CSCI 4321:800, Computer Security, Spring 2025 CEMS Department

Course Syllabus

Class Meeting Time and Place:
Class Duration:
Instructor:

T 4:00 pm - 6:45 pm PM, Online
01/21 to 05/13/2025
Dr. Izzat Alsmadi
Office: Online
Tel: 210-784-2313
E-Mail: ialsmadi@tamusa.edu
Student emails will receive a reply within two business days.

Course Website:
Office Hours:

Tuesday….02:00 pm -0400 pm Online

Thursday…..200 pm – 5:30pm Online

Catalog Course Description: This course examines the concepts, principles, and applications of computer including Privacy, Information Security, and Critical Infrastructure. This course explores the knowledge and skills needed to ensure security of information and information systems within organizations. It focuses on concepts and methods associated with security across several systems platforms, including internal and Internet-based systems. The course utilizes a world view to examine critical infrastructure concepts as well as techniques for assessing risk associated with accidental and intentional breaches of security in a global network. It introduces the associated issues of ethical uses of information and of privacy considerations. Prerequisite: CSCI 1336 or equivalent.

Course Objectives: Students will learn about:

- Implement security configuration parameters on network devices and other technologies.
- Given a scenario, use secure network administration principles.
- Explain network design elements and components.
- Given a scenario, implement common protocols and services.
- Given a scenario, troubleshoot security issues related to wireless networking.
- Explain the importance of risk related concepts.
- Summarize the security implications of integrating systems and data with third parties.
- Given a scenario, implement appropriate risk mitigation strategies.
- Given a scenario, implement basic forensic procedures.
- Summarize common incident response procedures.
- Explain the importance of security related awareness and training.
- Compare and contrast physical security and environmental controls.
- Summarize risk management best practices.

Prerequisites: CSCI 1336 or equivalent.

Student Learning Outcomes:

After successful completion of this course, students will be able to:

1. Explain risk analysis, probability trees, event trees, simulation models, and influence diagrams.
2. Verify the security posture of systems and networks using penetration testing techniques.

3. Explain the legal and ethical responsibilities of penetration testers
4. Demonstrate risk communication, control implementation, and monitoring of risk management strategies.

AACSB Assessment:

The College of Business is in the process of applying for AACSB accreditation. As part of that process, students will be assessed on program level outcomes based on course outcomes from various courses. The materials from this course may be used for assessing such program level

outcomes, and hence students must follow the necessary rigor to ensure mastery of the above course outcomes.

ABET Assessment:
The Department of Computing and Cyber Security is in the planning process of applying for ABET accreditation for its BS in computer science program for which this course is a core course. As part of that process, students will be assessed on program level outcomes based on course outcomes from this course, and hence students must follow the necessary rigor to ensure mastery of the above course outcomes. For this course the following Program outcomes will be assessed:

Outcome 2: Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

COVID-19: Due to the current pandemic environment, all university personnel (faculty, students and staff, etc.) are required to adhere to mandated procedures and guidelines as communicated through university communications.

Required Materials:

- **TEXTBOOK(S):**

Computer Security: Principles and Practice, 4th Edition, William Stallings, Lawrie Brown, ©2018, Pearson

- ☐ **Blackboard:** Connect to http://tamusa.blackboard.com. **You** will have lecture notes, solutions to problems, multimedia materials and other supplementary materials in Blackboard.

- **Software:**
  a. You will need VM Workstation and/or MSDNAA software to complete class assignments. You will be able to download the installation software from the TAMU-SA MSDNAA software center. You will receive your login name and password via your Jaguar email address once your access has been activated. Additional software required for the course:
  a. VMware Workstation
  a. Kali Linux
  b. Wireshark
  c. Metasploitable2 image
  d. SoftEther Client or other appropriate VPN client.

- **Computer Hardware:** You will need a computer with an internet connection.

- **Time:** You are expected to spend 9 hours per week outside of class for the course. Based on the background, some student may require more time. Time spent may be longer when assignment/exams are due.

Other Recommended / Reading Materials: Additional reading materials are available on the course website as recommended by the instructor.
Course Requirements every student must fulfill in order to succeed in course:

1. Students should check the Course Calendar, Announcements, and Messages (e-mail) systems in Blackboard on a regular basis.
2. Students should keep current with all course assignments, quizzes, and examinations.
3. If the course uses remote proctoring for exams, students must schedule their exam early in the semester.
4. Students should ask questions and communicate with the instructor either in class, online, off-line or during office hours.
5. For all classwork, exams, quizzes etc., if a student is completing it off-campus, then they are responsible for availability of internet connectivity. Extensions will not be granted for lack of availability of internet connections.
6. Students should remember that online and hybrid courses assume greater responsibility and independent learning skills by the student for their own learning outcomes.
7. For online courses, students should keep current on class recordings, if not attending the live class (either in person or online).
8. For online asynchronous courses, there will be no online class sessions. All materials will be made available through Blackboard or through online links.
9. For online synchronous courses, there will be online class sessions as indicated. Students are expected to attend the online session at the given time. If a student is unable to attend a session, instructor will make the recording of the session available for the student to view. All materials will be made available through Blackboard or through online links.

