# ST: MIS-5640-15195.201810-Network and Security Mgmt

# Winter 2018

## General Course Information

**Instructor: Mazyar Sahabi**
**Office: TBA**
**Office Hours: TBA**
**E-mail: mazyar41@gmail.com**
**Web site:**
**Classroom: Main Campus Elliot Hall 200**
**Class Times: Online**

**Prerequisite(s):** Student must meet prerequisite MIS 5630 or an equivalent course in information technology foundations.

**Textbook:**
Computer Networking: A Top-Down Approach, 7th Edition
James Kurose
Keith Ross
©2017
|Pearson
ISBN 9780134312798

**Supplemental resource:**

978-1-58720-283-4
Top-Down Network Design
Oppenheimer, Priscilla
3RD / Cisco Press

http://www.valleytalk.org/wp-content/uploads/2013/01/top-down-network-design-3rd-edition.pdf

### Course Objectives

This course provides a general overview of communications network design. Relevant data communication hardware and software characteristics are examined. Students are introduced to

network models, and design of local area networks and wide area network along with intranet and extranet. The impact of communications technology on organizations as well as trends in the telecommunications industry are explored. Student must meet prerequisite (MIS 563) or have completed a course in computer networks.. After exploring TCP/IP, Ethernet, wireless transmission, and security concepts, as well as virtual networks, students can increase their knowledge with the practical "On-the Job "stories, Review Questions, Hands-On Projects, and Case Projects.

**Learning Outcomes**

1. Design computer network infrastructure.
2. Use software tools to monitor network performance.
3. Use web-based tools to monitor security on the network.
4. Assess a given network for suitability and identify areas that could be improved.
5. Analyze the impact of desktop, server and cloud-based network management
6. Analyze a customer's existing social requirements and business constraints.
7. Gather and evaluate information regarding a customer's current data network and future needs.
8. Develop a proactive network management strategy.

Specific topic coverage includes:

- Networking Concepts
- OSI model
- TCP/IP model
- Network Installation and Configuration
- Network Media and Topologies
- Network Management
- TCP/IP Protocols and Services
- Application and Network Attacks
- Network Security
- Administering a Secure Network
- Wireless Network
- Access Control Fundamentals
- Business Continuity

**Software Availability**

**Microsoft DreamSpark and VMware**
OU provides its students and instructors with access to free downloads of software through our DreamSpark and VMware memberships. This software is a full copy with no limitations (excludes Word, PowerPoint and Excel).

## Web Site

**There is a website for the text book – www.topdownbook.com – which includes updates to the book, white papers, supplemental information about design resources and instructor resources (slides).**

Cisco Web site: www.cisco.com

PC Guide Web site: www.pcguide.com

Computer dictionary: www.webopedia.com

Microsoft Technical support site: http://technet.microsoft.com

PC Tech Guide Web site: www.pctechguide.com

SANS.org

**E-Mail**

All students are requested to obtain an e-mail account. If you have any questions about the course or need assistance. Also, you may submit the end-of-chapter case project assignments in class on the due date or by e-mail with a date stamp at or before 5:00 P.M. on the due date. E-mail submissions should be submitted as an attachment in Microsoft Word format.

**Grading and Evaluation Criteria**

30% of the grade is based on a midterm and a final examination. Both examinations are cumulative and given in a varied format. An in-class review will be held prior to each examination.

There is a group project for this class. It will be discussed later on.

30% of the grade is based on a project, which will be assigned by the instructor.

10% of the grade will be discussion questions.

- Course Grade Determination

| | |
|---|---|
| Labs | 30% |
| Cases | 5% |
| Midterm | 10% |
| Final | 15% |
| Project | 30% |
| Discussion Question | 10% |

| | Grading Scale | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| A | 98.60-100.00 | 4.0 | C | 78.60-79.59 | 2.9 | D | 68.60-69.59 | 1.9 |
| | 96.60-98.59 | 3.9 | | 77.60-78.59 | 2.8 | | 67.60-68.59 | 1.8 |
| | 94.60-96.59 | 3.8 | | 76.60-77.59 | 2.7 | | 66.60-67.59 | 1.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 92.60-94.59 | 3.7 | | 75.60-76.59 | 2.6 | | 65.60-66.59 | 1.6 |
| | 90.60-92.59 | 3.6 | | 74.60-75.59 | 2.5 | | 64.60-65.59 | 1.5 |
| B | 88.60-90.59 | 3.5 | | 73.60-74.59 | 2.4 | | 63.60-64.59 | 1.4 |
| | 86.60-88.59 | 3.4 | | 72.60-73.59 | 2.3 | | 62.60-63.59 | 1.3 |
| | 84.60-86.59 | 3.3 | | 71.60-72.59 | 2.2 | | 61.60-62.59 | 1.2 |
| | 82.60-84.59 | 3.2 | | 70.60-71.59 | 2.1 | | 60.60-61.59 | 1.1 |
| | 80.60-82.59 | 3.1 | | 69.60-70.59 | 2.0 | | 59.60-60.59 | 1.0 |
| | 79.60-80.59 | 3.0 | | | | | | |

## 14-Week Course Outline

| Week | Topics | Chapter Readings | Exams |
|---|---|---|---|
| **1** | Computer Networks and the Internet | Chapter 1 | |
| **2** | Application Layer | Chapter 2 | |
| **3** | Transport Layer | Chapter 3 | |
| **4** | Characterizing Network Traffic | Refer to the Power Point | |
| **5** | The Network Layer: Data Plane | Chapter 4 | |
| **6** | The Network Layer: Control Plane | Chapter 5 | |
| **7** | The Link Layer: Links, Access Networks, and LANs | Chapter 6 | Midterm Exam |
| **8** | Wireless and Mobile Networks | Chapter 7 | |
| **9** | Security in Computer Networks | Chapter 8 | |
| **10** | Designing a Network Topology | Refer to the Power Point | |
| **11** | Multimedia Networking | Chapter 9 | |
| **12** | Testing Your Network Design | Refer to the Power Point | |
| **13** | Optimizing Your Network Design | Refer to the Power Point | |
| **14** | Documenting Your Network Design | Refer to the Power Point Final Project | |
| **15** | Final Exam | | |