

1University of Texas at Tyler
Soules College of Business
Department of Computer Science
COSC 4362-5341 Cyber Security

Subject to Change

Course Information

COSC 4362-5341 Cyber Security Fall 2024

Class Meetings will be in-person on Tuesdays 15:30-16:50, COB 207

Please note that all Thursday classes are online via Zoom, unless otherwise mentioned.

Instructor Contact

Instructor: Sara Memarian Esfahani

Office location: COB 315.04

Zoom Meeting ID: TBA

Office hours: Tuesdays and Thursdays 12:00 to 14:00 or on Zoom by appointment

Email: Use the Inbox in Canvas (MUST include **COSC 4362-5341** in the Subject Line)

Normally, I will reply to an email within 24 to 48 hours.

To ensure a quick response over the weekends, please email me no later than Friday mornings.

Occasionally I will be unable to respond within that time frame but will inform the class in advance.

Communication Expectations

The most convenient way to communicate with the instructor is through the Inbox in Canvas. Download the mobile app for your convenience.

Discussion Board Communication

Please post general course or assignment questions to the General Course Questions & Answers Discussion Topic. Students are encouraged to respond to their fellow classmates' questions. I will read all discussion postings and add comments/suggestions/questions as necessary to keep the discussion on topic. Specific topic instructions on discussions are provided in the forums when needed.

Canvas Notifications:

Receive instant notifications about course events, such as submissions, discussion messages, and announcements through canvas. Assignments and all deliverables will be graded and returned no later than one week after the due date.

About the Professor/Instructor

Welcome to COSC 4362-5341 Cyber Security. I am Sara Memarian Esfahani, the instructor for this course. I am excited to have you in this course and look forward to learning more about you and your academic career goals while at UT Tyler. Together we will explore a variety of topics within security issues related to information and organizational assets and we will journey through this course together to do great things.

Course Description

This course is designed to give students an understanding of computer security concepts. You are advised to pay careful attention to the class lectures and course exercises. Exam questions are based primarily on the material covered in class and are designed to test your understanding of the underlying concepts of computer security. It also covers information security management and much of the common Body of Knowledge of the CISSP Certification Exam.

Course Structure

This course is a hybrid course that lasts 15 weeks (1 semester). See the course schedule table at the end of this file and on Canvas.

Course Objectives

Upon successful completion of this course, you are expected to:

- Become familiar with the foundational concepts in security design.
- Become familiar with the principles of legal and ethical aspects of security design.
- Become familiar with principle of cryptography, various techniques and pros and cons of each method.
- Learn how to identify variety threats and attacks.
- Gain hands-on experience in a practical team-based project to implement your take aways of security principles.

Course Topics

1. Course Overview and Introduction
2. Principles of cryptography
3. User Authentication
4. Access Control
5. Database Security
6. Intrusion Detection
7. Firewalls and Intrusion Prevention Systems
8. IoT Security
9. Introduction to the Management of Information Security
10. Compliance: Law and Ethics
11. Information Security Policy
12. Risk Management: Assessing Risk
13. Maintaining Information Systems

Required Materials

- COMPUTER SECURITY. PRINCIPLES AND PRACTICE. 4th Edition. William Stallings. Lawrie Brown. University of New South Wales, Australian Defense Force Academy
- Management of Information Security, by Michael E. Whitman, Herbert J. Mattord, 6th Edition

Hardware & Software Requirements for course

- Personal Computer (PC)
- Lockdown Browser and Respondus Monitor
 - A working Webcam for Respondus Monitor (no exceptions). This camera may be on your laptop or an external camera. A working webcam is required to take all exams and some quizzes. This is non-negotiable.
 - Exams require the use of Respondus Lockdown Browser and Monitor. Therefore you need to download Lockdown browser software (Links to an external site.)
 - Canvas. The course uses Canvas for communication between the instructor and students and among students.

COURSE REQUIREMENTS AND GRADING:

Your grade will be determined based on your performance on the activities identified below. No make-up for exams, simulations, or homework will be given. It is highly likely that “extra-credit work” will be assigned to individuals as a replacement for, or in addition to, these components. All points will show up in Canvas. Be sure to review the grading schema below to determine your letter grade.

Individual Assignments: Weekly reading of the assigned chapter for each week. All the students are expected to come to class with questions.

