CSCE 465 – Spring 2021
Syllabus

Course Information and Useful Links

Course Number: CSCE 465
Course Title: Computer & Network Security
Sections: 200 and 500
Canvas: https://canvas.tamu.edu/courses/61065
Lecture Zoom: https://tamu.zoom.us/j/92959048608?pwd=SGVqb2VmZ210TCtMaUFISTFKanJsZz09
Instructor Office Hours Zoom: https://tamu.zoom.us/j/91931933101?pwd=cnI3MFlzR3FQd0p6dzE1VTdVZnNndz09
TA Office Hours Zoom: TBD
will be available on Canvas at https://canvas.tamu.edu/courses/61065/pages/online-office-hours
Piazza forum: piazza.com/tamu/spring2021/csce465/home

Instructor Office Hours

Instructor: Dr. Dilma Da Silva
E-Mail: dilma@tamu.edu
Instructor Office Hours:

Mondays 1:15–2:30 pm
Wednesday 5–6 pm
Additional appointments are available upon request. If those slots do not work with your calendar, please do not hesitate to ask for meetings when needed. Your success matters to the instructor.

Link: https://tamu.zoom.us/j/91931933101?pwd=cnI3MFlzR3FQd0p6dzE1VTdVZnNndz09

Teaching Assistant (TA) Office Hours

TA: Hayoung Jeon
E-Mail: hayoungjeon@tamu.edu
TA Office Hours and zoom link will be available on Canvas at

https://canvas.tamu.edu/courses/61065/pages/online-office-hours

Lectures

Tuesday and Thursday 8–9:15 am
Lectures are delivered synchronously via Zoom:
https://tamu.zoom.us/j/92959048608?pwd=SGVqb2VmZ210TCtMaUFISTFKanJsZz09
Recordings will be made available to students with the material for each class in the Canvas Modules section.

Version 1.7 – released on 1/20/21
Course Description

Fundamental concepts and principles of computer security, operating system and program security, malware, network security, secret key and public key cryptographic algorithms, hash functions, authentication, firewalls and intrusion detection systems, web and application security.

Course Prerequisites

CSCE 313; Junior or Senior standing; or approval of the instructor (as guided by academic advisors.)

Course Objectives and Learning Outcomes

The objective of this course is to provide students with a general understanding of fundamental concepts and principles of computer and network security. In support of this, the course will prepare students to do basic system- and network-level programming related to security purposes. By the end of this course, students will be able to reason about systems from the perspective of a security engineer. That is, they should be able to define the system to protect; determine the security properties that are desired for this system; identify the possible threats to these security properties, and their likelihood of occurrence; and consider possible mitigations against these threats.

Textbook and Resource Materials

Required Textbook

Other Recommended Textbooks
- Handbook of Applied Cryptography – available online at http://cacr.uwaterloo.ca/hac/

Required Technology
You must have your own computer for consuming online content that fulfills the Texas A&M Computer Requirements. You should have sufficient bandwidth to watch videos and use the online tools necessary for activities in this course. At times, you may be asked to create a sketch or diagram to submit electronically. You need the ability to get the diagram into a format that can be uploaded. You could sketch on paper and take a picture with your camera, sketch on a tablet device, or use a scanner. You should be able to do this quickly, especially if needed for an exam question.

Required Online Tools

Canvas (https://canvas.tamu.edu/courses/61065)
Dashboard for the entire course. This will link out to appropriate resources.

Piazza (http://piazza.com/tamu/spring2021/csce465/home)
All questions will be fielded through Piazza.
- Everyone can see answers, and other students can answer as well.
  - We will endorse good student responses.
- Private messages can be posed to all instructors or an individual instructor.
  - E-mail messages are more likely to be overlooked.

Note: Posts directed to instructors that would benefit the entire class and should be visible to all students will be updated so that the post is visible by the entire class. This might expose you as the source of the message if you did not indicate you wanted to be anonymous to the entire class.

Students will be added to the course Piazza by the instructor on Tuesday January 19. Students who enroll in the course on or after Tuesday January 19 should contact the instructor to be added to the Piazza forum.
**Gradescope (https://www.gradescope.com/)**

Used to take exams. Information will be provided with the logistic exam information.

