

**Cyber Defense I - COSC 3474**  
**Department of Computer Science**  
**Fall 2023**

**A. COURSE INFORMATION**

**Course number/section:** COSC 3474 001 & 201  
**Class meeting time:** TU/TH 2:00-3:15PM & 3:30-4:45PM  
**Class Location:** CI 230  
**Course Website:** bb9.tamucc.edu

**B. INSTRUCTOR INFORMATION**

**Instructor:** Jacob D. Hopkins  
**Office location:** CI 230  
**Office hours:** TU/TH 12:00 – 2:00 PM  
**Discord:** jhopkins2  
**Email:** jhopkins2@islander.tamucc.edu  
**Appointments:** By Email

**C. COURSE DESCRIPTION**

**Catalog Course Description**

This course covers cryptographic tools, cryptographic algorithms, types of malicious software, forms of attacks, and software security. The strengths and weaknesses of cryptographic systems are covered as well as the types of attacks on cryptographic systems. Malicious activity signatures, analysis as well as detection will be covered. This course will also cover secure coding principles and types of software issues.

**D. PREREQUISITES AND COREQUISITES**

**Prerequisites**

COSC 3372 Network Security I

**Corequisites**

N/A

**E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**

**Required Textbook(s)**

TestOut CyberDefense ProEnglish 1.0 ISBN: 978-1-935080-73-2

**Supplies**

10 Gig or more USB Drive

**F. STUDENT LEARNING OUTCOMES AND ASSESSMENT**

By the end of this course, students should be able to:

1. Install and configure services on Fedora and Ubuntu.
2. Design shell programs using bash, awk, sed, and regular expressions to install and configure server services.
3. Work with Linux command line structure to: process text streams using filters; perform file management; use streams, pipes and redirects; create, monitor and kill processes; search text files using a regular expression.
4. Design hard disk layout, install and configure boot managers, and work with package managers.
5. Be able to recognize and replace different hardware components in the computer.

**G. INSTRUCTIONAL METHODS AND ACTIVITIES**

In-Person and some online; attendance is mandatory. In-class labs frequent basis

**H. MAJOR COURSE REQUIREMENTS AND GRADING**

<u>ACTIVITY</u>	<u>% OF FINAL GRADE</u>
<u>Midterm Exams (2)</u>	<b>26</b>
<u>Final Exam</u>	<b>18</b>
<u>Quizzes</u>	<b>15</b>
<u>Assignments</u>	<b>20</b>
<u>Labs</u>	<b>20</b>
<u>Attendance</u>	<b>1</b>

**Grading Scale**

100 – 90: A, 89 – 80: B, 79 – 70 C, 69 – 60 D, 59 – 0: F.

Note: The instructor reserves the right to make changes in the course grading. Changes will only occur if both the instructor and a consensus of all students agree to the change. The instructor also reserves the right to offer extra assignments. Extra credit assignments will be created for the entire class not for any individual student.

**I. COURSE CONTENT/SCHEDULE**

<b>DATE (BY WEEK)</b>	<b><u>TOPIC</u></b>	<b>Exam</b>	<b>ASSIGNMENT</b>
1	1.0 Introduction		Labs
2	2.0 Threat Intelligence		Labs
3	2.0 Threat Intelligence 3.0 Risk Mitigation		Labs
4	4.0 Social and Physical Security		Labs
5	4.0 Social and Physical Security 5.0 Reconnaissance	Midterm 1 (Sept 28 <sup>th</sup> )	Labs
6	6.0 Enumeration		Labs
7	7.0 Vulnerability Management		Labs
8	7.0 Vulnerability Management 8.0 Identity and Access Management Security		Labs
9	8.0 Identity and Access Management Security 9.0 Cybersecurity Threats		Labs
10	10.0 Infrastructure Security		Labs
11	11.0 Wireless and IoT Security	Midterm 2 (Nov 9 <sup>th</sup> )	Labs
12	12.0 Infrastructure Analysis		Labs
13	12.0 Networking		Labs
14	13.0 Software Assurance		Labs
15	14.0 Data Analysis 15.0 Incident Response		Labs
		Final Exam Dec 12 <sup>th</sup> 1:45 PM	

Note: Changes in this course schedule may be necessary and will be announced to the class by the instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

## **J. COURSE POLICIES**

The final grade will be based on homework, lab, quizzes, attendance, and exams. Some labs are assignments are done in class. No makeup is allowed. Students are expected to read and listen to videos prior to coming into class. Students are encouraged to join the cybersecurity club.