Team Projects: Each student will participate in a systems analysis and Security design project as a team member. The objective of the project is to give students hands-on experience of security analysis and through such in-depth analysis and research, the teams will present their findings and offer mitigation strategies, simulating a somehow actual consultancy role in the cybersecurity landscape.

Team: Each team will consist of up to 5 members. It is the responsibility of individual students to find colleagues to work with as a team. Once a team is formed, each member has obligation to stay and function as a productive team member until the completion of the project. Any disputes, conflicts, and problems within a team must first be resolved among the members.

Each team will elect a team leader who will be responsible for coordinating various project tasks and communicating with the instructor. You may also elect or assign different titles to team members, reflecting different duties and specializations. The performance of a team will always be graded as a single unit. However, individual members will receive an adjusted grade at the end of the semester, which reflects the level of contribution as assessed by peers.

Milestone Reports (100 points):

At the end of each important phases of the project, each team will prepare and submit a report that documents all relevant information as specified in the project case.

Milestone	Title	Due	Points
1	Selection and Identification	Sep 20	50
2	Vulnerability Analysis	Oct 11	100
3	Mitigation Strategies	Nov 15	100
4	Presentation and Final Report	Dec 1	100

Presentation and Demonstration (50 points):

At the conclusion of the project, each team will make a presentation to demonstrate the system and discuss any relevant issues. The objective of these presentations is to deliver the finished system that meets the needs of the user.

Prepare and record your project presentation in Zoom. Submit your presentation recording to the assignment site in Canvas.

Final Report (100 points):

Final report collects and organizes all documents prepared and used throughout all phases of the project. The following is a list of minimum requirements for the report:

- Table of contents
- Executive summary
- Page number on each page (except the cover page)
- All reports and documents collected or produced during the project completion.
- Presentation Slides

Peer Evaluation (10 points)- Extra Credit

All members of the team will receive the same grade for the presentation and the report. At the end of the project (after the report has been submitted), the team members will anonymously evaluate each other on their levels of contribution to the project. The result of this evaluation will determine the points each member will receive for the peer evaluation part of the project grade.

In your evaluation, consider the following (but not limited to):

- Did the member complete assigned tasks in a timely manner?
- Did the member complete the tasks correctly and in a professional manner?
- Did the member attend all meetings?
- Did the member actively participate and make valuable contribution during the meetings?
- Did the member encourage others to do well as a team?

Provide your evaluation in Canvas – Peer Evaluation (Team Project) in the Assignments section.

Report Requirements (All Reports)

- All report assignments are due by the end of the due date unless otherwise instructed. No assignment will be accepted after the due date.
- All reports prepared in Word should include a cover page with the following information:
 - ✓ Team name
 - ✓ Names of team members
 - ✓ Title (e.g., Milestone 3 Mitigation Strategies)
 - ✓ Class and section (i.e., COSC 4362)
 - ✓ Due date
- All pages except the cover sheet must be numbered.

EXAMS: There will be three exams during the semester. You will be tested on all material assigned or taught in this course which includes class slides, quizzes, videos, etc. Respondus Lockdown Browser & Monitor is required to take all exams which require a webcam feature. Instructions are posted on canvas.

CLASS QUIZZES, ATTENDANCE, AND PARTICIPATION

Regular and punctual attendance for the full class period is expected. Attendance will be recorded. You must attend the entire class to avoid being recorded absent. Any student whose absences exceed the equivalent of two weeks of the class without proper notice may be dropped by the instructor with a WF for nonattendance.

You are expected to come to class prepared. That means you will need to read the assigned chapters and other materials before coming to class and be fully prepared to actively engage in discuss with the class. Friday classes will occur via zoom, and are focused on the review of the week, it can be in a form of pop-up quiz or Q&A.

If you find that there is no grade recorded for submitted work, or if you want to dispute a grade, you must send your instructor an email about the problem NO LATER THAN 2 DAYS after the submission date.

GRADE CRITERIA: All course work is always due at 11:59 p.m., unless otherwise noted. If you have not finished your projects, submit whatever you have completed. You will earn credit for what you complete.