Grading Policy: The final course grade will be based on your performance on the quizzes, exams, assignments and class participation using the following weights: Exams in Online courses can be switched to a project

Assignments/Quizzes	50%
Mid-term/Final Exam (or projects OLC)	40%
Attendnance	5-10%
Total	100%

The final letter grades will be assigned as follows: Above 90% $\Rightarrow$ A; 80 – 89% $\Rightarrow$ B; 70 – 79% $\Rightarrow$ C; 60 – 69% $\Rightarrow$ D; Below 60% $\Rightarrow$ F.

This course has a requirement of a grade of C as a minimal grade for satisfactory completion of this course.

Homework and Exam Expectations:

1. Please follow deadlines through BB, under no circumstance, HWs will be accepted late or through emails. HWS may have a couple of days late submission for partial grading

2. Homework assignments and labs will be available in Blackboard, and must be submitted only through BB, if you have any issues with the submission, it is your responsibility to check and follow up within the deadlines of the HW.

3. As a general rule, no make-ups will be offered for any missed HW. Make-ups may be administered only in extra-ordinary circumstances such as an excused official university activity, a severe illness, or a dire emergency. However, you must provide comprehensive documentation within a few days of the missed exam.

Assignments/ Research papers: There will be several assignments and Projects during the course. Individual assignment statements and due dates will be posted through Blackboard. For all assignment and quiz problems, ALL intermediate work of the problem solution steps MUST be shown. This includes the use of the formula, the values substituted in the formulas for

problem solution, as well the intermediate steps of the arithmetic computation. The units of measurement are extremely important and MUST be shown at each stage of the computation. Considerable points will be taken off for not following these requirements.

Online individual / Group Activities:

Make up and Late Assignment/exam/quiz policy:
As a general rule, make-ups or late submissions will NOT be offered or accepted for any missed assignments/exams/quizzes. Late submissions or make-ups may be accepted/administered only in extra-ordinary circumstances such as an excused official university activity, a severe illness, or a dire emergency. However, you must provide comprehensive documentation either before or within a few days of the missed assignment/quiz/exam.

Class conduct and civility code: Everyone in class is expected to follow all rules in the student handbook, as well as common courtesy during classroom lectures and discussions in class and online, including the following:
1. Attendance may be taken by an appropriate method by the instructor.
2. It is the students' responsibility to obtain and be able to use the required materials and software for this class.
3. Student must retain copies of all assignments and graded work for verification purposes and provide it to the instructor, if necessary. Keep own copies of all computer files and e-mails till final grade is received.
4. Talking while the instructor is lecturing is extremely disruptive and discourteous to the instructor and other students.
5. Using computers or phones (except for a valid urgent need) during class for a purpose not related to class is disruptive. All cell phones and gadgets should be turned OFF.
6. For any questions about the exams and assignments, a student should contact the instructor, well in advance of the day they are due, so the instructor may have enough time to provide feedback.
7. All communications will be via e-mail communications to the Texas A&M University e-mail account, and students are expected to use their school provided email account. The instructor will reply to a student e-mail messages and voice messages within 2 business days (Monday-Friday).
8. All assignment submissions must be uploaded as instructed by the due date and time. Submission window may close or marked late, even if late by one second.

Anyone violating these policies may be subject to disciplinary actions.

Class attendance and Participation:
A vital part of every student's education is regular attendance of class meetings (for face-to-face/hybrid classes/online synchronous classes) or regular review of class materials posted by the instructor for asynchronous classes. Any absences tend to lower the quality of a student's work, and frequent or persistent absences may result in a failing grade. Students are responsible for the materials covered in class. The course covers a lot of material and most students find at least some parts of it difficult. Class participation is highly encouraged as it makes the class more interesting and enhances the learning experience. Students are strongly encouraged to ask questions, participate in class discussions and problem solving, and visit/contact the instructor

during office hours in case of questions or concerns. Good attendance and participation will be rewarded when final grades are assigned.

The course is intensive and challenging and you are expected to master the materials presented in class. The structure of the class makes your individual study and preparation outside of class extremely important, and may vary considerably based on student background. However, a minimum of two hours of work outside the class is expected for every one hour of class period per week. Reading the assigned chapter(s) and having some familiarity with them before class will be very useful for understanding lectures.