### **Attendance/Tardiness**

Attendance is **mandatory**. Students are responsible for all materials covered in class and assigned. Should a student be absent from class, it is his/her responsibility to get the notes, etc. for that missed class. More important, should there be assignments, it is the student's responsibility to obtain such assignments. No excuse will be accepted for assignments not turned in because the student was absent when it was due or assigned. All assignments should be completed on or before the due date. All assignments due will have a due date on the blackboard, students must complete these by the due date. Students are recommended to track all due dates using the blackboard calendar. Some lab assignments done in class may not have instructions to complete, In-class labs cannot be makeup.

### **Late Work and Make-up Exams**

There will be homework/lab assignments will be given. Partial credit will be given for incomplete assignments. Home lab/Quiz will significantly be based on the material from the lectures and other material considered essential for the successful completion of this course. They will be handed/web links out in the class during the lecture. The submission details will be provided to you along with the assignment. due date or due date/time assigned on the blackboard. If the student is absent on the due date, it is the student's responsibility to see to it that the assignment is submitted on the designated date. An assignment that is turned in after the class on the due date is considered one day late. There is a penalty for late submissions. 10% penalty for each day late. If the assignment was not submitted within 10 days then no credit will be given. If you have not completed your assignment by the due date, you should submit the work you have done for partial credit. No work will be accepted once the graded work has been returned or the solution has been disclosed to the class, except for unusual circumstances which the instructor feels reasonable. Be sure to back up your work. Note that any kind of hardware or software failure or machine unavailability in the lab does not qualify for exemption from the above rules.

**All lab assigned in class is due in class on the same date. when you are absent these lab/assignments will receive a grade of 0; you are not allowed to make up these labs. You will have to get extra credit overcome to some missed assignments.** This can be considered as a grade on attendance.

### **Extra Credit**

Rarely given, mostly given for participating in the hackathon.

### **Cell Phone Use**

Cell phones and pagers must be turned off during class. The first violation receives a warning. All succeeding violations result in a ten points deduction on the last exam. Any violation during a quiz or exam results in a ten percent deduction from the corresponding paper. No warnings for quizzes or exams.

### **Laptop Use**

Laptops, Tablets are strictly prohibited. Any violation will result in a 20 points penalty in labs.

**ALL computers in the lab are strictly restricted use for in-class activities, playing games are strictly prohibited. Penalties will be imposed on violators similar to the above.**

### **Missed Exam**

In the event, that you cannot attend the class to take the exam due to some emergency or some unavoidable situation (such as serious illness, death in the family, participation in university sports, religious observations, and so on) you must notify me as soon as possible before the exam and also you must validate your absence by providing me a document (e.g., with a letter from your doctor). Once your cause is validated a make-up exam will be given. Simply missing the exam without any notification will result in a 0.

### **Participation**

Mandatory

### **Student Safety Trainings**

Required safety training and/or lab safety seminars must be successfully completed once every academic year, normally in the Fall. Students will be required to take the course from Blackboard in either the first lecture or first lab to complete their training assignments and show the certificate of completion before the end of the class or lab.

Students who are still covered by having taken the safety training earlier should show their certificate of completion. For students unable to attend the first day of class/lab (or still registering for the class), a reasonable completion date will be flagged in Starfish. A possible grade penalty can be enforced for non-completion.

## **K. COLLEGE AND UNIVERSITY POLICIES**

### **COVID-19 Campus Safety Measures**

While the University does not require face coverings or vaccinations, we encourage every Islander to consider getting vaccinated, wear a face covering while indoors, and wash your hands frequently to aid in reducing the spread of COVID-19.

Anyone with COVID-19 [symptoms](#) should not report to campus. Students, faculty, and staff who test positive are required to report their test results to the University [Covid-19 Reporting Form](#).

Please use the below links for COVID-19 guidelines:

**[If You Test Positive, Regardless of Vaccination Status](#)**

**[If you are exposed to Someone with COVID-19](#)**

**[If you have Symptoms Regardless of Vaccination Status](#)**

Complete the COVID-19 Self Reporting Form and notify instructor.

More COVID-19 related information may be found on the university website at <https://www.tamucc.edu/campus-guide/covid-protocol.php>

## Campus Emergencies\*

At TAMU-CC, your safety is a top concern. We actively prepare for natural disasters or human-caused incidents with the ultimate goal of maintaining a safe and secure campus.

