

CS4320 Computer and Network Security

Fall 2021 Syllabus

Textbook: Boyle, Randall, Raymond Panko, Corporate Computer Security, 4th ed., Prentice Hall, 2015, ISBN 0-13-3545199. See Blackboard for options.

In addition, many other resources, such as textbooks and resources from the Internet, will be used.

Instructor: Lopamudra Roychoudhuri

E-mail: lroychoudhuri@angelo.edu

Office: MCS 205E

Campus Phone: (325) 486-5448

Class Times: Section 010 – TR 12:30-1:45 pm, Section 020 – TR 2:00–3:15 pm

Classroom: MCS 114

Course Web Site: Blackboard

Office Hours: MWF 3:00-5:00 pm, TR 3:30-5:30 pm, on Blackboard Collaborate

Precautionary Measures against COVID-19

Please refer to this [Health and Safety web page](#)ⁱ for updated information about campus guidelines as they relate to the COVID-19 pandemic.

Please continue to follow good hygiene practices and personal health monitoring. Should you suspect you have COVID-19, are experiencing symptoms, or know you have been exposed to the virus, you need to use the [Daily Wellness Screening](#) to report your condition. A link for the form is also available on RamPort, the ASU Mobile app, and ASU website

Prerequisite:

None.

Course Objectives:

This course provides an in-depth look at the security risks and threats to an organization's electronic assets, and an overview of components used in an enterprise security infrastructure. The course focuses on the topics of threat environment, security policy and planning, cryptography, secure networks, access control, application security and data protection. Topics will include theoretical background, as well as practical techniques to secure an enterprise network. The course provides demonstrations and exercises on various offensive and defensive security concepts.

Student Learning Goals:

Students who successfully complete this course will have the ability to:

1. Demonstrate understanding of network security terminology and concepts,
2. Demonstrate understanding of security technology and devices, acquired by hands-on experience on threats to computers and networks, and measures of security defense,
3. Apply security principles to business scenarios,
4. Discuss current ethical issues involved in network and computer security,

5. Research topics, solve problems and create solutions in a seminar environment,
6. Deliver a team project that will allow the student to study some aspect of the “real world” computer and network security in detail beyond what is covered in class.

Grading:

Grading Criteria	Dates	Weights	Goals Assessed
Assignments	Daily/Weekly/biweekly	30%	1 thru 4
Project		35%	5 thru 6
Exam 1	9/21/21	15%	1 thru 4
Exam 2	11/30/21	20%	1 thru 4

GRADE	PERCENT
A	90 - 100
B	80 - 89
C	70 - 79
D	60 - 69
F	0 - 59

Week by week tentative schedule:

Week	Date	Topics
1	8/24, 8/26	Module 1: Threats and Defense Planning
2	8/31, 9/2	Module 1: Threats and Defense Planning cont.; Module 2: Networking Recap, Project topics of interest list due – 9/2
3	9/7, 9/9	Module 2: Networking Recap cont., Write up on topics of interest due- 9/9
4	9/14, 9/16	Module 2 cont., Project topic selection per team – 9/16
5	9/21, 9/23	Exam 1 on 9/21; Module 3: Offensive Security - Malware, Scanning Project proposal due – 9/23
6	9/28, 9/30	Module 3: Malware, Scanning cont.
7	10/5, 10/7	Module 3: Malware, Scanning cont.
8	10/12, 10/14	Module 4: Offensive Security – Denial of Service
9	10/19, 10/21	Module 4: Offensive Security – Denial of Service cont.
10	10/26, 10/28	Module 5: Defensive Security at Link Layer, Switch Security; Interim project report due – 10/26
11	11/2, 11/4	Module 5: Switch Security cont.
12	11/9, 11/11	Module 6: Defensive Security at Network Layer, Firewalls
13	11/16, 11/18	Module 6: Firewalls cont.
14	11/23	Module 7: Defensive Security at Transport and Application Layers, Cryptographic Systems
15	11/30, 12/2	Exam 2 on 11/30; Module 7: Cryptographic Systems cont.
16	Section 020 - 12/7 (Tue) 1:00-3:00 pm Section 010 - 12/9 (Thu) 10:30 am-12:30 pm	Project presentations; project reports due

Class Policies:

TEAMS

We will form teams of 2 or 3. The teams will be chosen on the first day of class and will be maintained till the end of semester.

CLASS STRUCTURE AND ASSIGNMENTS

- **Flipped Classroom:** Videos or readings from the textbook and/or other sources will be announced prior to class sessions. You will complete reading and watching these videos *before* class. We will work on many kinds of assignments in class based on this material.
- **Quizzes:** We will work on quizzes that will validate the reading and videos. The grade from the quizzes will constitute 10% of the total grade.
- **Assignments:** these fall in three categories:

In-class Assignments: We will discuss topics in class and work on assignments. You will be able to collaborate with your fellow students in order to complete these. Assignments that cannot be completed in class will be taken out-of-class and turned in. The grade from these assignments will constitute 20% of the total Assignment grade.

