Course Syllabus

CSCE5552 / Cybersecurity Essentials

Instructor Information

Name: Dr. Jacob Hochstetler (he/him)

Office Location: VIA ZOOM

Office Hours: TBD (please email before to let me know you will be in the Zoom meeting)

Email: Jacob.Hochstetler@unt.edu (mailto:Jacob.Hochstetler@unt.edu)

Grader: TBD (tbd@my.unt.edu) Office hours TBD

Course Description, Structure, and Objectives

This course provides a practical overview of essential computer and network security concepts and how they can be applied through a series of laboratory experiments. This course will introduce a wide array of security issues facing computer systems today, with an emphasis on how these challenges are relevant to users, attackers, and forensic investigators. Topics include cryptography, steganography, hashing, attack methods (and appropriate mitigation techniques), wireless security ports, access control, and the acquisition of forensic data.

Course Outcomes

Students will be able to:

1. Identify and apply methods for data concealment and obfuscation.
2. Discover key elements in a system using reconnaissance and scanning methods.
3. Use computer and network security tools and techniques to identify and exploit vulnerabilities.
4. Demonstrate data acquisition and analysis on multiple platforms.
5. Describe and evaluate the security and organization of data and file structures on systems, including access controls.

Important Notice for F-1 Students taking Distance

Important Notice for F-1 Students taking Distance Education Courses

Federal Regulation

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the **Electronic Code of Federal Regulations website** **(http://www.ecfr.gov/)**. The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

University of North Texas Compliance

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course.

If such an on-campus activity is required, it is the student's responsibility to do the following:

(1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.

(2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email **internationaladvising@unt.edu (mailto:internationaladvising@unt.edu)**) to get clarification before the one-week deadline.

Student Verification

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See **UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses (Links to an external site.)** **(https://policy.unt.edu/policy/07-002)** (https://policy.unt.edu/policy/07-002).

Use of Student Work

A student owns the copyright for all work (e.g. software, photographs, reports, presentations, and email postings) he or she creates within a class and the University is not entitled to use any student work without the student's permission unless all of the following criteria are met:

- The work is used only once.
- The work is not used in its entirety.
- Use of the work does not affect any potential profits from the work.
- The student is not identified.
- The work is identified as student work.

If the use of the work does not meet all of the above criteria, then the University office or department using the work must obtain the student's written permission.

Download the UNT System Permission, Waiver and Release Form

Transmission and Recording of Student Images in Electronically-Delivered Courses

1. No permission is needed from a student for his or her image or voice to be transmitted live via videoconference or streaming media, but all students should be informed when courses are to be conducted using either method of delivery.
2. In the event an instructor records student presentations, he or she must obtain permission from the student using a signed release in order to use the recording for future classes in accordance with the

   Use of Student-Created Work guidelines above.
3. Instructors who video-record their class lectures with the intention of re-using some or all of recordings for future class offerings must notify students on the course syllabus if students' images

recordings for future class offerings must notify students on the course syllabus if students' images may appear on video. Instructors are also advised to provide accommodation for students who do not wish to appear in class recordings.

Example: This course employs lecture capture technology to record class sessions. Students may occasionally appear on video. The lecture recordings will be available to you for study purposes and may also be reused in future course offerings.

No notification is needed if only audio and slide capture is used or if the video only records the instructor's image. However, the instructor is encouraged to let students know the recordings will be available to them for study purposes.

Required/Recommended Materials

This course has digital components. To fully participate in this class, students will need internet access to reference content on the Canvas Learning Management System. If circumstances change, you will be informed of other technical needs to access course content. Information on how to be successful in a digital learning environment can be found at **Learn Anywhere** **(https://online.unt.edu/learn)** (https://online.unt.edu/learn).

There are no required texts/textbooks for this course.

How to Succeed in this Course

Netiquette

Netiquette, or online etiquette, refers to the way students are expected to interact with each other and with their instructors online. Here are some general guidelines:

- Treat your instructor and classmates with respect in email or any other communication.
- Remember that all college level communication should have correct spelling and grammar (this includes discussion boards).
- Avoid slang terms such as "totes magotes" and abbreviations such as "u" instead of "you."
- Humor and sarcasm are highly encouraged. People who take the world seriously are in for a rough journey.

- Don't lead your emails off with your social security and bank account numbers, password manager master password, home address, credit score, and dental record jpegs. 3 of those will suffice.

See these **Netiquette Guidelines** (https://clear.unt.edu/online-communication-tips) (Links to an external site.) for more information.

