MIS 7397 Network and Infrastructure Security (updated 05/01/19)

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Original Text: Jerry FitzGerald, Alan Dennis, Alexandra Durcikova **Business Data Communications and Networking**, 13th edition, Wiley - ISBN : 978-1-119-36883-0

COURSE DESCRIPTION: If you are an MIS Major, the content of this course will be one of the most important and "to the point" classes you will take. You will learn things important and useful to you in your work. The purpose of this course is to give you sufficient technical and management level knowledge of the various types and levels of computer networks and security issues in a corporate environment. Areas covered will include network hardware, topologies, protocols, VoIP, data communications, virtualizing platforms, the Internet, security threat mitigation, and the application and management of these items. Particular emphasis will be placed on the 5 Layer Network Model and TCP/IP. There are solo and group projects, some performed in a lab environment.

THE LECTURER: I am a part tme Adjunct Professor. This is mostly good for you. I am working daily in the industry so I have extensive practical experience. In other words, I am going to teach you what you need to know to get a job in today's MIS world. I teach this class and also a section (4397) called Open Systems, a.k.a. the "LAMP" class (Linux Apache MySQL, Php) with HEAVY emphasis on the Linux operating system (which is over 80% of the world market now), and Virtualization Platforms such as Virtual Box, VMWare and Proxmox.

I am a graduate of the University of Houston with Degrees in Computer Science and Business with Concentrations in MIS and Psychology. I began as a programmer when I was 15, and later became a partner in my father's medical billing business. We managed databases and processed medical claims for doctors in the Southeast Texas area. I wrote most of the software we used for that. I also wrote some of the first "EDI" software used to trasmit standardized claim data to Medicare. I also was a contributor to the "LINUX" project, specifically in the areas of networking and printing. I was attending U of H at the birth of the World Wide Web. Dr Parks asked me to teach his classes in 1995, when he took a 1 year project in California. During that time, I converted the Transaction Processing Classes (1 and 2) from mainframes to PC based systems. I also set up the first DISC Department server and was one of the first intructors to use web pages to aid in teaching the class. I have taught just about every class in the MIS department, but I am best known for the 4477 Datacomm class, now called Networking and Security Infrastructure. I am president and founder of Adjecta Technologies, a VoIP and Cloud Hosting networking company. I often hire current and former students as interns.

LECTURES: Attendance AND participation is VERY IMPORTANT to your grade. If you want to guarantee yourself a good grade, come to class, participate and ask questions. **Participation will impact your grade significantly**. There is a book for this class but it is not mandatory. I highly recommend the e-Book version available from several sources online. We will cover many items in the book, but the technologies and methodologies have changed and evolved so much that the text has not kept up. We will make extensive use of other external sources as well as current events in the news. If you are a good researcher, then you may not need the book. Notes for each lecture along with slide presentations will be made available online, typically prior to the lecture. Please let me know if you have any ADA requirements.

LABS: This is a hands-on class. I feel the best way to learn about networking and security is to experience it first hand. You must be enrolled in the lab this course to get credit for the class. The EiLab is in room 122. You use your Cougar Card to gain access once you are enrolled. Please do not alter or use any equipment in the lab until after our first lab meeting, after you have become familiarized with the equipment. For some class periods, we may meet in the lab OR we may adjourn to the lab during a class. We will perform networking "experiments" in the lab which involves building a network, packet sniffing, firewall set up management and more.

RULES: No eating of "loud" food. Drinks are okay but not in the lab. Do not cheat on any assignments or tests or you will be dropped probably with an F. The University has specific rules on Academic Honesty. Check out: https://www.uh.edu/provost/policies/honesty/

ASSIGNMENTS: You will have at least one group project (the Network Game) that is done in-class on one specific day. There will be no makeup for this assignment without prior authorization. You will also be graded on 6 (or more) in-lab projects. There are possible points awarded for attendance, participation and an optional project.

EXAMS: You will have at least 2 major tests and a semi-cumulative final exam drawn from materials in the text and from my notes. We will review in the class prior to an exam and the exam study notes will be available online. Exams are administered via Blackboard.

CHANGES: Check my website and this syllabus often for announcements and schedule changes. I will typically email the class if and when changes are made.

GRADING: I will attempt to post grades in a timely manner. Calculated percentages correlate to the following letter grades:
A=92.5-100, **A-**=89.5-92.4, **B+**=87.5-89.4, **B**=82.5-87.4, **B-**=79.5-82.4, **C+**=77.5-79.4,
C=72.5-77.4, **C-**=69.5-72.4, **D+**=67.5-69.4, **D**=62.5-67.4, **D-**=59.5-62.4, **F**=<59.4

EXAMS/ASSIGNMENTS	% of GRADE
TCP/IP Game (Appendix D)	5
Participation (cable making, in-lab walk-thru)	5
Exam 1	20
Exam 2	20
Lab Assignments	20
Subnetting Assignment	5
Exam 3	25

SCHEDULE (UH Academic Calendar)

LAB Days	Exam Days	Attendance Recommended/Required

Introduction		
(Week 1) Introduction to Course: Why study Networks?		FitzGerald - Chapter 1: Introduction to Data Communcations

Part 1		
(Week 2) FitzGerald - Chapter 2: Application Layer		***Last Day to drop without receiving a grade.*** *(See UH Academic Calendar for specific Date.)* FitzGerald - Chapter 3: Physical Layer
(Week 3) FitzGerald - Chapter 3: Physical Layer (cont)		Lab Day: Rm 122 Graded
(Week 4) Data Link Layer Fitzgerald, Chapter 4		Network and Transport Layers Fitzgerald, Chapter 5
(Week 5) Network and Transport Layers Fitzgerald, Chapter 5 (cont)		Network and Transport Layers Fitzgerald, Chapter 5 (cont)
(Week 6) TCP/IP Game Fitzgerald, Appendix D IN CLASS PARTICIPATION REQUIRED **Review for Exam 1**		**Exam 1** - Chapters 1-5

Part 2

(Week 7) Exam 1 follow-up (aftermath) [Fitzgerald Chapter 6: Network Design](#)	[Fitzgerald Chapter 6: Network Design](#) (cont) Discuss lab assignments progress
(Week 8) [Wired and Wireless LANS](#) Fitzgerald Chapter 7	(***Last Day to drop or withdraw with a "W".*** *(See [UH Academic Calendar](#) for specific Date.)* [Wired and Wireless LANS](#) (cont)
(Week 9) [Backbone Networks](#) Fitzgerald Chapter 8	[Wide Area Networks](#) Fitzgerald Chapter 9
(Week 10) ## [Subnetting](#)	## Review for [Exam 2](#)
(Week 11) ## [EXAM 2](#) - Chapters 6-9	

Part 3

(Week 12) Discussion of Exam 2 **[The Internet](#)** Fitzgerald Chapter 10	[The Internet (cont)](#) Fitzgerald Chapter 10
(Week 13) [Network Security](#) Fitzgerald Chapter 11	[Network Security (cont)](#) Fitzgerald Chapter 11
[Network Management](#) Fitzgerald Chapter 12	[Network Management (cont)](#) [Fitzgerald, Chapter 12](#) [Review for Exam 3](#)
Last Day of Class **[Final Exam (test 3)](#)** [University Final Exam Schedule](#)	