

COMP 7/8327: Network and Internet Security – Spring 2019

Basic Information:

Time & Place: TR 1:00-2:25 PM, FedEx Institute of Technology 324

Instructor: Xing Gao, 321 Dunn Hall, Email: xgao1@memphis.edu

Office Hours: T 2:30-4:30 pm, or by appointment

Teaching assistant:

Office Hours:

Course Overview

This is a graduate level course on network and Internet security. The course covers both the principles and practice of Internet and Network security; help students to understand complex attack paths and countermeasures not only for a specific system but also for a class of systems with different hardware/software components and architecture. The course involves both a reading/lecture/discussion and a term project. We will read and discuss research papers on various aspects of cybersecurity: DoS attacks, DNS security, Web security, Cloud security, Internet of Things security, and Mobile security. The lecture will be conducted in an interactive fashion. The term projects can be either of the following types: design/implementation, measurement, simulation, or survey. Each student will identify and work on a research project. Each student is required to write paper reviews and conduct class presentations.

Grading Policy

Grades will be computed as follows:

- 10% Class participation
- 20% Presentations
- 20% Paper reviews
- 20% In-class exam
- 30% Term project

Grading Scale:

A: 90, A-: 87, B+: 85, B: 80, B-: 77, C+: 75, C: 70, C-: 60, F: < 60.

Resources:

Required Text:

- No required book.

Recommended Text:

- Computer Networking: A Top-Down Approach, 7th Edition, James F. Kurose and Keith W. Ross, Pearson, 2017.
- Computer Security: A Hands-On Approach, Wenliang Du, October 2017

Academic Honesty:

"Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and will not be tolerated. All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but appropriate references must be included for the materials consulted, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor's discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the Office of Student Conduct for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to: <http://www.memphis.edu/studentconduct/misconduct.htm>"

"Your written work may be submitted to Turnitin.com, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all." (Office of Legal Counsel, October 17, 2005).

Course Syllabus (This is a tentative schedule):

List lecture topics or chapter sections by week or lecture meeting days.

Lecture	Date	Topics
1	1/15	Introduction
2	1/17	Internet review
3	1/22	Scanning
4	1/24	DDoS
5	1/29	TCP

6	1/31	DNS
7	2/5	CDN
8	2/7	SDN
9	2/12	Web
10	2/14	Authentication
11	2/19	No class (on travel) / paper review due
12	2/21	No class (on travel)
13	2/26	Network security / paper presentation / proposal due
14	2/28	Network security / paper presentation
15	3/5	No class (spring break)
16	3/7	No class (spring break)
17	3/12	Web security / paper presentation
18	3/14	Web security / paper presentation
19	3/19	Cloud and data center
20	3/21	Covert / side channel
21	3/26	Internet of things
22	3/28	Mobile / progress report due (optional)
23	4/2	Sensor / paper review due
24	4/4	Cloud security / paper presentation
25	4/9	Cloud security / paper presentation
26	4/11	Mobile security / paper presentation
27	4/16	Mobile security / paper presentation
28	4/18	Project presentation
29	4/23	In-class exam / final report due

Papers Reading List (tentative) :

[Link](#)

Project(tentative) :

[Link](#)