Spring 2022 CSCI 4321 Class Schedule
The provisions and information set forth in the schedule below are intended to be informational and not contractual in nature. The instructor reserves the right to amend, alter, change, delete or modify the provisions of the schedule.

Week	*Dates*	*Chapter and Topic*	
1	Week1	Security Concepts	
2	Week2	Cryptographic Tools	
3	Week3	Authentication	
4	Week4	Access Control	
5	Week5	Databases and Cloud Security	
6	Week6	Malicious Software	
7	Week7	DoS Attacks	
8	Week8	Intrusion Detection	
9	Week9	Firewalls and IPS	
10	Week10	Buffer Overflow	
11	Week11	Software Security	
12	Week12	OS Security	
13	Week13	Trusted Computing	
14	Week14	*IT security management*	
15	Week15	**IT security control**	
16	Week15	**Physical and human resource security**	

University Email Policy and Course Communications: All correspondence between professors and students must occur via tamusa email accounts. You must have your Jaguar email account ready and working. If it is not working, contact the help desk at 210-784-4357.

Academic Accommodations for Persons with Disabilities: The Americans with Disabilities Act Amendments Act (ADAAA) of 2008 and the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights protection for persons with disabilities. Title II of the ADAAA and Section 504 of the Rehabilitation Act require that students with disabilities be guaranteed equal access to the learning environment through the provision of reasonable and appropriate accommodation of their disability. If you have a diagnosed disability that may require an accommodation, please contact Disability Support Services (DSS) for the coordination of services. The phone number for DSS is (210) 784-1335 and email is dss@tamusa.edu.

Academic Learning Center: All currently enrolled students at Texas A&M University-San Antonio can utilize the Academic Learning Center for subject-area tutoring. The Academic Learning Center is an appointment based center where appointments are made through the Navigate platform. Students access Navigate through Jagwire in the Student Services tab. The Center is active on campus outreaching to students to highlight services offered. You can contact the Academic Learning Center by emailing tutoring@tamusa.edu or calling (210)-784-1332. Appointments can also be made through JagWire under the services tab.

Counseling Resources: As a college student, there may be times when personal stressors interfere with your academic performance and/or negatively impact your daily functioning. If you or someone you know is experiencing life stressors, emotional difficulties, or mental health concerns at Texas A&M University – San Antonio, please contact the Student Counseling Center (SCC) located in Modular C, Room 166 (Rear entrance) or call 210-784-1331 between the hours of 8:00AM and 5:00PM. All mental health services provided by the SCC are free, confidential (as the law allows), and are not part of a student's academic or university record. SCC provides brief individual, couples, and group therapy, crisis intervention, consultation, case management, and prevention services. For more information, please visit www.tamusa.edu/studentcounseling

In a crisis situation, please walk-in to the Student Counseling Center (SCC) any time between the hours of 8:00AM and 5:00PM to be seen by a licensed clinician. After hours, please contact UPD at 911 or text "HOME" to 741-741 24/7/365 to connect with a trained crisis counselor. The National Suicide Prevention hotline also offers a 24/7/365 hotline at 1-800-273-8255.

Emergency Preparedness: JagE Alert is Texas A&M University-San Antonio's mass notification. In the event of an emergency, such as inclement weather, students, staff and faculty, who are registered, will have the option to receive a text message, email and/or phone call with instructions and updates. To register or update your information visit: https://tamusa.bbcportal.com/.
More information about Emergency Preparedness and the Emergency Response Guide can be found here: https://www.tamusa.edu/upd/index.html.

Financial Aid and Verification of Attendance: According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds based on Title IV eligibility criteria which include class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended the first week of class. Any student receiving federal financial aid who does not attend the first week of class will have their aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of their federal aid.

Jaguar Writing Center: The Jaguar Writing Center provides writing support to graduate and undergraduate students in all three colleges. Writing tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments.

The Writing Center is currently holding all appointments digitally. Students can schedule appointments with the Writing Center in JagWire under the student services tab. Students wanting to work in realtime with a tutor can schedule an "Online Appointment." Students wishing to receive asynchronous, written feedback from a tutor can schedule an "eTutoring" appointment. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at www.tamusa.edu/Writing-Center. The Writing Center can also be reached by emailing writingcenter@tamusa.edu.

Meeting Basic Needs: Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Dean of Students (DOS@tamusa.edu) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to provide any resources they may possess.

Military Affairs: Veterans and active-duty military personnel are welcomed and encouraged to communicate, in advance if possible, and special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also encouraged to visit the Patriots' Casa in-person room 202, or to contact the Office of Military Affairs with any questions at military@tamusa.edu or (210)784-1397.

Religious Observances: Texas A&M University-San Antonio recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes.

