

THE UNIVERSITY OF TEXAS AT TYLER DEPARTMENT OF COMPUTER

SCIENCE COSC 5364/4364

Cyber Risk Analysis

Online

Instructor: Dr. David M. Hull

Class Time

MW 1:25 to 2:20 synchronous Zoom sessions

F asynchronous study (e.g., discussion threads)

See Appendix A regarding hybrid-course structure

Instructor Information

Dr. David Michael Hull, Assistant Professor, Computer Science Dept., COB 315.06

dhul@uttyler.edu

Office Hours

M/W/F 11:15 – 12:15 via scheduled Zoom discussions.

Course Description: Topics covered will include risk analysis basics, project definition, and data gathering.

planning system.

Selected Topics:

- **Security Risk Assessment Basics**
- **Project Definition**
- **Security Risk Assessment Preparation**
- **Administrative, Technical, & Physical Data Gathering**
- **The Security Risk Analysis**
- **Security Risk Mitigation**

Computer Account Access

Students will need a Patriot account and password for computer access.

Course Materials

I do not assign a textbook for this course. This class will use Canvas for course documents, slides and other class-related materials. I encourage you to check the website frequently to keep up to date about class changes.

The Voice of the Market—Please consider the following excerpt from one of my students from the spring of 2019:

“I just wanted to shoot you a quick email to thank you for what you've taught me. I got a job at XXX, a multi-billion-dollar consulting company. They just opened this office eighteen months ago and are establishing their cybersecurity headquarters for the whole USA in this office. It's a huge room, still under construction, with multiple security measures (separate key cards, bio metric scanning, etc.) They're looking to staff more people in it and it's where I'll be working once I complete training.

“As you can imagine, the training is very rigorous. Classroom sessions, exams where anything under a 100 is failing, the whole nine yards. EVERYTHING you've mentioned about cybersecurity has been covered and emphasized. I've been able to retain information and apply it in practice because of the way you taught it to me. When one of the instructors asked me how I knew certain things or am familiar with certain practices, I answered, "Dr. Hull taught me."

Whatever research you have going on in regards to behavioral cybersecurity, please continue.

“There's a lot of anxiety in being part of a team that protects billions of dollars' worth of assets, but you're teaching has definitely helped me. I'm sure there's many more prospective security analysts who would also benefit under your guidance.”

This anecdote confirms the reliability of the following statement: “The world doesn't care what you know; the world cares about what you can do with what you know.” *Tony Wagner, co-author of 'Creating Innovators' (Wagner & Compton, 2015).*

This explains why I do not measure what you know, and why I do not give objective tests (e.g., multiple-choice and true/false quizzes). I measure what you can do with what you know. I do

that by having you demonstrate your reasoning skills in the service of proposing solutions to an ill-defined problem (i.e., a problem for which there is not unambiguously correct answer.

Course Grading—You can earn credit points according to the following schedule:

Table 1. Distribution of Grading Points

Activity	% grading credits
Team-based problem-solving assignments; participation in classroom discussions and & Canvas discussion-threads*	25%
Mid-term exam: take-home essay	25%
Final exam: take-home essay	25%
Final exam: team assignment, with formative, anonymous peer assessments*	25%
Extra credit	None

*You need to organize yourselves into heterogenous teams of four and create a corresponding Canvas group. Your team must represent multiple disciplines (e.g., computer science, finance, accounting, marketing, management) across the curriculum of the College of Business.

It is in your interest to organize a team that is heterogenous (i.e., a team that is not dominated by those you know from your major field of study). This is because I emphasize learning via collaborative problem-solving activities in which the quality of your team’s work will depend importantly on the effectiveness with which your team’s proposed solution reflects evidence-based reasoning that draws from multiple disciplines.

To encourage you to work effectively in your teams of four, I will ask members of other teams to provide anonymous peer assessments of your team’s proposed solution, and of that portion of the team’s proposed solution for which you have individual, named responsibility. I intend this arrangement to reward teams that figure out how to overcome relationship and task conflicts (which are inevitable in team work) and to discourage free riding. The peer assessments are formative only. I assign grading points solely according to my assessment; your peers don’t determine your grade.

My purpose is to simulate the real-world experiences in which your bosses, colleagues, partners and customers will probe and evaluate the quality of your ideas; the soundness of your reasoning; the persuasiveness of your communications; and the effectiveness with which you collaborate with others to produce valuable proposed solutions to high-value problems.

Notice that half of your grade is determined by your performance on (take-home) essay exams.

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

CLASS POLICIES

ACADEMIC DISHONESTY:

Representation of other's work as your own will not be tolerated. 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. Note plagiarism or cheating on assignments, quizzes, or exams may result in a 0 on that assignment and if there are multiple occurrences, this may result in an F for the course and referral to the University Judicial Board.

ATTENDANCE / LATE WORK POLICY:

Attendance is mandatory and attendance records will be kept. Notify the professor in advance if you must miss a class, be late for a class or leave early. The instructor should be notified in writing of all university - excused absences prior to the affected date(s). Late work is not accepted for credit unless approved by the instructor.