Assignments (Subject to change)	Points Possible (Approx.)
Class Quizzes, Attendance, and Participation	200
Team Project	350
Exam 1	150
Exam 2	150
Exam 3	150
Total Points Possible with no extra credit	1000

Total Points (%)	Letter Grade
900 & above	A
800 - 899	B
700 - 799	C
600 - 699	D
599 & below	F

Schedule (subject to change)

Due by Friday 11:59 p.m. unless otherwise noted

Week	Date	Topic / Reading	Note
Week 1	8/27 8/29	Course Overview S&B - Chapter 1- Overview	<ul style="list-style-type: none"> Understanding the Syllabus Introduce Yourself
Week 2	9/3 9/5	S&B - Chapter 2- Cryptographic Tools	<ul style="list-style-type: none"> Project team formation Decision on your project topic
Week 3	9/10 9/12	S&B - Chapter 3- User Authentication	
Week 4	9/17 9/19	S&B - Chapter 4- Access Control	<ul style="list-style-type: none"> Milestone 1 due September 20
Week 5	9/24 9/26	Exam 1- Chapters 1-4	<ul style="list-style-type: none"> Exam 1 Review on Tuesday 24th Exam day: Thursday (in person)
Week 6	10/1 10/3	S&B - Chapter 5- Database Security	<ul style="list-style-type: none"> Q&A on Project
Week 7	10/8 10/10	S&B – Chapter 8- Intrusion Detection	
Week 8	10/15 10/17	S&B – Chapter 9- Firewalls and Intrusion Prevention	<ul style="list-style-type: none"> Milestone 2 due Friday October 18
Week 9	10/22 10/24	S&B – Chapter 13- IoT Security	
Week 10	10/29 10/31	Exam 2- Chapters 5, 8, 9, 13	<ul style="list-style-type: none"> Exam 2 Review on Tuesday 29th Exam day: Thursday (in person)
Week 11	11/5 11/7	W&M - Chapter 1&2- Introduction to ISM + Compliance and Law	
Week 12	11/12 11/14	W&M - Chapter 4- Information Security Policy	Milestone 3 due on Friday 15th
Week 13	11/19 11/21	W&M - Chapter 6- Risk Management: Assessing Risk	
Week 14	25-29	Thanksgiving- Holiday	No Class Meeting
Week 15	12/3 12/5	Team Projects Presentation	<ul style="list-style-type: none"> Milestone 4 due on Dec 1
Week 16	12/12	Final Exam Chapters 1, 2, 4, 6	<ul style="list-style-type: none"> Final Day for any unsubmitted assignments

Code of Conduct and Ethics

Academic integrity must be exhibited in your academic work, methods and conduct. Course work for which you receive an individual grade must be your original, individual effort. If any evidence exists of copying, cheating, or any other forms of academic dishonesty on all, or part, of your graded course work, you (and any others involved) will be awarded a ZERO for that work. Sharing files also counts as academic dishonesty. A second incident will result in a grade of an “F” in this course and a recommendation for further action by the office of the Vice President for Student Development.

A few key points to remember:

I would like to point out some of the activities we have sanctioned (awarded “F” grade and

sometimes even more, removed from dean's list, merit list etc.). I want to share this so that you know that we care integrity of the degree you receive from UT Tyler.

1. In one of the semesters, some exams were conducted using Respondus lockdown browser and video monitoring. However, some students took advantage of a loophole and had help from resources outside the screen and camera. Our instructors viewed 120 hours of video recording and found a group of students involved in a coordinated plagiarism. All were sanctioned, with some losing even scholarships!
2. In one instance, a student outsourced all his assignments to a person outside this country. The assignments were flagged for abnormal activities and with the help of some technology providers we were able to trace the IP address. The student was sanctioned (awarded a "F" grade in the course)
3. In multiple instances, students have had to borrow a laptop from another student in the course and posted something as them because they had not logged out of Canvas. This is considered misconduct on the part of both students. DO NOT give another student access to your UT Tyler accounts.

Almost exams and quizzes have multiple versions, and the numbers and options are different. So, if you use your peer – the chance of choosing the wrong answer is extremely high. In worst cases (it has happened in some instances), the student would have used the numbers and details.

The instructor will post both UNOFFICIAL grade reports using Canvas.

THREE BEFORE ME RULE: If you have any issues or questions about assignments, class policies and schedules, etc. and want to speak with me (the Professor), please remember the three before me rule as stated in the next sentence. You must have attempted at least three options before you come to me. For example: TA, tutor, grader, etc. You must tell me what you tried and the results, including screen prints of errors or printed error messages.