**TAMU Google Shared Drive (https://drive.google.com/drive/folders/0AAP6ztMOWWIDUk9PVA)**

The name of the Google Shared Drive folder is ‘CSCE465-2021-Spring-COMP & NET SECURITY’

Used to share course materials files. You must be logged into your TAMU Google account to access these materials. Your TAMU Google account will have to be the default account in your browser, or you can open an incognito window and log in from there. It might take up to 24 hours after registering for the class to be able to access materials in the Google shared drive.

**TAMU Zoom (https://zoom.tamu.edu)**

Used for class meetings and meetings with instructors and TAs:

- Lecture Zoom Link  
  https://tamu.zoom.us/j/92959048608?pwd=SGVqb2VmZ210TCTMaUFIlTFKanJsZz09  
- Instructor Office Hour Link  
  https://tamu.zoom.us/j/91931933101?pwd=cnI3MFIzR3FQd0p6dzE1VTdVZnNndz09  
- TA Office Hour Link  
  See information at https://canvas.tamu.edu/courses/61065/pages/online-office-hours

**Grading Policy**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams</td>
<td>35%</td>
</tr>
<tr>
<td>Homework</td>
<td>55%</td>
</tr>
<tr>
<td>In-class quizzes</td>
<td>5%</td>
</tr>
<tr>
<td>Engagement</td>
<td>5%</td>
</tr>
</tbody>
</table>

**Exams (35%)**

- Average of two exams:  
  - Midterm: Thursday March 11 in class  
  - Final Exam: May 5, 5 – 7:30 pm

Exams are open book, open note.

- You are not allowed to interact with anyone face to face or electronically during an exam.
- The only materials you are allowed to consult are the course textbook, the class slides distributed by the instructor, and notes you produced while working on assignments or preparing for the exam.
- Missing exams: see Make Up & Late Work policy.

**Homework (55%)**

- Five homework assignments of equal weight
- Homework assignments are completed **individually** outside of class. They include programming assignments and ‘paper and pencil’ problems.
- All detected plagiarism, cheating, and complicity will be reported to the Honor System Office.  
  - Submitting code based on a solution or on starting code from such a resource is considered plagiarism.  
  - See Academic Dishonesty section below.
- Late homework:  
  - Students start the semester with three ‘late days’ tokens. They can be used in a single assignment or across assignments.  
  - Homework can be submitted up to are three days late, with 12% penalty per day.  
  - See Make Up & Late Work policy.

**In-class Quizzes (5%)**

- 5-minute, open-book quizzes for practice. They are not graded for correctness, requiring completion only.
- In-class quizzes can happen at any lecture and at any point in the lecture.
- Students receive three ‘missing quiz’ tokens, i.e., they can miss up to three quizzes and still get full credit for this component of the overall grade.
Course Engagement and Participation (5%)

- We will use multiple indicators to determine your engagement in the course. Note that the different indicators add to more than 100 points, giving you flexibility in balancing how you engage in the course. Your course engagement will be capped at 100 points.
  
  o Attendance > 75% of lectures: 75 points
  o Attendance > 90% of lectures: 10 points
  o Attendance > 95% of lectures: 15 points
  o Failed to respond (poll, breakout section) on a Zoom lecture: -5 points per occurrence
  o Participation in Piazza:
    ▪ Days online: linear scale where “75% of instructors’ days online” is target max: 20 points
    ▪ Answers endorsed by instructor/TA: 5 points
  o Participation in office hours:
    ▪ Attended office hours at least once: 5 points
  o Finished semester without using ‘late days’ tokens: 5 points
  o Finished semester without using ‘missing quiz’ tokens: 5 points

If you want to challenge any grading, please do so within one week of when the grade is published.

The instructor reserves the right to audit the grades for any assignments submitted to this course. During the audit process, we can decrease or increase your score. This could result in lowering the score of already released grades.