Communication Expectations

Please send all communication as email via your official student UNT email (my.unt.edu).

Just like you, I receive a virtual ton of spam to my email address, and if it has *[EXT]* in the subject line, there's a ~95% chance I'm just deleting it. Additionally, I cannot discuss any student issues through external email due to FERPA, i.e. I cannot confirm that I *know* it's *you* I'm conversing with.

I have a 48 hour reply policy on all emails, excepting weekends and holidays. All grades will be posted promptly after grading has been completed.

Please come to me with any issues. Sending an email is free and if I can't resolve it, we can move the issue up the chain.

In your emails please include:

- **Subject**: the course (e.g. CSCE5552) that you are emailing about and a few words (aka, *the Subject)*
- **Body:** a signature with your email with your name and UNT ID number.

This helps me not only help you, but if there are multiple issues with the course (i.e. a module is broken for instance), I can quickly collate the issue.

ODA

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** (https://studentaffairs.unt.edu/office-disability-access) website (http://www.unt.edu/oda). You may also contact ODA by phone at (940) 565-4323.

Supporting Your Success and Creating an Inclusive

Supporting Your Success and Creating an Inclusive Learning Environment

I value the many perspectives students bring to our campus. Please work with me to create a classroom culture of open communication, mutual respect, and inclusion. All discussions should be respectful and civil. Although disagreements and debates are encouraged, personal attacks are unacceptable. Together, we can ensure a safe and welcoming classroom for all. If you ever feel like this is not the case, please stop by my office and let me know. We are all learning together.

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://deanofstudents.unt.edu/conduct)**) (https://deanofstudents.unt.edu/conduct)

Technical Assistance

Part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UNT Help Desk (Links to an external site.)   (https://it.unt.edu/helpdesk)

Call: 940-565-2324 (tel:940-565-2324)

Email: helpdesk@unt.edu (mailto:helpdesk@unt.edu)

Walk-in: Sage Hall, Room 330

Walk-in Hours: Monday–Friday: 8am - 5pm

Telephone Availability:

- Monday–Thursday: 8am – 9pm

- Friday: 8am- 5pm
- Saturday: 11am- 3pm

For additional support, visit **Canvas Technical Help** **(https://community.canvaslms.com/docs/DOC-10554-4212710328)**

Laptop Checkouts **(https://library.unt.edu/services/laptop-checkout/)**

The following library service desks provide laptop checkouts during **hours of operation (https://calendar.library.unt.edu/hours)** . MacBooks are only available at Willis Library.

- **Willis Library: The Spark** **(https://guides.library.unt.edu/spark)** , First Floor
- **Sycamore Library: Sycamore Service Desk** **(https://library.unt.edu/sycamore/service-desk/)**
- **Discovery Park: Library Service Desk** **(https://library.unt.edu/discovery-park/service-desk/)** , Room B112

Student Support Services

- **Registrar** **(https://registrar.unt.edu/registration)**
- **Financial Aid (Links to an external site.)** **(https://financialaid.unt.edu/)**
- **Student Legal Services (Links to an external site.)** **(https://studentaffairs.unt.edu/student-legal-services)**
- **Career Center (Links to an external site.)** **(https://studentaffairs.unt.edu/career-center)**
- **Multicultural Center (Links to an external site.)** **(https://edo.unt.edu/multicultural-center)**
- **Counseling and Testing Services (Links to an external site.)** **(https://studentaffairs.unt.edu/counseling-and-testing-services)**
- **Student Affairs Care Team (Links to an external site.)** **(https://studentaffairs.unt.edu/care)**
- **Student Health and Wellness Center (Links to an external site.)** **(https://studentaffairs.unt.edu/student-health-and-wellness-center)**
- **Pride Alliance (Links to an external site.)** **(https://edo.unt.edu/pridealliance)**

Academic Support Services

- **Academic Resource Center (Links to an external site.)** **(https://clear.unt.edu/canvas/student-resources)**
- **Academic Success Center (Links to an external site.)** **(https://success.unt.edu/asc)**
- **UNT Libraries (Links to an external site.)** **(https://library.unt.edu/)**
- **Writing Lab (Links to an external site.)** **(http://writingcenter.unt.edu/)**
- **MathLab** **(https://math.unt.edu/mathlab)**

Assessing Your Work

Percentages of final grade are approximate and subject to change.

