Course Description

This course on cryptography provides an introduction to the fundamentals of securing communication and information. Students will explore key concepts such as encryption and decryption, exploring the symmetric and asymmetric encryption methods, major cryptographic algorithms, and their practical applications. The curriculum covers encryption standards, public key infrastructures, and the use of cryptography in cybersecurity and privacy. Through lectures and hands-on exercises, students will learn to design and analyze cryptographic systems, gaining both theoretical knowledge and practical skills for real-world applications.

Class Time

Online

Instructor Information

Chris Shaw
Adjunct Lecturer, Computer Science Dept.
cshaw@uttyler.edu

Office Hours

Virtual Office Hours: 10:00AM – 11:30AM; Wednesday
10:00AM – 11:30AM; Friday

Textbook Information

MindTap for Wilson's Hands-On Ethical Hacking and Network Defense, 1 term Instant Access; 4th Edition; 9780357509814

Course Objectives

The course is designed with the following goals:
- Learn key concepts including encryption types, decryption processes, and cryptographic algorithms, effectively using current digital forensics tools
- Analyze the security and efficiency of major algorithms like DES, AES, RSA, and ECC, Understanding ethics in digital forensics.
- Develop skills to apply cryptography in securing digital communications and data storage.
- Understand how cryptography fits into broader cybersecurity strategies and modern security challenges.

Computer Account Access

Students will need a Patriot account and password for computer access. This information can be found at http://www.uttyler.edu/ccs

Course Documents and Slides

This class will use Canvas for course documents, slides and other class-related materials. Students are encouraged to check the website frequently during the course of the semester to keep up to date about class changes.

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Course Grading
Course evaluation will be based on the following:

Quizzes	30%
Lab Assignments	40%
Class Participation	10%
Final Exam	20%
Total Points	100%

Grading Scale
A	90.0 points or more
B	80.0 to 89.999 points
C	70.0 to 79.999 points
D	60.0 to 69.999 points
F	59.999 points or less

Course Policies

1. Quizzes – Quizzes will be administered each week throughout the semester. They are designed to measure the student's mastery of the material as well as their ability to use these skills in an efficient manner. Quizzes questions may come in many different formats. Late or absent students (except excused absences) will not be permitted to take the quiz.

2. Lab Assignments – Throughout the semester, students will be required to complete various lab assignments each week in a virtual environment, based on the topic being covered.

3. Class Participation –The exact formula of Class Participation points will not be revealed until the end of the semester and the maximum points that can be earned is ten.

4. Final Exam – The final exam will be taken the week of finals. A copy of the final exam date/time schedule can be found by doing a search for "UT Tyler Final Exam Schedule."

5. Attendance Policy – Attendance is a critical factor for student success. Attendance will be taken every week. If you know that you cannot make it to class, please contact your Instructor PRIOR to class.

6. Late Assignments – Assignments are due by 11:59pm of the date assigned. Assignments that are turned in late will be penalized by 20% for each 24 hour period past the deadline and will receive a zero if turned in more than 5 calendar days late. Electronic assignments are encouraged to be sent electronically.

7. Missed Work: Business professionals must also take responsibility for attending all scheduled meetings and activities. Attendance is absolutely necessary in order to be successful in this class. **Students who miss class are responsible for getting missed materials and lecture information on their own time from their peers**.

Classroom Lab Rules
1. Please do not surf the Web during class unless instructed to access the Internet.
2. Do not access inappropriate Web sites during class. This behavior will lead to dismissal from the class.
3. Please do not work on other computer assignments during class.
4. Please do not talk to your neighbor during class.
5. Do not use the printer during class.
6. Please do not bring food or an uncovered drink into the computer classroom lab.
7. Do not use your phone during class.

University Policies and Additional Information that Must Appear in Each Course Syllabus (5/17)
UT Tyler Honor Code
Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

Artificial Intelligence Statement

UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

Students can use AI platforms to help prepare for assignments and projects. You can use AI tools to revise and edit your work (e.g., identify flaws in reasoning, spot confusing or underdeveloped paragraphs, or correct citations).

Students Rights and Responsibilities
To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: http://www.uttyler.edu/wellness/rightsresponsibilities.php

Campus Carry
We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at http://www.uttyler.edu/about/campus-carry/index.php

UT Tyler a Tobacco-Free University
All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors. Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit www.uttyler.edu/tobacco-free

Grade Replacement/Forgiveness and Census Date Policies

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. (For Fall, the Census Date is Sept. 12.) Grade Replacement Contracts are available in the Enrollment Services Center or at http://www.uttyler.edu/registrar

Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.
Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date is the deadline for many forms and enrollment actions of which students need to be aware. These include:
- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

State-Mandated Course Drop Policy

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university.

For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

Disability/Accessibility Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including non-visible disabilities such as learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment you are encouraged to visit https://hood.accessiblelearning.com/UTTyler and fill out the New Student application. The

Student Accessibility and Resources (SAR) will contact you when your application has been submitted and an appointment with Cynthia Lowery, Assistant Director of Student Services/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at http://www.uttyler.edu/disabilityservices, the SAR office located in the University Center, # 3150 or call 903.566.7079.

Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

Student Absence for University-Sponsored Events and Activities

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

Emergency Exits and Evacuation

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

Student Standards of Academic Conduct

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

i.   "Cheating" includes, but is not limited to:
- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
- collaborating with or seeking aid from another student during a test or other assignment without authority;
- discussing the contents of an examination with another student who will take the examination;

- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructors has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
- substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
- paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
- falsifying research data, laboratory reports, and/or other academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
- misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.

ii. "Plagiarism" includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the submission of it as one's own academic work offered for credit.

iii. "Collusion" includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.

iv. All written work that is submitted will be subject to review by plagiarism software.

UT Tyler Resources for Students
- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu
- The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- UT Tyler Counseling Center (903.566.7254)

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Tentative Course Schedule and Assignments:
Scheduled dates may vary depending on the pace of the class.

Week	Concept	Assignment Due	Due Date
Week 1	Ethical Hacking Overview	Module 1 Quiz & Lab 1-1	6/6/25
	TCP/IP Concepts Review	Module 2 Quiz	6/6/25
	Network and Computer Attacks	Module 3 Quiz & Lab 3-3	6/6/25
Week 2	Footprinting and Social Engineering	Module 4 Quiz	6/13/25
	Port Scanning	Module 5 Quiz & Lab 5-1	6/13/25
	Enumeration	Module 6 Quiz & Lab 6-1	6/13/25
Week 3	Programming for Security Professionals	Module 7 Quiz	6/20/25
	Desktop & Server OS Vulnerabilities	Module 8 Quiz & Lab 8-1	6/20/25
	Embedded Operating Systems	Module 9 Quiz	6/20/25
Week 4	Hacking Web Servers	Module 10 Quiz & Lab 10-1	6/27/25
	Hacking Wireless Networks	Module 11 Quiz & Lab 11-1	6/27/25
	Cryptography	Module 12 Quiz, Lab 12-1 & Lab 12-2	6/27/25
Week 5	Network Protection Systems	Module 13 Quiz	7/3/25
	Final Exam!!!	Final Exam	7/3/25

This schedule is subject to change!