CSCE 5560.002 and combined 4560 / Secure Electronic Commerce

Instructor Contact

Name: Dr. Ali Zarafshani
Pronouns: he/him/his
Class Location/Time: NTDP B185 Discovery Park, Tue 5:30 PM – 8:20 PM
Remote Class Zoom: will be provide when/if applicable
Office Location: Discovery Park, NTDP E245L
In-Person Office Hours: Room E245L, by appointment
Virtual Office Hours: will be provide by appointment
Email: Ali.Zarafshani@unt.edu

Communication Expectations: This course will use the Canvas learning management system (LMS) to distribute course materials, communicate and collaborate online, post grades, and submit assignments. You are responsible for checking the Canvas course site regularly for class work and announcements. You may find the Online Communication Tips (https://clear.unt.edu/online-communication-tips) helpful.

For assistance with assignments or questions about grading of a particular assignment, you may also contact the IA/TA Ummaji Vaishnavi (vaishnaviummaji@my.unt.edu) assigned to this course either via e-mail or during their office hours. This information will be available on Canvas.

Grades will be posted on Canvas throughout the semester to provide an ongoing assessment of student progress, but typically about one week after the assignment was due. Grading disputes should first go to the TA that graded your assignment, but if a resolution cannot be reached between the student and the grader, then you should go to the instructor who will have the final say on the grade.

Welcome to UNT!

As members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT’s full Non-Discrimination Policy can be found in the UNT Policies section of the syllabus.

Course Description

This course covers electronic commerce technology, models and issues, with emphasis on security. Supporting technology such as cryptography, digital signatures, certificates and public key infrastructure (PKI) are security-conscious programming for web-based applications are explored. Exposure is also given to interaction between technical issues and business, legal and ethical issues.
Course Structure

This is an in-person, face-to-face course, where instruction is delivered fully on site, meeting in NTDP B185 on Tue from 5:30 PM – 8:20 PM. We will use homework assignments, projects, and labs to reinforce and put the main ideas discussed in lectures into practice.

Tentative Class Schedule *(subject to change)*:

<table>
<thead>
<tr>
<th>Week</th>
<th>Tuesday</th>
<th>Note(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tue 8/30</td>
<td>Internet</td>
</tr>
<tr>
<td>2</td>
<td>Tue 9/6</td>
<td>E-Commerce Overview</td>
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<tr>
<td>3</td>
<td>Tue 9/13</td>
<td>HTML &amp; CSS</td>
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<td>4</td>
<td>Tue 9/20</td>
<td>PHP</td>
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<tr>
<td>5</td>
<td>Tue 9/27</td>
<td>Databases &amp; XML</td>
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<tr>
<td>6</td>
<td>Tue 10/4</td>
<td>Security Landscape &amp; Vulnerabilities &amp; Analysis</td>
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<tr>
<td>7</td>
<td>Tue 10/11</td>
<td>Threats &amp; Attacks/Review &amp; Web App Vulnerabilities</td>
</tr>
<tr>
<td>8</td>
<td>Tue 10/18</td>
<td><em>Midterm Exam</em> In person and closed book</td>
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<tr>
<td>9</td>
<td>Tue 10/25</td>
<td>Security Design Principles</td>
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<tr>
<td>10</td>
<td>Tue 11/1</td>
<td>Secure Software</td>
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<td>11</td>
<td>Tue 11/8</td>
<td>Risk Management &amp; Security Technologies</td>
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<td>12</td>
<td>Tue 11/15</td>
<td>Security Technologies</td>
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<tr>
<td>13</td>
<td>Tue 11/22</td>
<td>Development &amp; Deployment Thanks giving week</td>
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<tr>
<td>14</td>
<td>Tue 11/29</td>
<td>Payment Systems &amp; Legal, Ethical, &amp; Tax Issues</td>
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<tr>
<td>15</td>
<td>Tue 12/6</td>
<td>Presentations</td>
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<tr>
<td>16</td>
<td>Tue 12/13</td>
<td><em>Final Exam</em> 5:30 PM. – 8:30 PM</td>
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Course Objectives

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. Knowledge of and experience with secure web development, with exposure to at least three current technologies (such as XML, Perl, PHP, ASP, JSP, JavaScript, etc.).

2. Knowledge of how cryptography can be used to support confidentiality and integrity of electronic transmissions and transactions.