Assignment percentages

Category	Percentage of Final Grade
Category	Percentage of Final Grade
Quizzes	100%

Grading scale

Final Grade	Letter
90 - 100	A
80 - 89	B
70 –79	C
60 –69	D
< 60	F

Grades are rounded to the nearest whole integer.

There is no curving of grades, nor "extra" credit, as it is unfair to the other students.

Course Schedule/Assignments

Module	Title	Labs
1	Overview of data concealment methods	Cryptography
		Hashing

2	Exploiting systems	Buffer overflow
		Password cracking
3	Web application and network attacks	Cross-site scripting (XSS)
		SQL injection
4	Wireless security and obtaining network information	Scanning and traceroute
5	Exploiting packets, ports, and network information	Packet sniffing
6	Access control and file types	Windows access control
		Compression and file types
7	Data organization on a system	Registries
		Partitions
8	Acquiring forensic data from a system	Data acquisition
		Mobile data acquisition

Students will be notified by Eagle Alert if there is a campus closing that will impact a class, policy available at **Emergency Notifications and Procedures Policy (PDF)** **(https://policy.unt.edu/sites/default/files/06.049_Standard%20Syllabus%20Policy%20Statements_supplement** **(https://policy.unt.edu/sites/default/files/06.049_Standard%20Syllabus%20Policy%20Statements_s**

(https://policy.unt.edu/sites/default/files/06.049_Standard%20Syllabus%20Policy%20Statements_supplement)

The policy for academic integrity is available at **Academic Integrity Policy (PDF)** **(https://policy.unt.edu/sites/default/files/06.049_Standard%20Syllabus%20Policy%20Statements_supplement** (https://policy.unt.edu/sites/default/files/06.049_Standard%20Syllabus%20Policy%20Statements_suppler

Attendance and Participation

Attendance and Participation

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 assignment deadlines,, please contact me or my TA. There may be some flexibility we can offer to support your academic success.

Because this course involves a collaboration project, participation is essential to learning. Our project-based activity requires you to be actively engaged in working together and submitting code.

If you are experiencing any **symptoms of COVID** **(https://www.cdc.gov/coronavirus/2019-ncov/symptoms%20testing/symptoms.html)** (https://www.cdc.gov/coronavirus/2019-ncov/symptoms testing/symptoms.html) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or **askSHWC@unt.edu (mailto:askSHWC@unt.edu)**) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Team at **COVID@unt.edu (mailto:COVID@unt.edu)** for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure.

Course Summary:

Date	Details	Due
Fri Dec 16, 2022	📝 **Buffer Overflow** **(https://unt.instructure.com/courses/71175/assignments/1543191)**	due by 11:59pm
	📝 **Caesar Cipher** **(https://unt.instructure.com/courses/71175/assignments/1542684)**	due by 11:59pm
	📝 **Compression and file types** **(https://unt.instructure.com/courses/71175/assignments/1549035)**	due by 11:59pm
	📝 **CRC-32** **(https://unt.instructure.com/courses/71175/assignments/1548605)**	due by 11:59pm
	📝 **Cross Site Scripting (XSS)** **(https://unt.instructure.com/courses/71175/assignments/1546075)**	due by 11:59pm
	📝 **Data acquisition** **(https://unt.instructure.com/courses/71175/assignments/1550854)**	due by 11:59pm

Date	Details	Due
	📝 **MD5 and SHA-1** (https://unt.instructure.com/courses/71175/assignments/1548610)	due by 11:59pm
	📝 **Mobile data acquisition** (https://unt.instructure.com/courses/71175/assignments/1550860)	due by 11:59pm
	📝 **Packet sniffing** (https://unt.instructure.com/courses/71175/assignments/1547529)	due by 11:59pm
	📝 **Partitions** (https://unt.instructure.com/courses/71175/assignments/1551241)	due by 11:59pm
	📝 **Password cracking** (https://unt.instructure.com/courses/71175/assignments/1544700)	due by 11:59pm
	📝 **RSA Encryption** (https://unt.instructure.com/courses/71175/assignments/1542931)	due by 11:59pm
	📝 **SQL Injection (SQLi)** (https://unt.instructure.com/courses/71175/assignments/1546122)	due by 11:59pm
	📝 **Student Academic Integrity Policy Quiz** (https://unt.instructure.com/courses/71175/assignments/1542663)	due by 11:59pm
	📝 **Window Access Control** (https://unt.instructure.com/courses/71175/assignments/1548086)	due by 11:59pm
	📝 **Windows Registries** (https://unt.instructure.com/courses/71175/assignments/1550711)	due by 11:59pm