Syllabus

College of Computing and Computer Engineering

Department of Computer Science

CSCE 3550: Foundations of Cybersecurity

Fall 2025 Section 501, 551, 552

Instructor Information

Instructor: Dr. James E. Freedle II
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Course Description, Structure, and Objectives

This course covers cybersecurity terminology, principles, and technologies and introduces students to security issues related to hardware, software, cryptography, and policy to make better, safer decisions. Topics include cyber threats and vulnerabilities, information security frameworks and policies, cryptography, penetration testing, and defense in depth. Many of the techniques will be demonstrated and practiced using a modern programming language. The goal is to develop a foundation for further study in cybersecurity. This course takes place in-person, and all assignments will be submitted through Canvas.

Course Learning Outcomes

Course outcomes are measurable achievements to be accomplished by the completion of a course. These outcomes are evaluated as part of our ABET accreditation process:

1. Describe basic security terminology and concepts as well as analyze security threats, vulnerabilities, and attacks.
2. Describe the role of computers and networks in a security context.
3. Develop basic organizational security policies.
4. Demonstrate basic principles and concepts of cryptography and general cryptanalysis.
5. Demonstrate various types of penetration testing to measure the security posture.
6. Discuss the legal and ethical issues involved with securing computer systems, networks, and information.
7. Apply security design principles using a modern programming language to solve various cybersecurity problems.

Course Requirements and Assignments

All class lecture presentation slides, assignments, projects, and textbook assignments are available on the Canvas site. All assignment submissions will be uploaded to Canvas, while exams will be proctored in class. Emailing submissions to the TA or Instructor will not be accepted. Please check the Canvas Calendar and syllabus for due dates.

Weekly Tasks:

Each week. All submissions are due by Sunday at 11:59 pm. Late assignments will be accepted within two days of the due date with a 10%/day penalty. The TA will handle all grading, so direct any grade-related questions to the TA

How to Succeed in this Course

Class Meeting Time: Monday and Wednesday 12:30 pm to 1:50 pm in FRLD 160

Recitation Meeting Time: Monday or Wednesday 2 pm to 2:50 pm
Office/Student Hours: Tuesday and Thursday 1 pm to 5 pm and by Appointment (via Microsoft Teams).

You may contact me via Canvas or UNT email, but it must be through your UNT email account, no personal accounts. The subject of the email must start with course and section (CSCE 3550 §501:) along with a brief title of the purpose of the email. You may also contact me through Microsoft Teams, either chat or audio call (since I do not have an office phone). I receive a lot of email so give me 1 to 2 business days for a response, however if you see me online and available in Microsoft Teams, you can certainly contact me with any quick questions. Office hours (student hours) offer you an opportunity to ask for clarification or find support with understanding class material. Come and visit me! I encourage you to connect with me and/or my IA for support. Additional office hours, in person and virtually, may be offered as the semester concludes. Your success is our goal.

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website (https://studentaffairs.unt.edu/office-disability-access). You may also contact ODA by phone at (940) 565-4323.

UNT strives to offer you a high-quality education and a supportive environment, so you learn and grow. As a faculty member, I am committed to helping you be successful as a student. To learn more about campus resources and information on how you can be successful at UNT, go to unt.edu/success and explore unt.edu/wellness. To get all your enrollment and student financial-related questions answered, go to scrappysays.unt.edu.

Supporting Your Success and Creating an Inclusive Learning Environment

Every student in this class should have the right to learn and engage within an environment of respect and courtesy from others. We will discuss our classroom's habits of engagement and I also encourage you to review UNT's student code of conduct so that we can all start with the same baseline civility understanding (Code of Student Conduct) (https://policy.unt.edu/policy/07-012).

Required/Recommended Materials

Required Textbook:

- CC Official ISC2 eTextbook 1st Edition
  ISC2 (2022). CC Official ISC2 eTextbook 1st Edition. ISC2 - International Information System Security Certification Consortium, Inc. https://bookshelf-ref.vitalsource.com/books/ISC2-CC-EB-1-EN-EPUB
  Notes: Provided by ISC2 via the ISC2 portal/website and vital source.
- Elementary Information Security (3rd Edition) by Richard E. Smith (Jones and Bartlett, 2023)
  ISBN 978-1284153040
  Smith, R. E. (2024). Elementary Information Security (3rd Ed). Jones and Bartlett. https://www.jblearning.com/catalog/productdetails/9781284153040?ss360SearchTerm=Elementary%20Information%20Security%20(3rd%20Edition)
  Notes: This will need to be purchased with lab codes (do not buy used).

- Publication Manual (OFFICIAL) of the American Psychological Association 7th Edition by American Psychological Association (Author)
  ISBN-10 : 1433832178 or ISBN-13: 978-1433832178
  American Psychological Association. (2025). Publication Manual (OFFICIAL) of the American Psychological Association (7th Edition). American Psychological Association.
  Notes: This will need to be purchased (or used as reference).
- US Army Red Team Handbook:
  Available here. https://home.army.mil/wood/application/files/6115/8222/0759/RedTeamHB.pdf
  University of Foreign Military and Cultural Studies TRADOC G-2 Intelligence Support Activity. (2022). The red team handbook: The army's guide to making better decisions (ver. 9). Retrieved (date) from https://home.army.mil/wood/application/files/6115/8222/0759/RedTeamHB.pdf
  Notes: Provided by in class by instructor.