3. Knowledge of electronic transaction and payment systems.

4. Knowledge of Public Key Infrastructure (PKI) settings and trust models, with specific systems such as X.509 certificates and PGP’s decentralized web of trust.

5. Perform basic network and system security, including the ability to set up a typical electronic commerce setting of networks and hosts.

6. Demonstrate understanding with business, legal, and ethical issues related to electronic commerce, and the interaction of these issues with technical issues.

7. Perform the basic administration of a secure electronic commerce web site, including the setup, backup, and restore of a system from a backup.

Teaching Philosophy

I believe that the best way to really learn and understand concepts in computer science is to implement the techniques and perform the operations in an applied manner. While the process of reading examples and proofs in textbooks and lecture notes is valuable, the real learning comes through one’s own efforts in debugging and solving logical and programming problems. I have a very hands-on approach to teaching, which includes coding-on-the-fly and describing how programs work, which typically requires students to be present in the lecture. I would encourage students to use this opportunity to really learn and develop the skills covered in this class that will prepare you for entering a career in industry or furthering your education.

Course Technology & Skills

Minimum Technology Requirements
Provide a list of the minimum technology requirements for students, such as:

- Computer
- Reliable internet access
- Plug-ins
- Microsoft Office Suite
- Canvas Technical Requirements (https://clear.unt.edu/supported-technologies/canvas/requirements)

Computer Skills & Digital Literacy
Provide a list of course-specific technical skills learners must have to succeed in the course, such as:

- Using Canvas
- Using email with attachments
• Downloading and installing software
• Using presentation and graphics programs

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 IT Help Desk
Email: helpdesk@unt.edu
Live Chat: https://it.unt.edu/helpdesk/chatsupport

Phone: 940-565-2324
In Person: Sage Hall, Room 330
Hours and Availability: Visit https://it.unt.edu/helpdesk for up-to-date hours and availability

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

Rules of Engagement
Rules of engagement refer to the way students are expected to interact with each other and with their instructors. Here are some general guidelines:

• While the freedom to express yourself is a fundamental human right, any communication that utilizes cruel and derogatory language on the basis of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law will not be tolerated.
• Treat your instructor and classmates with respect in any communication online or face-to-face, even when their opinion differs from your own.
• Ask for and use the correct name and pronouns for your instructor and classmates.
• Speak from personal experiences. Use “I” statements to share thoughts and feelings. Try not to speak on behalf of groups or other individual’s experiences.
• Use your critical thinking skills to challenge other people’s ideas, instead of attacking individuals.
• Avoid using all caps while communicating digitally. This may be interpreted as “YELLING!”
• Be cautious when using humor or sarcasm in emails or discussion posts as tone can be difficult to interpret digitally.
• Avoid using “text-talk” unless explicitly permitted by your instructor.
• Proofread and fact-check your sources.
• Keep in mind that online posts can be permanent, so think first before you type.

See these Engagement Guidelines (https://clear.unt.edu/online-communication-tips) for more information.
Course Requirements

In-Class Activities: These grades will be based on in-class assignments or short quizzes, which may be given at any time during the class. Students must be present in class at the time the in-class activity is assigned and complete it during the allotted time in order to receive credit for the in-class activity. In-class assignments may be given on paper or using iClicker Cloud and Canvas, so students are expected to attend class, register with iClicker Cloud, and bring a device (e.g., smartphone, tablet, laptop computer, etc.) for polling responses in this course.

Homework: Homework will be assigned based on material from the lectures and may include some minor programming or scripting-related projects assigned to demonstrate mastery of the lecture material and covered technologies. These assignments are meant to be individual assignments, so you should work on these without the assistance of others or solutions available on the Internet.

Lab Assignments: Students will complete several in-depth hands-on laboratory projects during the semester intended to give a more thorough view of advanced network security.

Midterm Exam: There will be one or two in-person midterm examination given in this course. The date of this exam will be posted on Canvas and announced in class at least one week prior to the date of the exam (NO make-up exam will be given) when a student misses an exam with an excused absence, the final exam will be considered as midterm exam. Unexcused absences on the date of an exam may result in a grade of 0 for the missed exam, so every effort should be made to attend class on the day of a scheduled exam.

