

COMP 4420: Network and Mobile Security

Instructor: Dr. Kan Yang

Times: 9:40 am – 11:05 am | Days: TR | Place: Engr Science Bldg 326

Contact Information:

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Office Hour: By appointment via email.

Course Description: COMP 4420

This course will discuss security issues and solutions in computer and mobile networks. Topics include Web Security (web security mode, web application security), Cryptography (symmetric cryptography, public-key cryptography, SSL/TLS, and other crypto tools), Network Security (security issues in network protocols, network defense tools, DoS attacks, etc.), Mobile Security (mobile platform security models, mobile threats and malware), and Cloud Security.

PREREQUISITE: COMP 3825 or permission of instructor

Why This Course?

Cyber security has become one of the most significant concerns in computer network and mobile systems, which have been widely used in our daily life. It helps businesses meet mandatory compliance regulations, protect customer data, and reduce the risk of legal action. It is vital for computer science students to gain the knowledge of analyzing security vulnerabilities and designing security solutions in today's network and mobile systems. In this course, students will be able to learn the fundamental security issues and defenses techniques in network and mobile systems.

Textbooks

No textbooks are required

Evaluation:

Final Grades:

Midterms: 50% (2*25%), Homework: 30% (2*15%), Quiz: 20% (4*5%)

Grading Scale (%):

A: 85 – 100, B: 75 – 84, C: 65 – 74, D: 55 – 64, F: 54 and below. (Plus/minus grading will be used).

The instructor reserves the right to lower the percentage threshold for letter grades as s/he sees fit (i.e., may make the grading scale better for you, but never worse).

Course Policies:

Late Policy: Without prior request, no late work will be accepted. All late submission maybe accepted at a penalty of 15% per day for no more than three days.

Testing Policy: All the midterm exams given are closed book/note/laptop/neighbor. But students are allowed to bring one cheat sheet (one piece of letter-size paper) for quick reference. Midterm exams are not cumulative. There will NOT be any makeup exams unless there is a documented emergency.

Homework Assignment and Project Report Policy: It is recommended that students use a word processing software (e.g., Word or LaTeX) to type their homework solutions or project report, then submit well-formatted PDF files.

Plagiarism/Cheating Policy: These are mandatory statements

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 University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to:

<http://libguides.memphis.edu/academicintegrity>

<http://www.memphis.edu/studentconduct/pdfs/csrr.pdf>

Disability Notice:

Any student who anticipates physical or academic barriers based on the impact of a disability is encouraged to speak with me privately. Students with disabilities should also contact Disability Resources for Students (DRS) at 110 Wilder Tower (901-678-2880). DRS coordinates access and accommodations for students with disabilities (<http://www.memphis.edu/drs/>).

Class Schedule:

Week	Topic
1	Course Overview and Introduction
2	Web Security Model
3	Web Application Security
4	Overview of Cryptography
5	Overview of Cryptography

6	HTTPS
7	Midterm I
8	Malware Overview
9	Security Issues in Network Protocols
10	Network Defense Tools
11	Denial-of-Service
12	Mobile Security
13	Cloud Security
14	Midterm II