Recommended (free/online):

- Introduction to Computer Security
  Matt Bishop
  Pearson
  2005, ISBN 0-321-24744-2

Prerequisite (should have a grade of C or better): None.
Co-requisite: CSCE 2110: Foundations of Data Structures

Course Requirements/Schedule

Here is the schedule as planned. Depending upon the circumstances the schedule is subject to change and the assignments will be updated in Canvas.

Date	***Topic***	***Assignment***
8/18, 20	*Introduction, Certified in Cybersecurity, Controlling a Computer, Security from the Ground up*	Discussion Question, Homework Quiz
8/25, 27	*Incident Response, Access Control*	Discussion Question, Homework Quiz
9/3	*Controlling Files, Windows & Unix, Sharing Files*	Discussion Question, Homework Quiz
9/8, 10	*Storing Files*	Discussion Question, Homework Quiz
9/15, 17	*Authenticating People*	Discussion Question, Homework Quiz
9/22, 24	*Security Operations*	Discussion Question, Homework Quiz
9/29, 10/1	*Encrypting Files*	Discussion Question, Homework Quiz
10/6, 8	*Secret and Public Keys*	Discussion Question, Homework Quiz
10/13, 15	*Encrypting Volumes*	Discussion Question, Homework Quiz
10/20, 22	*Network Security Concepts, Connecting Computers*	Discussion Question, Homework Quiz

Date	Topic	Assignment
10/27, 29	*Network of Networks*	Discussion Question, Homework Quiz
11/3, 5	*End-to-End Networking*	Discussion Question, Homework Quiz
11/10, 12	*Network Encryption*	Discussion Question, Homework Quiz
11/17, 19	*Internet Services and eMail*	Discussion Question, Homework Quiz
11/24, 26	*Thanksgiving Break*	*No Assignments due*
12/1, 3	*The World Wide Web*	Discussion Question, Homework Quiz
Finals Week	*Final Exam*	

You will be notified by Eagle Alert if there is a campus closing that will impact a class and the calendar is subject to change, following the Campus Closures Policy (https://policy.unt.edu/policy/15-006).

Assessing Your Work

The final grade will be assessed using the following grade distribution:

Group	Weight
Final Project	20%
CC Exam Certification by ISC2	15%
Weekly Lab Assignments	*15%*
Weekly Discussion Questions	*15%*
Weekly Homework/Quizzes	*10%*
Recitation Participation & Effort	*10%*
CC Homework Assignments	*5%*
CC Discussion Questions	*5%*
Roll Call Attendance	*5%*
Bonus	*0%*
Total	**100%**

Grading scale:

A = 90% to 100%
B = 80% to <90%
C = 70% to <80%
D = 60% to <70%
F = <60%

Course Policies

Submission Policy

Students are responsible for submitting the correct assignments in the correct assignment location in Canvas.. If you have any questions or concerns about your submission, please work with your instructor or TA to ensure that the correct file(s) is/are submitted.

AI Course Policy

In this course, the use of GenAI (Generative Artificial Intelligence) tools is not permissible for any coding assignments. No matter the approach, any attempt to represent GenAI output as a student's own work will be considered fabrication, cheating, and/or academic dishonesty as determined on a case-by-case basis. Using GenAI tools to proofread and grammar-check is permitted.

Make-up Work Policy

Missed exams or assignments due to illness or in the event of an unavoidable absence, make-up work will only be allowed by providing the instructor with a physical copy of a signed doctor's note or any proof in the event of of an unavoidable absence. See the UNT Class Attendance Policy for more information.

Academic Integrity and Collaboration Policy

Check UNT policy 06.003 that defines the breaches of academic integrity: from Cheating, Plagiarism, Forgery, Fabrication, Facilitating Academic Dishonesty,… etc.
Cheating of any sort will not be tolerated in this course. All submissions must be your own original work. Taking information or code from the internet or other students is considered a breach of academic integrity. Failure to adhere to these strict standards will be cause for disciplinary action that could be as severe as expulsion from the university. If it is determined a student cheated on any assignment in this course they will receive an F for this final course grade and an academic integrity report will be filed with the Office of Academic Integrity. Further, UNT is now maintaining a database recording any acts of academic dishonesty that is available to employers. For more information see the UNT Student Academic Integrity Policy.

Honor Code: "I commit myself to honor, integrity, and responsibility as a student representing the University of North Texas community. I understand and pledge to uphold academic integrity as set forth by UNT Student Academic Integrity Policy, 06.003 (https://policy.unt.edu/policy/06-003). I affirm that the work I submit will always be my own, and the support I provide and receive will always be honorable."

Attendance and Participation

Student attendance will be recorded. Every student who misses a class or a lab is responsible to learn the materials discussed. It is the student's responsibility to obtain the homework assigned on the missed class. I have great respect for students who are balancing the demands of their coursework with the responsibilities of caring for family members. If you run into challenges that require you to miss a class, please contact me or my TA. There may be some flexibility we can offer to support your academic success.

Lab Attendance

Students must attend their weekly lab section. If you anticipate being unable to attend your regular lab section with a valid excuse, you must contact myself and your TA *in advance* of your lab section before the lab is closed so that an alternative lab section maybe scheduled. Failure to do so may result in a zero for the lab. The instructor has the final say as to whether an absence is excused.