Final term report/Project: There will be a final project due in this course. You will form a group of 4 students to research and discussions on e-commerce security. Students will choose a research topic of their interest (related to e-commerce security) with which to investigate, implement, and research. Although everyone on the team is responsible for the overall success of the on e-commerce security topics, each person on the team will be responsible for at least one specific component: security, design, method, structure, etc. Your team will also be required to make a live demonstration of the project, especially highlighting how security was addressed. More details about this project will be made at a later date. Students are expected to produce (by the end of the semester) new research and an accompanying report suitable for submission to an IEEE/ACM/IACR conference/journal. At the end of the semester, the teams will present their projects to other teams!

Final Exam: There will be a final exam during the scheduled exam time on the final week 12/12-12/18, I will announce it during the semester via Canvas announcements. All students are expected to take the final exam during the scheduled time period.

Grading (Tentative):

- In-Class activities, quizzes Homework assignments, and Lab exercises 40%
- Final term report/Projects 20%
- Midterms exam (one or two midterms) 20%
- Final exam 20%

Grades will be posted on Canvas throughout the semester to provide an ongoing assessment of student progress, though final assessment will be measured using the weighted average above. Once a grade is posted on Canvas, students have two (2) weeks to dispute the grade, unless otherwise instructed. The University of North Texas | updated 8/23/2022 | 5
proper channel for grade disputes is to first go to the original grader (i.e., the TA) in an attempt to resolve the issue. If, however, a resolution cannot be reached between the student and the grader, the student shall then go to the instructor who will have the final say on the grade.

Students are responsible for submitting the correct assignments (i.e., uploading the proper files) for each applicable assignment submission on Canvas. In certain cases, when an assignment is submitted on time, but to an incorrect assignment location (e.g., submitting Lab 04 to Lab 05 drop box on Canvas), the assignment may be assessed a 30% reduction penalty if the due date has passed. If you have any questions or concerns about your submission, please work with your instructor or TA to ensure the correct file(s) is/are submitted.

**Attendance**

Students are expected to attend class meetings regularly and to abide by the attendance policy established for the course. It is important that you communicate with the professor and the instructional team prior to being absent, so you, the professor, and the instructional team can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform the professor and instructional team if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community.

If you are experiencing any symptoms of COVID-19 ([https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/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) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Team at COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure.

*Lecture Section:* Class attendance is regarded as an obligation as well as a privilege. All students are therefore expected to attend each class meeting. A student who misses class is still responsible to find out what was discussed and to learn the material that was covered and obtain the homework that was assigned on the missed day. The instructor is not responsible for re-teaching material missed by a student who did not attend class. Therefore, each student is accountable for and will be evaluated on all material covered in this course, regardless of attendance. If there are extenuating circumstances preventing you from attending the class, please notify your instructor so that you can work together to ensure your success in learning the material.

**Late Work**

No late work will be accepted for in-class assignments. Homework and laboratory assignments, however, will be accepted up to 24 hours late and be assessed a 30% grade reduction penalty. Homework or lab assignments submitted more than 24 hours late will not be accepted and receive a grade of 0.

**Examination Policy**

The midterm exam will be closed-notes and will be completed in-person in the lecture classroom at the announced date.

The final exam will be closed-notes and will be given in-person during the scheduled exam time on Tuesday, Dec 13, 2022, from 5:30 PM to 8:30 PM in the usual classroom.

A make-up exam will be given at the discretion of the instructor when a student misses an exam with a documented excused absence.

**Assignment Policy**
The University is committed to providing a reliable online course system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will extend the time windows and provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and contact the UNT Student Help Desk: helpdesk@unt.edu or 940.565.2324 and obtain a ticket number. The instructor and the UNT Student Help Desk will work with the student to resolve any issues at the earliest possible time.

All assignments will be posted to Canvas with given due dates. Submissions will be done using Canvas to the appropriate assignment drop box by the due date and time. A sophisticated program will be used to compare your assignment submission to the work of all other students (including students in past classes).

Instructor Responsibilities and Feedback
Your instructor is committed to providing a quality course that includes clear instructions for projects and assignments as well as an appropriate amount of time to complete the assignments. Questions about an assignment may be addressed to the instructor or the TAs supporting this course. Study guides for exams will be made available to students prior to the exam.

Every attempt will be made to answer e-mails within 24 hours. If you do not receive a response by that time, please re-send the e-mail and verify that you have sent it to my correct e-mail address: Ali.Zarafshani@unt.edu. It is my hope that grades will be returned to students approximately one week after the due date, but please keep in mind that this course has a number of students with limited grading resources who are students as well, so I ask your patience if we run behind in returning the graded assignments.

