CSCI, 360, 61E, Cryptography

COURSE SYLLABUS: Spring 2026

INSTRUCTOR INFORMATION

Instructor:	Dr. Mohammad Alsmirat, Assistant Professor
Office Location:	ACB1 #325
Office Hours:	Monday, Wednesday 1:30 PM – 3:00 PM Tuesday, Thursday 12:00 PM – 1:00 PM or by appointment
University Email Address:	mohammad.alsmirat@etamu.edu
Preferred Form of Communication:	**EMAIL subject must contain** *CSCI-360-61E*
Communication Response Time:	Email response within 1~2 business days

Course Description

The course includes key concepts and fundamental technology of cryptography, including number-theory related to cybersecurity, such as various encryption/decryption methods. The course will also covers private key / public key approaches. Some advanced methods, such as RSA, DES, and AES will be covered.

Prerequisites: CSCI 310 and MATH 2305.

Student Learning Outcomes

1. Become familiar with basic paradigms and principles of cryptography
2. Working knowledge of various cryptographic systems & tools
3. Learn how to evaluate the security of cryptographic systems
4. Identify and apply the appropriate cryptographic solutions

The *syllabus/schedule are subject to change.*

COURSE INFORMATION

Location/time: Tue, Thurs 10:35a-11:50a Campus: Rellis Campus Building: ACB2 Room: 314

Textbook:

- Paar, Christof, Jan Pelzl, and Tim Güneysu. Understanding Cryptography: From Established Symmetric and Asymmetric Ciphers to Post-Quantum Algorithms. 2nd ed., Springer Berlin Heidelberg, 2024.

References:

- Van Oorschot, Paul C. Computer Security and the Internet: Tools and Jewels from Malware to Bitcoin. 2nd ed., Springer, 2021.
- Bishop, M. (2019). Computer security: Art and science (2nd ed.). Addison-Wesley Professional.

Topics to be covered

PART I

- Perfect secrecy vs computational secrecy
- Stream ciphers and cryptanalysis
- Modular arithmetic and Random Number Generators

PART II

- Block ciphers (DES, AES)
- Feistel networks and Galois Fields

PART III

- Public Key cryptography
- Number theory and RSA
- Diffie-Hellman Key Exchange

PART IV

- Elliptic Curve Cryptosystems
- Digital Signatures and Hash functions

PART V

- Message Authentication Codes

The *syllabus/schedule are subject to change.*

- Key establishment and Public-Key Infrastructure

COURSE REQUIREMENTS

Minimum Technical Skills Needed

Students should be able to study independently and have strong implementation skills. Students are expected to have a strong background in both mathematics and computer systems.

Instructional Methods

Face-to-face lectures and lab will be given every week in the classroom. All material related content will be posted on D2L. Assignments will be posted online on D2L, and student should work on them and submit their solution on time. Students are also encouraged to utilize discussion boards for Q&A.

GRADING

Final grades in this course will be based on the following scale:
A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% or Below

Assessments

Basis for Evaluation:

Assignments	–	15%
Quizzes	–	10%
LABs	–	10%
Midterm Exam	–	25%
Final Exam	–	25%
Project	–	20%

Quizzes:
Quizzes are brief assessments conducted during lecture time to gauge your understanding and retention of the material. They may be either spontaneous or pre-announced.

Assignments:

The *syllabus/schedule are subject to change.*

There will be Three assignments throughout the semester. Some of these assignments may involve researching a topic and writing a brief report on it, while others may be practical tasks based on the material covered in the course

Exams:

These will be closed-book, closed-note exams designed to measure your understanding of the theoretical material. The midterm exam will cover the material completed before the exam announcement and will take place during the 8th or 9th week. It will be announced at least one week before the exam date, with further details included in the announcement. The final exam will cover the material studied after the midterm and will be held during the final week.

Project:

Project details will be announced during the 7th or 8th week.

Attendance:

Class attendance is mandatory, and students are responsible for all discussions and announcements made during classes. There will be no makeup for quizzes and LABs and only in extreme cases for exams.

Use of AI generative tools:

East Texas A&M University acknowledges that there are legitimate uses of Artificial Intelligence, chatbots, or other software that has the capacity to generate code, and textual answers. Any unreferenced and undocumented use of such software is not allowed and constitutes an instance of academic dishonesty (plagiarism).

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by East Texas A&M University have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

The *syllabus/schedule are subject to change.*

YouSeeU Virtual Classroom Requirements: https://support.youseeu.com/hc/en-us/articles/115007031107-BasicSystemRequirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

The instructor will make an effort to answer questions in a timely manner.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

You should do your own work on exams and for programming assignments. Copying another student’s work is not acceptable. Any indication of cheating or plagiarism on an exam/assignment will result in an automatic 0 (zero) for the exam/assignment for all students involved. Yet, based on cheating and plagiarism activity in any section of class, instructor holds the right to give F grade to the identified student(s). Regarding codes in assignments, you may be required to explain the code you submitted. In case of

discursive explanation, the instructor holds the right to lower your grade. No makeup exams or assignments unless documents explaining emergency are provided.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

ETAMU Attendance

For more information about the attendance policy please visit the Attendance webpage.

Academic Integrity

Students at East Texas A&M University are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

- Undergraduate Academic Dishonesty: https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03.pdf

- Graduate Student Academic Dishonesty: https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesprocedures/13students/graduate/13.99.99.R0.10.pdf

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a

learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
East Texas A&M University
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: **Student Disability Services**

Nondiscrimination Notice

East Texas A&M University will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in East Texas A&M University buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and East Texas A&M University Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all East Texas A&M University campuses. Report violations to the University Police Department at 903886-5868 or 9-1-1.

East Texas A&M Supports Students' Mental Health

The Counseling Center at East Texas A&M, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit https://www.etamu.edu/counseling-center/

Mental Health and Well-Being

The university aims to provide students with essential knowledge and tools to understand and support mental health. As part of our commitment to your well-being, we offer access to Telus Health, a service available 24/7/365 via chat, phone, or webinar. Scan the QR code to download the app and explore the resources available to you for guidance and support whenever you need it.

http://telusproduction.com/app/5108.html

AI use policy [Draft 2, May 25, 2023]

East Texas A&M University acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism). Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

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13.99.99.R0.03 Undergraduate Academic Dishonesty
13.99.99.R0.10 Graduate Student Academic Dishonesty

The *syllabus/schedule are subject to change.*