Course Schedule (Tentative)

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
<th>Assignment or Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (1/19)</td>
<td>Course Overview, Introduction</td>
<td>Ch. 1</td>
<td></td>
</tr>
<tr>
<td>2 (1/26)</td>
<td>OS Security</td>
<td>Ch. 3</td>
<td></td>
</tr>
<tr>
<td>3 (2/2)</td>
<td>Program Security</td>
<td>Ch. 3</td>
<td>HW 1 due on Monday 2/1</td>
</tr>
<tr>
<td>4 (2/9)</td>
<td>Program Security</td>
<td>Ch. 3</td>
<td></td>
</tr>
<tr>
<td>5 (2/16)</td>
<td>Malware</td>
<td>Ch. 4</td>
<td></td>
</tr>
<tr>
<td>6 (2/23)</td>
<td>Malware</td>
<td>Ch. 4</td>
<td>HW 2 due on Monday 2/22</td>
</tr>
<tr>
<td>7 (3/2)</td>
<td>Symmetric Key Crypto</td>
<td>Ch. 8</td>
<td>No class on Tuesday 3/2 (Texas Independence Day)</td>
</tr>
<tr>
<td>8 (3/9)</td>
<td>Hashes and Message Digests</td>
<td>Ch. 8</td>
<td>MIDTERM Thursday 3/11</td>
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<tr>
<td>9 (3/16)</td>
<td>Public Key Crypto</td>
<td>Ch. 8</td>
<td>HW 3 due on Monday 3/15</td>
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<td></td>
<td></td>
<td></td>
<td>Thursday 3/18 is redefined day</td>
</tr>
<tr>
<td>10 (3/23)</td>
<td>Network security; denial-of-service attacks, DNS, Firewalls</td>
<td>Ch. 5 and 6</td>
<td></td>
</tr>
<tr>
<td>11 (3/30)</td>
<td>Network security; intrusion detection, wireless security</td>
<td>Ch. 6</td>
<td></td>
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<tr>
<td>12 (4/6)</td>
<td>Web Security</td>
<td>Ch. 7</td>
<td>HW 4 due on Monday 4/5</td>
</tr>
<tr>
<td>13 (4/13)</td>
<td>Security Models and Practice</td>
<td>Ch. 9</td>
<td></td>
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<tr>
<td>14 (4/20)</td>
<td>Distributed Security</td>
<td>Ch. 10</td>
<td></td>
</tr>
<tr>
<td>15 (4/27)</td>
<td>Distributed security, Physical security</td>
<td>Ch. 10 and 2</td>
<td>HW 5 due on Monday 4/26</td>
</tr>
<tr>
<td>Final Week</td>
<td>Final exam</td>
<td></td>
<td>Final Exam May 5, 5 – 7:30 pm</td>
</tr>
</tbody>
</table>
Make Up and Late Work Policy

See the Makeup Work Policy, the Attendance Policy, the Statement on Mental Health and Wellness, and the COVID-19 Amendment under University Policies below.

It is your responsibility to keep up with the class, even when unexpected events interfere.

Excused Absences
Before you can do any make up work, you must provide your instructor with any documentation for your excused absence.

Exam Make Up
You may only make up exams missed due to a university excused absence. Note that if advanced notice is not feasible, you have two business days to provide notification. Documentation must be submitted prior to making up a missed exam. See Make Up policy under University Policies below.

A zero will be assigned for exams due to an unexcused absence.

Homework Late Work
You will receive three 'late tokens' to use during the semester.

Beyond the use of late tokens, you may submit homework up to 3 days late at a penalty of 12% per day. Excused absences during the period of the homework will extend the due date by the number of days excused.

Accommodation Letters
See Americans with Disabilities Act (ADA) Policy under University Policies below.

If you have an accommodation letter from Disability Resources, contact the instructor to provide documentation and discuss your accommodations.

Student Behavior & Academic Integrity
See Academic Integrity Statement and Policy under University Policies below.

Acknowledgment
By submitting anything to this course, electronically or otherwise, you are asserting the following: "On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work. In particular, I certify that I have listed above all the sources that I consulted regarding this assignment, and that I have not received or given any assistance that is contrary to the letter or the spirit of the collaboration guidelines for this assignment."

Academic Dishonesty
Academic dishonesty will not be tolerated. For individual homework assignments, each student is expected to write his or her own programs from beginning to end.