Tentative Course Schedule:

Week 1—Review the Syllabus; Introduction

Weeks 2 & 3— Crisis Management and Risk

Weeks 4 & 5—Contingency Strategies

Week 6—Incident Response Planning

Week 7—Incident Response: Detection and Decision Making

Week 8—Incident Response - CSIRT

Week 9—Midterm Exam and Incident Response Strategies

Week 10— Incident Response – Recovery and Maintenance

Week 11—Disaster Recovery: Preparation and Implementation

Week 12—Disaster Recovery – Operation and Maintenance

Week 13 —Business Continuity Planning

Week 14—Semester review and final exam

Topics may be added or subtracted accordingly as the semester goes according to need. Accordingly, this syllabus is subject to change by the instructor.

Final Notes

Students are required to wear face masks covering their nose and mouth, and follow social distancing guidelines, at all times in public settings (including classrooms and laboratories), as specified by Procedures for Fall 2020 Return to Normal Operations. The UT Tyler community of Patriots views adoption of these practices consistent with its Honor Code and a sign of good citizenship and respectful care of fellow classmates, faculty, and staff.

Students who are feeling ill or experiencing symptoms such as sneezing, coughing, or a higher than normal temperature will be excused from class and should stay at home and may join the class remotely. Students who have difficulty adhering to the Covid-19 safety policies for health reasons are also encouraged to join the class remotely. Students needing additional

accommodations may contact the Office of Student Accessibility and Resources at University Center 3150, or call (903) 566-7079 or email saroffice@uttyler.edu.

Recording of Class Sessions

Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.

University Policies

<http://www.uttyler.edu/academicaffairs/files/syllabuspolicy.pdf>

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.

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. 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 of Texas at Tyler offers

accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a 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) office 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.utt Tyler.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 instructor 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)

Appendix A: Description of Hybrid Instruction Model

Each Zoom session will be available to all students, regardless of cohort.

As for the small-team collaborations, there are two parts (presentation and review), as I currently foresee the model, which is subject to change I deem as necessary.

1. The collaboration activities—These are conducted outside of the classroom. Each team decides whether to collaborate in-person or online.
 - a. In the work world, teams within the organizations that are the most advanced in the use of work-at-home models conduct most of their collaborations asynchronously and in writing, using online devices such as Wikis, Google Docs, MS Teams, and Slack.
 - b. As of now, I'm not sure the extent to which I will prescribe the platform on which teams in our class will collaborate.
 - c. I mention this here because I know that in the world of work, leading organizations prescribe the platform in part for the purpose of consistency and in part because they wish to accumulate collaboration data in a highly structured format that is amenable to text mining, sentiment analysis, affective computing analysis, and so on.
 - d. I foresee these data-structuring and analysis techniques becoming commonplace not only in work-at-home contexts but also in study-at-home contexts, where business schools aim to prepare their students for the reality of distributed work, where employers will seek and reward persons who can collaborate via distributed work, and avoid persons who cannot.
2. Presentation and review activities—There will be presenting teams and reviewing teams.
 - a. Presenting Team
 - i. Each presenting team will create a Word document that provides thoughtful support for its proposed solution, following a model that I will provide.
 - ii. The team will video-record its presentation (e.g., via Zoom or Canvas Studio).
 - iii. The presentation will feature the use of an artifact (e.g., a PowerPoint document, viewed via screen-share) to support the discussion of the problem and the proposed solution.

- iv. Each team member must participate.
 - v. The presenting team will upload to Canvas the video-recorded presentation, the supporting Word document, and the presentation artifact (e.g., PowerPoint document) two instruction days before the scheduled presentation date.
- b. Reviewing Team
- i. For each presentation, there will be a reviewing team.
 - ii. The reviewing team will access the presenting team's uploaded materials and prepare questions to ask of the presenting team.
 - iii. On the day of the presentation, the reviewing team will interrogate the presenting team's proposed solution via a live, video-captured Zoom session, which I will facilitate actively.
 - 1. Notice that most of my activities will be in the nature of facilitating these student interactions, and not lectures. For each course module, I will post instructional materials to Canvas.
 - iv. Following the colloquy between the presenting team and the reviewing team, the audience of peers will anonymously assess:
 - 1. the effectiveness of
 - a. the presenting team's proposed solution;
 - b. the delivery of each presenting student;
 - 2. the effectiveness of
 - a. the reviewing team's interrogation of the proposed solution; and
 - b. the questioning of each reviewing student.
 - 3. Anonymized peer assessments—These are formative, i.e., they are intended to inform student reflections, but not for grading purposes. I, as the instructor, will independently assess the performance of the presenting and reviewing teams and their members for grading purposes.

This model is designed to:

- 1. produce a high degree of student engagement;
- 2. in the service of using evidence-based, collaborative reasoning;
- 3. to apply relevant domain knowledge;
- 4. to communicate a thoughtful proposed solution to a real-world problem;
- 5. using information and communication technologies;
- 6. following a study-at-home model that anticipates the work-at-home models that are being adopted across global industry now, in the wake of the COVID-19 disruptions.