Homework Assignments: The purpose of the homework assignments is to give you individual out-of-class practice on the topics that you are learning, and to explore some ideas more deeply. The grade from the homework assignments will constitute 50% of the total Assignment grade.

- *Short Presentations:* You may research on announced topics individually or in your team and present your findings. You will also submit a PowerPoint presentation. The grade from the presentation assignments will constitute 20% of the total assignment grade. *Online students will need to have a microphone on their personal machines to make presentations from remote.*
- *All assignments, unless otherwise specified, must be submitted to Blackboard containing your name, course name, the title of the assignment and the due date.*
- *No late assignment will be accepted. No e-mail or in-person submission is accepted. There are no exceptions to this rule.*
- All homework assignments should be the work product of each individual. Cheating occurs when a student either submits work for a grade that is not entirely due to his/her own effort or allows others to use her/his work. Cheating occurs when a student submits work product that is copied from another student. Cheating on an assignment or exam will result in a failing grade for the course. No student shall look towards the work of any other student during exams as it shall be construed as cheating.
- **Academic Honor Code:** Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. The College of Science and Engineering adheres to the university's [Statement of Academic Integrity](#).ⁱⁱ (can be found in page 96 of the [Student Handbook](#)ⁱⁱⁱ). You should familiarize yourself with it. Any student found guilty

of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

TEAM PROJECT

- Each team will select a topic that will allow the group to study some aspect of the “real world” security topic in detail beyond what is covered in class. The outcome of the project will be a project report as well as a class presentation in the final’s week. You will submit your own report that clearly shows your contributions to the project. Each team will prepare a 15-to-20-minute presentation and answer related questions. *Online students will need to have a microphone on their personal machines to make presentations from remote.*

EXAMS

We will have two exams. All students must take both exams at the scheduled times.

Exams will be held in MCS 114 classroom on Respondus Lockdown Browser for in-class students. Students attending from remote will take their exams on their personal computers on Respondus Lockdown Browser, with their cameras turned on for Respondus Monitor. Respondus requires a desktop computer or laptop (not a Chromebook) and a webcam. For best results, use an Ethernet cable to connect to your Internet source instead of relying on Wifi. Please refer to the Blackboard-> Exams-> Respondus LockDown Browser Resources for a download link and other helpful hints.

There are no makeup exams. Only exception will be student absence for observance of religious holy day (see below).

ATTENDANCE

Attendance is mandatory (*no excused absences*) and roll will be taken.

GRADEBOOKS

During the semester, you are expected to monitor your performance on assignments and exams by accessing your grades online. It is your responsibility to: (1) ensure that correct entries have been made into the gradebook, and (2) be aware of your performance in the class. Grade percentages are shown on this syllabus so you can compute your own grade standing as the semester progresses.

E-MAIL

You are required to use your Angelo State email account for communicating with me. Check your email frequently for announcements and policy changes. If you have any question about the course or need assistance, please contact me by e-mail at any time. I shall reply within 24 hours. Include the course name and section number in your subject line in your emails to me.

LAB POLICY

No food or drinks are allowed in the lab.

General Policy Statements

Add/Drop Dates

Students may add this course up to August 26, 2021.

Students may drop this class or withdraw from the university until November 22, 2021.

Accommodations for Students with Disabilities

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the [Student Disability Services website](#).^{iv} The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford

Director of Student Disability Services

Office of Student Affairs

325-942-2047

dallas.swafford@angelo.edu

Houston Harte University Center, Room 112

Student Absence for Observance of Religious Holy Day

1. "Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code §11.20.
2. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.
3. A student excused under sec. 2 may not be penalized for absence; however, the instructor may respond appropriately if the student fails to complete assignments satisfactorily.

Title IX at Angelo State University

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance at:

Michelle Miller, J.D.
Special Assistant to the President and Title IX Coordinator
Mayer Administration Building, Room 210
325-486-6357
michelle.miller@angelo.edu

You may also file a report online 24/7 at www.angelo.edu/incident-form.

If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit www.angelo.edu/title-ix.^v

Modifications to the syllabus

The instructor and the university reserve the right to modify or change the syllabus (schedule, course requirements, grading policy, etc.) as the curriculum and/or program require(s).

ⁱ <https://www.angelo.edu/covid-19/returning-to-campus/health-and-safety.php>

ⁱⁱ <https://www.angelo.edu/live/files/27603-student-handbook-2020-21>

ⁱⁱⁱ <https://www.angelo.edu/current-students/student-handbook/>

^{iv} <https://www.angelo.edu/services/disability-services/>

^v <https://www.angelo.edu/services/title-ix/>