The University of Texas at Tyler
Soules College of Business
Computer Science Department

COSC 5362.061 – Ethical Hacking
Spring Term 2024

Course Syllabus

Instructor Contact Information:

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*Course Description***:** This course focuses on ethical hacking and penetration testing. Specifically, we will study many of the hacking approaches, methods and techniques used to gain information and/or access to computer systems. The skills learned within this course are intended to provide a network administrator or security professional with knowledge and skills to assess the vulnerability of systems and networks to illicit entry by simulating attack techniques used by the adversary.

Prerequisite: None.

Required Textbook:

- *Ethical Hacking: A Hands-on Introduction to Breaking In; Author: Daniel G. Graham; Publisher: No Starch Press; ISBN: 978-1718501874.*

Selected Topics:

- Lab setup and network basics (Week 01)
- Capturing and analyzing network traffic (Week 02)
- Social engineering and target scanning (Week 03)
- Fuzzing for zero-day vulnerabilities (Week 04)
- Trojans and rootkits (Week 05)
- Password cracking and cross-site scripting (Week 06)
- Pivoting and privilege escalation (Week 07)

Grading Policy:

Reading Quizzes	30%
Homework Assignments	20%
Midterm Exam	20%
Final Exam	30%
Total:	**100%**

Office Hours: Emails will be answered within 24 hours Monday – Thursday. Emails received before 12:00 PM on Friday will be answered within 24 hours. Emails received after 12:00 PM on Friday will be answered the following Monday. If more help is needed than can be provided via email, then please request a Zoom meeting.

Course Mode: Course will be asynchronous, meaning that there are no scheduled lecture times. All assignments, including exams will be made available for a duration of time (typically, one week) in which it must be completed.

Grading Rubric:

Letter Grade	Assigned Score (s)	Definition
A	$90\% \leq s$	Mastery
B	$80\% \leq s < 90\%$	Good Understanding
C	$70\% \leq s < 80\%$	Adequate
D	$65\% \leq s < 70\%$	Probably Failed to Demonstrate
F	$s < 65\%$	Definitely Failed to Demonstrate

Reading Quizzes: Each week, a reading selection will be assigned along with a corresponding reading quiz. You will have one week from the assignment of the reading quiz until it is due. Reading quizzes are made available on each Sunday at 12:00 AM and due at 11:59 PM on the following Sunday; thus, you have 8 days to complete the reading quiz. You can take the reading quiz at any time during those 8 days as long as it is completed before the due date/time. However, once you begin the reading quiz, you will only have 90 minutes to complete it. There is a reading quiz each week (total of 7) and they constitute 30% of the overall course grade.

Homework Assignments: Homework assignments will focus on practical skills and applications. You will have one week from the assignment of the homework assignment until it is due. Homework assignments are made available on Sunday at 12:00 AM and due at 11:59 PM on the following Sunday; thus, you have 8 days to complete it. There will be, at most, one homework assignment per week (there will not be a homework assignment every week). Homework assignments are worth 20% of the overall course grade.

Exams: There will be one mid-term exam and a final exam. Both exams are comprehensive. The midterm exam will be given during Week 4 and the final exam will be given during Week 7. Each exam will be made available on Sunday at 12:00 AM and due at 11:59 PM on the following Sunday of its assigned week; thus, you have 8 days to complete the exam. You can take the exam at any time during those 8 days as long as it is completed before the due date/time. However, once you begin the exam, you will only have 120 minutes to complete it. The mid-term exam is worth 20% of the overall course grade and the final exam is worth 30% of the overall course grade.

Tentative Topic Schedule:

Week	Topic
Jan 14 – Jan 20	Course Introduction / Virtual Lab Setup / ARP Spoofing
Jan 21 – Jan 27	Internet Protocol Stack / Analyzing Network Traffic / TCP Shells
Jan 28 – Feb 03	Phishing and Deepfakes / Scanning Targets
Feb 04 – Feb 10	Fuzzing for Zero-Day Vulnerabilities / Midterm
Feb 11 – Feb 17	Building Trojans / Building and Installing Linux Rootkits
Feb 18 – Feb 24	Password Cracking / Cross-site Scripting Exploitation
Feb 25 – Mar 02	Pivoting and Privilege Escalation / Final Exam

Late Policies: All homework assignments are due on the date/time specified in the assignment. Assignments will not be accepted after that time. Any assignment submitted late will receive a grade of zero.

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Academic Dishonesty: Representation of other's work as your own will not be tolerated and this includes AI-generated content. Cheating on examinations, quizzes, and homework and the false representation of work will be interpreted as academic dishonesty. Academic dishonesty will be subject to disciplinary action as outlined by the UT Tyler Student Guide on Conduct and Discipline.

Evidence of academic dishonesty will result in automatic failure of the course.

EXPECTATIONS OF STUDENTS:

- **Take ownership of your learning.** You are solely responsible for how much you get out of this course. It is not my responsibility to spoon-feed knowledge to you, but rather to guide you along your developmental path. I hope that this course will challenge you. Deep learning happens when you struggle and succeed.

- **Seek my help early if you feel lost.** If you are doing the readings, and attempting the assignments, and yet you still feel lost, do not convince yourself that things will get better on their own or that you will catch up this weekend. This course, like most others, builds on itself throughout the semester. Contact me before the feelings of confusion compound.

COURSE PARTICIPATION:

If you have not turned-on notifications, I highly recommend you do. Look on the right-hand side of the class home page and you will see a notification button. Click on it and make sure notifications are turned on. To be successful in this online class, you need to be engaged with the materials. You should sign into Canvas several times a week and real all announcements and emails.

TECHNOLOGY STATEMENT:

To be successful om this online course you will need regular access to a computer and a stable Internet connection. While mobile devices are great for checking your grades or watching a video, relying on them as your primary method for taking an online course is not a good idea. Internet or computer issues are not a valid excuse for late or missing assignments.

If you have any problems accessing Canvas, or any other technical issues, contact the 24/7 Canvas Support (you need to be logged into Canvas to access it). You can also contact UT Tyler IT Support at itsupport@uttyler.edu.

UNIVERSITY POLICIES

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.

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.

"Cheating" includes, but is not limited to:
- copying from another student's test paper or homework assignment;

- 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;
- 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 any academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another person, 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.
- use of any AI-generated content.

Unless otherwise specified, all work submitted for a grade must be completed by yourself. You are not to submit another person's work and claim it as your own. Plagiarism and/or collusion will result in disciplinary actions. To spare yourself accusations of plagiarism:
1. Do not show another student a copy of your work before it has been graded. The penalties for permitting your work to be copied are the same as the penalties for copying someone else's work.
2. Do not leave printouts of your work where other students may pick them up.

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 (Sept. 12th) 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.

Student Accessibility and Resources – 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 psychiatric disabilities. If you have a disability, including non-visible disabilities such as chronic diseases, learning disabilities, head injury, PTSD or ADHD, or you have a history of modifications or accommodations in a previous educational environment you are encouraged to contact the Student Accessibility and Resources (SAR) office and schedule an interview with the Accessibility Case Manager/ADA Coordinator, Cynthia Lowery Staples. If you are unsure if the above criteria applies to you, but have questions or concerns please contact the SAR office. For more information or to set up an appointment please visit the SAR office located in the University Center, Room 3150 or call 903.566.7079. You may also send an email to cstaples@uttyler.edu.

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.

The following pages may be revised without notice. These policies can be found on UT Tyler's website:
http://www.uttyler.edu/academicaffairs/files/syllabuspolicy.pdf