Syllabus Change Policy
This syllabus may be modified as the course progresses should the instructor deem it necessary. Notice of changes to the syllabus shall be made through Canvas and/or class announcement.

UNT Policies

Academic Integrity Policy
Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

This course follows UNT’s policy for Student Academic Integrity that can be found at https://policy.unt.edu/policy/06-003 as well as the Cheating Policy for the Department of Computer Science and Engineering (posted on Canvas). Specifically, the first instance of a student found to have violated the academic integrity (i.e., cheating) policy may result in a grade of "F" for the course and have a report filed into the Academic Integrity Database, which may include additional sanctions.

Individual assignments, such as homework and lab assignments, must be the sole work of the individual student. You should not work with other students on shared program solutions or use program solutions found on the Internet. Specifically, you should never copy someone else’s solution or code, and never let a classmate examine your code. For example, copy-pasting an answer to a homework question from a past student or online forum is considered to be plagiarism. A sophisticated program will be used to
compare your work to the work of all other students (including students in past classes). If you are having trouble with an assignment, please consult with your instructor or TA associated with the class.

Discussion with other students on homework and lab assignments is acceptable at a high level only (i.e., do not share student work or code), but solutions must be your own and written in your own words. And although you may seek assistance from your instructor or TA, you are still required to work on your own lab assignment and turn in your individual work to Canvas, unless directed otherwise.

You must do your own work on exams. There should be no ambiguity here.

In case the above description and in-class discussion of appropriate and inappropriate collaboration do not answer all of your questions, please meet with your instructor and look at the university Student Rights and Responsibilities web page.

**ADA Policy**

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one’s specific course needs. Students may request accommodations at any time, however, ODA notices of 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 accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website (https://disability.unt.edu/).

**Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)**

The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

**Emergency Notification & Procedures**

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

**Retention of Student Records**

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student’s records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University’s policy. See UNT Policy 10.10, Records Management and Retention for University of North Texas | updated 8/23/2022 | 8
Acceptable Student Behavior
Student behavior that interferes with an instructor’s ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT’s Code of Student Conduct (https://deanofstudents.unt.edu/conduct) to learn more.

Access to Information - Eagle Connect
Students’ access point for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student’s Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail Eagle Connect (https://it.unt.edu/eagleconnect).

Survivor Advocacy
UNT is committed to providing a safe learning environment free of all forms of sexual misconduct. Federal laws and UNT policies prohibit discrimination on the basis of sex as well as sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking and/or sexual assault, there are campus resources available to provide support and assistance. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-5652648.

Class Recordings & Student Likenesses
Synchronous (live) sessions in this course may be recorded throughout the semester. Class recordings are the intellectual property of the university or instructor and are reserved for use only by students in this class and only for educational purposes. Students may not post or otherwise share the recordings outside the class, or outside the Canvas Learning Management System, in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.

Academic Support & Student Services
Student Support Services
Mental Health
UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- Student Health and Wellness Center (https://studentaffairs.unt.edu/student-health-and-wellness-center)
- Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testing-services)
- UNT Care Team (https://studentaffairs.unt.edu/care)
- Individual Counseling (https://studentaffairs.unt.edu/counseling-and-testing-
Chosen Names
A chosen name is a name that a person goes by that may or may not match their legal name. If you have a chosen name that is different from your legal name and would like that to be used in class, please let the instructor know. Below is a list of resources for updating your chosen name at UNT.

- UNT Records
- UNT ID Card
- UNT Email Address
- Legal Name

*UNT euIDs cannot be changed at this time. The collaborating offices are working on a process to make this option accessible to UNT community members.

Additional Student Support Services
- Registrar (https://registrar.unt.edu/registration)
- Financial Aid (https://financialaid.unt.edu/)
- Student Legal Services (https://studentaffairs.unt.edu/student-legal-services)
- Career Center (https://studentaffairs.unt.edu/career-center)
- Multicultural Center (https://edo.unt.edu/multicultural-center)
- Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testing-services)
- Pride Alliance (https://edo.unt.edu/pridealliance)
- UNT Food Pantry (https://deanofstudents.unt.edu/resources/food-pantry)

Academic Support Services
- Academic Resource Center (https://clear.unt.edu/canvas/student-resources)
- Academic Success Center (https://success.unt.edu/asc)
- UNT Libraries (https://library.unt.edu/)
- Writing Lab (http://writingcenter.unt.edu/)