CS 4243: Introduction to Computer Security
Fall 2020

Mode of instruction: Online through Microsoft Teams

Time: 1.30pm – 2.45pm Tuesday
1.30pm – 2.45pm Thursday

Instructor*:*
Dr J. P. Thomas
email: jpt@cs.okstate.edu.
Office Hours: Tuesday: 11.00am-12.00noon
Email the instructor beforehand to set up a teams meeting. Alternate meeting times may be arranged by sending an email.

Teaching Assistant:
Likhitha Ramisetty
email: lramise@okstate.edu
Office Hours: Thursday: 3.00pm-4.00pm
Email the TA beforehand to set up a teams meeting. Alternate meeting times may be arranged by sending an email.

Prerequisite:
Prerequisite: CS 3443 or equivalents
Knowledge of Programming

Course Description:
Overview of the components of computer and network security. Discussion of external processes required in secure systems, information assurance, backup, business resumption. Detailed analysis of security encryption, protocols, hashing, certification, and authentication.

Course Objectives:

This course provides an introduction to computer security. The course will cover a broad range of basic topics in security including cryptography, key management, symmetric/public key encryption, authentication, design of secure systems, hash functions, digital signatures, software security, web security and network security.

Course Outline:

Topics to be covered

1. Introduction to Computer Security
2. Cryptographic Tools
3. User authentication
4. Access control
5. Database and data center security
6. Malicious software
7. Denial of service attacks
8. Intrusion detection
9. Firewalls
10. Software security – writing safe program code, Buffer Overflow attacks
11. Operating systems security
12. Internet security
13. Advanced encryption standard and stream ciphers
14. Public key cryptography
15. Legal and ethical issues

Textbooks:

Computer Security: Principles and Practice, 4th edition, William Stallings and Lawrie Brown, Pearson, 2018
ISBN-13: 978-0-13-479410-5
ISBN-10: 0-13-479410-9

Computer & Internet Security: A Hands-on Approach 2nd Edition, Wenliang Du, 2019
ISBN: 978-1-7330039-3-3

Grading:

- Homework (*2): 40 marks
- Lab Assignments: 60 marks
- Quizzes (*3): 60 marks

    Dates - September 22nd, October 20th, November 17th. These will be short online quizzes that will take 20-30 mins to complete. Class will terminate at 2.10pm on these dates and the quizzes will be made available online at 2.15pm.

- Finals: 50 marks

Communication medium:

All notes, assignments and class announcements will be on Canvas

All lectures will be delivered synchronously using Microsoft Teams. An announcement has been posted on canvas and an email has been sent out with the link to connect. Simply click on the link. All lectures will be recorded and posted on canvas after class.

Contact the TA or instructor through email with any questions.

Letter Grades:

Grade A: 90 - 100 %
Grade B: 80 – 89 %
Grade C: 70 –79 %
Grade D: 60 - 69 %
Fail (Grade F): 0-59 %

Attendance Policy:

Attendance is strongly encouraged, but not required. Students are responsible for any material covered in class. Some of the material covered in class will not be in the required textbook. Announcements about tests etc. will be made in class and/or Canvas. Students are also expected to regularly check their e-mails and Canvas.

Late submission penalty:

1 calendar day late: 10% penalty - date based on submission
2 calendar days late: 20% penalty - date based on submission
3 calendar days late: 40% penalty - date based on submission
4 calendar days late: 60% penalty - date based on submission
5 or more calendar days late: 100% penalty - date based on submission

Collaboration Policy

Examinations/Tests: No discussion of any kind (except with the instructor) is allowed. No access to any type of written material is allowed unless it is an open book test. Students who **do not** comply with the described collaboration policy will receive a grade of F in the course. Furthermore, the case will be reported to the University Officials.

Drop and Add Policy: Students will be allowed to drop as long as the University permits them to do so. A grade of W or F will be determined on the basis of the points earned until that time.

Academic Dishonesty/misconduct: The Computer Science departmental policy for academic dishonesty and misconduct applies to this class. In addition, a student attempting to gain unfair advantage by keeping an examination paper longer than the time permitted is guilty of academic misconduct. Discussion of homework or lab assignments or is encouraged, but students must work independently.

Computer Usage: The Computer Science departmental policy for computer usage applies to this class. Computer Policy: Computers and other electronic devices such as cell phones may be used ONLY for legitimate classroom purposes, such as taking notes, downloading course materials, or working on an in class activity. E-mail, instant messaging, surfing the Internet, reading the news, or playing games are not considered legitimate classroom purposes; such inappropriate computer use is distracting to those seated around you and is unprofessional.

Americans with disabilities act: The Computer Science departmental policy for students with disabilities applies to this class. Anyone who has a need for examinations by special arrangements should see the instructor as the earliest possible opportunity during scheduled office hours.

Ethics: During the course of the semester, you will learn techniques and tools that can be used to compromise the security of computer systems and computer networks. It is very important that you never use these techniques or tools without the permission of the computer or network owner. You should never attempt to attack the computers or networks belonging to the computer science department, the university, a classmate, or the course staff. If a student unethically exploited a vulnerability, the student will fail the class.