- For any emergency, dial the University Police Department (UPD) at **361-825-4444** or dial 911. It's a good idea to have the UPD emergency number (and non-emergency number 361-825-4242) saved in your cell phone.
- There are nearly 200 classroom telephones throughout campus. If you feel threatened or need help and don't have a cell phone, dial 4444 (emergency) or 4242 (non-emergency) to be connected to UPD.
- If we hear a fire alarm, we will immediately evacuate the building and proceed **to the front of the university center**.
  - Proceed to the nearest building exit or evacuation stairway. Do not use the elevator. Persons who need help navigating stairs should proceed to a marked Area of Rescue Assistance, if possible.
  - Persons with disabilities should speak with their faculty about how to best assist them in case of an emergency.
  - Review the evacuation route (see specific Building Emergency Plan).
- TAMU-CC employs the Code Blue Emergency Notification System, an alert system which connects the campus community during emergency situations.
  - The notifications include emails, text and pre-recorded messages, as appropriate.
  - Code Blue emergencies may include severe weather warnings, threats, school closures, delays, evacuations and other incidents which disrupt regular campus activities.
  - Students can update personal contact information anytime at <https://emergency.tamucc.edu/contactform/>
- Shelter in Place via Code Blue.
  - "Shelter-in-place" means to take immediate shelter where you are and may be implemented for severe weather, hazardous material spills, active shooters or other dangerous situations.
  - If there is a shelter in place for a **tornado warning**, our preferred location is the bottom floor of this building, away from windows and doors.
- Active Threat Protocol. There are three things you could do that make a difference if there is an active threat: Run, Hide, and/or Fight. For more information about the Run, Hide, Fight protocol, including what to do when law enforcement arrives, visit <https://www.tamucc.edu/finance-and-administration/facility-administration/ehs/>.

For the *Quick Campus Guide to Campus Emergencies* (including a list of Areas of Rescue Assistance and additional protocols on assisting persons with physical disabilities, hurricanes, bomb threats, animal bites, crime reporting, elevator entrapment, etc.), visit <https://www.tamucc.edu/finance-and-administration/facility-administration/ehs/emergency-management/assets/documents/finalbooklet.pdf>

- **Academic Integrity (University)**  
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to

penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity, or plagiarism. (Plagiarism is the presentation of the work of another as one's own work.) In this class, academic misconduct, or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- **Classroom/Professional Behavior**

Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor's ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**

Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high-quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you 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.

- **Deadline for Dropping a Course with a grade of W (University)**

I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. ***Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.*** Should dropping the course be the best course of action, you must initiate the process to drop the course by going to **University Center 324** and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. You may also submit a PowerFormSigner online. November 4th is the last day to drop a class with an automatic grade of "W" this term.

- **Grade Appeals (College of Science and Engineering)**

As stated in University Procedure 13.02.99.c0.03, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is required to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.c0.03, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at <https://www.tamucc.edu/faculty/faculty-affairs/assets/student-grade-appeal->

[packet.pdf](#). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**

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 believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

<http://disabilityservices.tamucc.edu/>

- **Civil Rights Complaints**

Texas A&M University-Corpus Christi is committed to fostering a culture of caring and respect that is free from discrimination, relationship violence and sexual misconduct, and ensuring that all affected students have access to services. For information on reporting Civil Rights complaints, options and support resources (including pregnancy support accommodations) or university policies and procedures, please contact the University Interim Title IX Coordinator, Rosie Ruiz [rosie.ruiz@tamucc.edu](mailto:rosie.ruiz@tamucc.edu) 361-825-5826, or visit website at [Title IX/Sexual Assault/Civil Rights](#).

**Limits to Confidentiality.** Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors, are not able to maintain confidentiality when it conflicts with their responsibility to report alleged or suspected civil rights discrimination that is observed by or made known to an employee in the course and scope of their employment. As the instructor, I must report allegations of civil rights discrimination, including sexual assault, relationship violence, stalking, or sexual harassment to the Title IX Coordinator if you share it with me.

These reports will trigger contact with you from the Civil Rights/Title IX Compliance office who will inform you of your options and resources regarding the incident that you have shared. If you would like to talk about these incidents in a **confidential** setting, you are encouraged to make an appointment with counselors in the [University Counseling Center](#).

- **Statement of Academic Continuity**

In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of



the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

#### **L. OTHER INFORMATION**

- **Academic Advising**

The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College's Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

#### **GENERAL DISCLAIMER**

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.