Respect for Diversity: We understand that our students represent diverse backgrounds and perspectives. When we are equity-minded, we are aware of differences and inequalities and are willing to discuss them so we can act to resolve them. The University is committed to building cultural competencies, or the attitudes, skills, and knowledge that enable individuals and organizations to acknowledge cultural differences and incorporate these differences in working with people from diverse cultures. Respecting and accepting people different than you is vital to your success in the class, on campus, and as a future professional in the global community. While working together to build this community we ask all members to:
- Share their unique experiences, values, and beliefs.
- Be open to the views of others.
- Honor the uniqueness of their colleagues.
- Value each other's opinions and communicate respectfully.
- Keep confidential discussions that the community has of a personal (or professional) nature.
- Use this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the A&M-San Antonio community.

The Six-Drop Rule: Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive

course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student's GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as "F" grades and will impact the student's GPA.

Statement of Harassment and Discrimination: Texas A&M University-San Antonio is committed to the fundamental principles of academic freedom, equality of opportunity and human dignity. To fulfill its multiple missions as an institution of higher learning, A&M-San Antonio encourages a climate that values and nurtures collegiality, diversity, pluralism and the uniqueness of the individual within our state, nation, and world. All decisions and actions involving students and employees should be based on applicable law and individual merit. Texas A&M University-San Antonio, in accordance with applicable federal and state law, prohibits discrimination, including harassment, on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, gender identity, or gender expression. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the appropriate offices within their respective units.

Texas A&M University-San Antonio faculty are committed to helping create a safe learning environment for all students and for the university as a whole. If you have experienced any form of sex- or gender-based discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking, know that help and support are available. A&M-San Antonio has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The university strongly encourages all students to report any such incidents to the university. Please be aware that all A&M-San Antonio employees (other than those designated as confidential resources such as counselors and other healthcare providers are required to report information about such discrimination and harassment to the university. This means that if you tell a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the university's Title IX Coordinator. If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact the Student Counseling Center at (210) 784-1331, Modular C.

Students' Rights and Responsibilities:
The purpose of the following statement is to enumerate the essential provisions for the student freedom and responsibility to learn at Texas A&M University-San Antonio. All students are required to follow all policies and regulations as set forth by The Texas A&M University System. This includes the [A&M-San Antonio Student Code of Conduct.](#)

Students' Rights
1. A student shall have the right to participate in a free exchange of ideas, and there shall be no university rule or procedure that in any way abridges the rights of freedom of speech, expression, petition and peaceful assembly as set forth in the U.S. Constitution.
2. Each student shall have the right to participate in all areas and activities of the university, free from any form of discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, sexual orientation,

genetic information or veteran status in accordance with applicable federal and state laws.

3. A student has the right to personal privacy except as otherwise provided by law, and this will be observed by students and University authorities alike.
4. Each student subject to disciplinary action arising from violations of university student rules shall be assured a fundamentally fair process.

Students' Responsibilities
1. A student has the responsibility to respect the rights and property of others, including other students, the faculty and the administration.

2. A student has the responsibility to be fully acquainted with the published University Student Rules found in the Student Handbook, Student Code of Conduct, on our website, University Catalog and students must comply with them and the laws of the land.

3. A student has the responsibility to recognize that student actions reflect upon the individuals involved and upon the entire university community.

4. A student has the responsibility to recognize the University's obligation to provide an environment for learning.

5. A student has the responsibility to check their university email for any updates or official university notification.

6. We expect that students will behave in a manner that is dignified, respectful, and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

Violations of Academic Conduct (Section 14.5 Student Handbook): As a member in an academic community, students at Texas A&M University-San Antonio are expected to exhibit a high level of honesty and integrity in their pursuit of higher education, be mature, be self-directed and be able to manage their own affairs. Students who are unwilling to abide by these basic expectations will find themselves facing academic and/or disciplinary sanctions. Students are expected to share in the responsibility and authority with faculty and staff to challenge and make known acts that violate the Texas A&M University-San Antonio Code of Conduct. For more information please visit the Office of Student Rights &Responsibilities website
http://bit.ly/TAMUSAStudentRR.

Students engaging in an act that violates the standards of academic integrity will find themselves facing academic and/or disciplinary sanctions. Academic misconduct is any act, or attempt, which gives an unfair advantage to the student. Additionally, any behavior specifically prohibited by a faculty member in the course syllabus or class discussion may be considered as academic misconduct. Academic misconduct includes, but is not limited to, cheating, plagiarism, multiple submissions, collusion, lying and bribery. For more information, refer to the Student Code of Conduct, Article III: Conduct Rules and Regulations. Texas A&M University-San Antonio faculty has the discretion to impose grade penalties as deemed necessary.

<p align="center">IMPORTANT POLICIES AND RESOURCES
https://www.tamusa.edu/student-resources/academic-affairs/documents/Syllabus-policies-and-resources-Fall-2024-08232024.docx</p>