TEXAS A&M UNIVERSITY

SYLLABUS

Course title and number	Computer and Network Security: CSCE 465
Term (e.g., Fall 200X)	Fall 2022
Meeting times and location	CSCE 465-501 MW 4:10pm-5:25pm HRBB 124 CSCE 465-201 MW 4:10pm-5:25pm HRBB 124

Course Description and Prerequisites

Fundamental concepts and principles of computer security, operating system and network security, secret key and public key cryptographic algorithms, hash functions, authentication, firewalls and intrusion detection systems, IPSec and VPN, wireless and web security. Prerequisite: CSCE 313 and CSCE 315; junior or senior classification; or approval of instructor.

Learning Outcomes or Course Objectives

This course primarily aims at providing a level of literacy in information security adequate enough to understand the security implications on a number of diverse domains including software engineering; networking; privacy; and policy.

A secondary objective is to provide a working knowledge of topics such as cryptography, privacy, network security, and infrastructure management, so that students can acquire the necessary background for more advanced security courses.

By the end of this course, students will be able to reason about systems from the perspective of a security engineer. That is, they should be able to define the system to protect; determine the security properties that are desired for this system; identify the possible threats to these security properties, and their likelihood of occurrence; and consider possible mitigations against these threats.

Instructor Information

Professor

Name	Prof. Yupeng Zhang (PETR 220)
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Office hours	Tuesday 2-3pm
Location	PETR220

Teaching Assistant

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Location	EABA 108B
Name	Avdhi Shah (Grader)
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Textbook and/or Resource Material

Required Textbook
Introduction to Computer Security, by Michael Goodrich and Roberto Tamassia, Addison-Wesley Pearson, ISBN-10: 0-321-51294-4

Optional Textbook
Handbook of Applied Cryptography – available online at: http://cacr.uwaterloo.ca/hac/

Course Website: https://tamucsce.github.io/CSCE465_Fall2022/

Piazza: piazza.com/tamu/fall2022/csce465/home

Assignment and Grading: https://gradescope.com

Course Management: https://canvas.tamu.edu/

Course Policies

Attendance

The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at http://student-rules.tamu.edu/rule07. If you have a conflict with a scheduled exam, please contact the professor as soon as possible, but no later than one week in advance to schedule a make-up. If your conflict is unforeseen (e.g. sudden hospitalization), please contact the professor as soon as possible to arrange a make-up. Please provide your professor with documentation for excused absences. The lowest two quiz grades will be dropped. If you have three or more excused quiz absences, please coordinate with the professor for a make-up.

Late Work Policy

Late homeworks are not accepted and are worth 0 points. If you have an extended excused absence (per rule 7) that prevents you from completing a homework, please coordinate with the professor as soon as possible for a make-up.

Grading Scale

Homeworks: 500 points (distributed across 5 homeworks). Your assignments must be typed and in PDF format. Submit assignment to gradescope (https://www.gradescope.com)
Midterm exam: 200 points
Final exam: 300 points

A >= 900 points
B = 800-899 points
C = 700-799 points
D = 600-699 points
F = <600 points

Honors project: If you are in the CSCE 465 honors section, you have to take this option. If you are in normal sections, you may request this option. Form a team to do an honors project, in which you design/implement/evaluate some useful and new attack/defense/system/tool/service/user study, etc. If you take this option, it replaces HW 5. Talk to me ASAP if you want to take this option.

Course Topics, Calendar of Activities, Major Assignment Dates			
Week	**Topic**	**Required Reading**	**Assignment**
1 (Aug 24)	Introduction Security Properties and Principles Security vocabulary	GT Ch. 1	
2 (Aug 29)	OS Security Program vulnerabilities	GT Ch. 3	
3 (Sep 5)	Program vulnerabilities		
4 (Sep 12)	Program vulnerabilities Crypto – symmetric	GT Ch. 8.1	HW 1 due
5 (Sep 19)	Crypto – symmetric	GT Ch. 8.5, 8.2	
6 (Sep 26)	Crypto – Public	GT Ch. 8.3-8.4	HW 2 due
7 (Oct 3)	Crypto – hash functions and signatures, PKI	GT Ch. 8.4	
8 (Oct 12)	**MIDTERM EXAM**		**MIDTERM on Oct 12**
9 (Oct 17)	Malware	GT Ch. 4	
10 (Oct 24)	Network Security	GT Ch 5 GT Ch 6.1-6.4	HW 3 due
11 (Oct 31)	Wireless Security	GT Ch. 6.5	
12 (Nov 7)	Web Security	GT Ch. 7	HW 4 due
13 (Nov 14)	Web Security	GT Ch. 7	
14 (Nov 21)	Security Models	GT Ch. 9	
15 (Nov 28)	Bitcoin and Ethereum		HW 5 due
16 (Dec 5)	Honor Presentations		
FINAL EXAM **See: http://registrar.tamu.edu/Courses,-Registration,-Scheduling/Final-Examination-Schedules** MW 4:10pm has final exam Monday December 12 from 3:30pm-5:30pm			

Version Control

You are strongly encouraged to use a version control system to track changes and back up your work. Texas A&M has an institutional GitHub account (https://github.tamu.edu) that you can use. Do NOT create public repositories containing your assignment solutions as this may lead to unauthorized copying of your work and a violation of the Aggie Code of Honor.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Harassment and Discrimination

Texas A&M is committed to the fundamental principles of academic freedom, equality of opportunity and human dignity. To fulfill its multiple missions as an institution of higher learning, Texas A&M encourages a climate that values and nurtures collegiality, diversity, pluralism and the uniqueness of the individual within our state, nation and world. All decisions and actions involving students and employees should be based on applicable law and individual merit. Texas A&M University prohibits harassment and discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran.

Students who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the Office of the Dean of Student Life at 979-845-3113.

Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

"An Aggie does not lie, cheat, or steal, or tolerate those who do."

All violations wil be reported to the Aggie Honor System Office. Please pay particular attention to the definitions of academic misconduct at: http://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules#Definitions

You are encouraged to discuss concepts with others, but **you must do all assignments by yourself** unless specifically instructed otherwise. If you refer to any source while doing your homework, you must give credit in your solution, (this holds true whether it be a person, paper, book, solution set, web page or whatever). You MUST write up the assignments **in your own words.** Never copy someone else's words and turn them in. For example, "the academic integrity policy on this syllabus was based on one obtained from Prof. Jennifer Welch", or "Sally Smith walked me through the solution to #38 and then I did #39 on my own" (assuming #38 was not on the homework).

On all assignments and examinations at Texas A&M University, the following Honor Pledge shall be preprinted and signed by the student: "On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."