
<td>4 (Sep. 18 &amp; 20)</td>
<td>Chapter 5: Modern Ethernet&lt;br&gt;Sep. 20: Quiz #2 (Laptop is required)</td>
</tr>
<tr>
<td>5 (Sep. 25 &amp; 27)</td>
<td>Chapter 7: TCP/IP Basics</td>
</tr>
<tr>
<td>6 (Oct. 9)</td>
<td>Midterm exam</td>
</tr>
<tr>
<td>7 &amp; 8 (Oct. 4, 11, 16, 18)</td>
<td>No class on October 9&lt;br&gt;Chapter 8: The Wonderful World of Routing&lt;br&gt;Chapter 9: TCP/IP Applications</td>
</tr>
<tr>
<td>10 (Oct. 30 &amp; Nov. 1)</td>
<td>Chapter 11: Securing TCP/IP</td>
</tr>
<tr>
<td>11 (Nov. 6 &amp; 8)</td>
<td>Chapter 12: Advanced Networking Devices</td>
</tr>
<tr>
<td>12 &amp; 13 (Nov. 13, 15, 20)</td>
<td>Chapter 18: Managing Risk&lt;br&gt;Chapter 19: Protecting Your Network&lt;br&gt;Nov. 13: Quiz #4 (Laptop is required)</td>
</tr>
<tr>
<td>14 &amp; 15 (Nov. 27 &amp; 29, Dec. 4 &amp; 6)</td>
<td>Virtualization&lt;br&gt;December 13: Final exam. 10:30am to 1:15pm; Laptop is required.</td>
</tr>
</tbody>
</table>

**Important Dates**

- Last Day to Withdraw with Full Refund: September 9
- Holidays/Breaks: Labor Day: September 3, Columbus Day: October 8 (**Tuesday classes do not meet on October 9.**), Thanksgiving Recess: November 21 to November 25
- Selective Withdraw Period: October 1 to 26.
- Last Day of Class: December 8
- Reading Days: December 10 and 11
- Exam Period: December 12 to 19

Link to academic calendar: [https://registrar.gmu.edu/calendars/](https://registrar.gmu.edu/calendars/)

<table>
<thead>
<tr>
<th>Due Date</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep. 5</td>
<td>HW1: Homework #1 (6%)</td>
</tr>
<tr>
<td>Sep. 6</td>
<td>QZ1: Quiz #1 (4%). You must take and complete this quiz in class in order to receive credits.</td>
</tr>
<tr>
<td>Sep. 19</td>
<td>HW2: Homework #2 (6%)</td>
</tr>
<tr>
<td>Sep. 20</td>
<td>QZ2: Quiz #2 (4%). You must take and complete this quiz in class in order to receive credits.</td>
</tr>
<tr>
<td>Oct. 1</td>
<td>HW3: Homework #3 (6%)</td>
</tr>
<tr>
<td>Oct. 9</td>
<td>Mid: Take-Home Midterm exam (20%); Due Oct. 9, 10:15am</td>
</tr>
<tr>
<td>Oct. 24</td>
<td>HW4: Homework #4 (6%)</td>
</tr>
<tr>
<td>Nov. 1</td>
<td>QZ3: Take-Home Quiz #3 (4%); Due Nov. 1, 1:15pm</td>
</tr>
<tr>
<td>Nov. 7</td>
<td>HW5: Homework #5 (6%)</td>
</tr>
<tr>
<td>Nov. 20</td>
<td>QZ4: Quiz #4 (4%)</td>
</tr>
<tr>
<td>Dec. 5</td>
<td>PJ: Project (14%)</td>
</tr>
<tr>
<td>Dec. 13</td>
<td>Final: Final exam (20%). Laptop is required. You must take and complete the final exam between 10:30am and 1:15pm on December 13 in order to receive credits.</td>
</tr>
</tbody>
</table>