TCOM662 – Advanced Secure Networking
Department of Electrical and Computer Engineering
George Mason University
Spring, 2019

Syllabus

Administrative Information

Instructor:
Mr. David E. Fowler, CISSP-ISSMP, CISM, CISA

Email: dfowler4@gmu.edu subject=GMU-TCOM662-Sec/001 Your name

Phone:

Office hours: By appointment

Teaching Assistant
TBD

Day/time of class: Tuesday 7:20-10:00 pm

Location: DL
Class section: DL

Course Description

662 Advanced Secure Networking (3:3:0)
Prerequisites: TCOM 509 and 562, and a working knowledge of network routing protocols. Advanced technologies in network security that can be applied to enhance enterprise and ISP's network security. Covers network perimeter defense concept and various components for complete layered defense system. Examines each component and its technologies, including TCP/IP protocol vulnerabilities, router access control list (ACL), dynamic ACL, firewall, network address translation (NAT), virtual private network (VPN), IPSec tunnels, intrusion detection system (IDS), routing protocol security, denial-of-service (DOS) attack, DOS detection and mitigation techniques.

From http://www.gmu.edu/catalog/courses/tcom.html

Textbook

Introduction to Computer Networks and Cybersecurity; Chwan-Hwa (John) Wu and J. David Irwin; 2013; CRC Press; ISBN: ISBN 9781466572133; Publisher's Web page: http://www.crcpress.com/product/isbn/9781466572133

eBbook available for purchase or rent at:
http://www.crcpress.com/product/isbn/9781466572133

The required textbook is available electronically through the Safari Tech Books Online collection. You can access this book by following these steps:

Go to http://proquest.safaribooksonline.com.mutex.gmu.edu/

- If you are off-campus, you will be asked to login using your Mason email user name and password.
- When the search screen opens, type the ISBN number (9781466572133) of the book into the search box and click search, then click on the book title in the search results page. The next page that will open is the homepage for the book.
- Click on the Start Reading button to open the book.

Grading

Raw scores may be adjusted to calculate final grades.

Grades will be assessed on the following components:

Homework and class participation (5@10% each)		50%
Mid-term exam	25%	
Final exam	25%	

These components are outlined in the following sections. Homework assignments are subject to change.

Homework

Homework Assignments are TBD

Homework 1 –

Homework 2 –

Homework 3 –

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Homework 4 –

Class Participation – Students must participate in at least two BB discussion forums for full credit.

Assignments will due in Weeks 3, 5, 10, 12, and 15.
Late assignments will be assessed a penalty of 5% of the assignment grade for each week or part there of it is late. No assignment will be accepted after three weeks.

Mid-term exams

The mid-term exam will be virtual. It will cover materials discussed in Lectures 1-6. .

The mid-term exam will be "open book".

Final exam

The Final Exam will be virtual. It will cover material from the weeks Lecture 7-13.
The Final will be "open book".

Schedule

Week	Date	Topic	Reading Assignments	Projects Due
Week 1	1/22/2019	Introduction	Chapter 0	
Week 2	1/29/2019	Cybersecurity Overview	Chapter 17	
Week 3	2/5/2019	Application Layer	Chapter 1,2	Homework 1 due
Week 4	2/12/2019	Physical & Link Layer/Network Layer	Chapters 6 & 10	
Week 5	2/19/2019	Wireless & Symmetric Key Crypto	Chapter 9 & 21	Homework 2 due
Week 6	2/27/2019	Firewall	Chapter 18	
Week 7	3/5/2019	Mid-Term (virtual)	Covers Lectures 1-6	
Week 8	3/13/2019	Spring Break		
Week 9	3/19/2019	IDS/IPS Security	Chapter,19	
Week 10	3/26/2019	Crypto Overview – Hash SSL	Chapter 20	
Week 11	4/2/2019	Crypto Overview - PKI	Chapter 22	Homework 3 due
Week 12	4/9/2019	Network Security	Chapter 23,24	
Week 13	4/16/2019	Network Access Control	Chapter 25	
Week 14	4/234/2019	Cyber Defense	Chapter 26	Homework 4 due
Week 15	4/30/2019	Cyber Defense	Chapter 26	
	5/7/2019	Reading Day		
Week 16	5/11/2019	Final exam (virtual)	Covers Lectures. 7-13	

This schedule is subject to revision before and throughout the course.

Call 703-993-1000 for recorded information on campus closings (*e.g.* due to weather).

Important Dates

Last day to add classes	Tues. Jan 29
Last day to drop with no tuition liability	TBD
Last day to drop	Fri. Feb 23

https://registrar.gmu.edu/calendars/spring-2019/

See that Web page for more information.

Attendance Policy

Students have the option of attending each DL session. However students are encouraged to attend each class session, to complete any required preparatory work (including assigned reading) and to participate actively in lectures, discussions and exercises. As members of the academic community, all students are expected to contribute regardless of their proficiency with the subject matter.

Students are expected to make prior arrangements with Instructor if they know in advance that they will miss any assignments and to consult with the Instructor if they miss any assignments without prior notice.

Departmental policy requires students to take exams at the scheduled time and place, unless there are truly compelling circumstances supported by appropriate documentation. All exams for TCOM 662will be virtual. Except in such circumstances, failure to submit a scheduled exam may result in a grade of zero (0) for that exam.

Communications

Communication on issues relating to the individual student should be conducted using email or telephone. Email is the preferred method – for urgent messages, you should also attempt to contact the Instructor via telephone. Email messages from the Instructor to all class members will be sent to students' GMU email addresses – if you use another email account as your primary address, you should forward your GMU email to that account.

Lecture slides are complements to the lecture process, not substitutes for it - access to lecture slides will be provided as a courtesy to students provided acceptable attendance is maintained.

Honor Code

Students are required to be familiar and comply with the requirements of the GMU Honor Code[1].
The Honor Code will be strictly enforced in this course.
All assessable work is to be completed by the individual student.
Students must **NOT** collaborate on the project reports or presentation without explicit prior permission from the Instructor.

Booth, Colomb, and Williams state in their book, The Craft of Research (University of Chicago Press, 1995):

> "You plagiarize when, intentionally or not, you use someone else's words or ideas but fail to credit that person. You plagiarize even when you do credit the author but use his exact words without so indicating with quotation marks or block indentation. You also plagiarize when you use words so close to those in your

source, that if you placed your work next to the source, you would see that you could not have written what you did without the source at your elbow" (p. 167).

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[1] Available at www.gmu.edu/catalog/apolicies/honor.html and related GMU Web pages.