If it is determined to the satisfaction of the instructor that any student's submission (unless it is a group/team submission for a group/team activity) is not the product of the individual, all students involved are subject to the Texas A&M University Honor System Rules, including a course grade of F* (with the * denoting academic dishonesty). Additional penalties as determined by the Aggie Honor System Office may be applied if this is not the first offense.

It is imperative that each student clearly understand those rules and the severe consequences that can result from the adjudication of an Honor Code Violation.

Plagiarism & Cheating
Individual programming MUST be done on your own. Plagiarism and cheating will not be tolerated. Plagiarism is the presentation of the work of someone else without giving him or her due credit. In this course, you cannot use another's work even if you cite it. Cheating is using or attempting to use unauthorized materials. Discussing homework with the instructors, TAs, and other students in the class is acceptable. If you copy any material, you are both plagiarizing and cheating.
To help identify possible instances of plagiarism, the instructor uses systems for plagiarism detection. Students engaging in plagiarism will be sanctioned.

Complicity
Every student should understand that complicity – helping or attempting to help another student commit an act of academic dishonesty – also constitutes academic dishonesty and carries the same punishment as cheating and plagiarism.

In other words, if you provide your solution to another student, even if that student does not turn it in for credit, you have committed an act of academic dishonesty. All involved will be subject to the same consequences.

Collaboration
Collaboration is important for facilitating learning, and your peers can be a great resource. In this class you can only collaborate on homework and in-class activities. Exams must be done independently. If you have an issue that needs clarification, contact an instructor or TA.

Netiquette
Netiquette is network etiquette. Netiquette covers both common courtesy online and the informal interactions that occur when communication occurs online. Faculty and students are expected to follow some general netiquette rules (https://distance.tamu.edu/Student-Rules-and-Policies/Aggie-Honor-Code-and-Netiquette).

Course Copyright
The materials used within this course are copyrighted. These materials include, but are not limited to, the syllabi, quizzes, exams, homework problems, online handouts, course videos, audio and visual recordings of classes, etc. Because these materials are copyrighted, you do not have the right to copy or distribute these materials, unless permission is expressly granted.

Recording statement
Students may not record audio or video of any course activity unless the student has an approved accommodation from Disability Services permitting the recording of lectures and/or laboratory sessions. This accommodation letter must be presented to the instructor in advance of any recording being done. Students with permission to record classes are not permitted to redistribute audio or video recordings of statements or comments from the course to other individuals without the express permission of the faculty member and of any students who are recorded.

Course Plagiarism
All materials generated by the instructor for this class (which may include but are not limited to syllabi and in-class materials) are copyrighted. You do not have the right to copy such materials unless the instructor expressly grants permission. As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writing, etc. which belong to another. Plagiarism is one of the worst academic violations, for the plagiarist destroys trust among others. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section “Scholastic Dishonesty.”

University Policies

Attendance Policy
The university views class attendance and participation as individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy
Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student’s grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.
Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor” (Student Rule 7, Section 7.4.1).

“The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence” (Student Rule 7, Section 7.4.2).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

**Academic Integrity Statement and Policy**

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” (Section 20.1.2.3, Student Rule 20).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

**Americans with Disabilities Act (ADA) Policy**

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability-related needs with Disability Resources and their instructors as soon as possible.

**Title IX and Statement on Limits to Confidentiality**

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, e-mail, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University’s Title IX webpage.

**Statement on Mental Health and Wellness**

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 pm to 8:00 am weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

**COVID-19 Amendment**

This course, offered online, does not include any face-to-face meeting.
For up-to-date information on university guidance and requirements related to the coronavirus, visit https://www.tamu.edu/coronavirus/index.html

Update Log

Version 1.7: adjusted office hours slots and adopted student suggestion of linear scale for piazza engagement
Version 1.6: adopted suggestion from students that attending all lectures lead to full engagement points
Version 1.5: added information about recording of lectures; changed Piazza participation criteria to be relative
Version 1.4: added more options for engagement points
Version 1.3: minor fix – fixed itemization
Version 1.2: minor fix – fixed picture position
Version 1.1: fixed typo on Homework percentage
Version 1.0: original release