

95-755 and 455

Information Systems Risk Management

Spring 2024 Syllabus

Revised: November 2023

COURSE SYLLABUS

Some changes may occur to the syllabus during the semester depending on timing and other events that may arise.

Instructor: Brett Tucker

Technical Manager, CERT, Carnegie Mellon University

Email: brett@andrew.cmu.edu

Office Hours: Contact me by email or telephone to arrange any meetings.

Class Meetings: TBD

Course Code/Title: 95-755 and 455 Cyber Risk Management

Class Section: Spring Mini

Description: This course examines risk management and its application to information security. The course will help the student identify information security risks, evaluate those risks, and make risk-based decisions given organizational resource constraints. Students will learn foundational concepts in risk management and will be introduced to risk management standards and approaches, both qualitative and quantitative, for risk analysis.

The purpose of this course is to assist professionals in understanding risk management and enabling them to leverage those principles to make an organization more resilient to operational disruptions and other perils.

Prerequisite: None

Optional Text Books:

Freund, J., & Jones, J. (2015). Measuring and managing information risk: A FAIR approach. (ISBN 9780127999326)

Douglas W. Hubbard & Richard Seiersen. How to Measure Anything in Cybersecurity Risk. (ISBN: 9781119085294)

Course Pack – Documents will be released systematically to the class throughout the course of the semester via Canvas.

Software: Microsoft Excel or any other spreadsheet equivalent should be adequate.

LEARNING OUTCOMES:

Students who complete this course successfully will be able to do the following:

- Build on a foundational understanding of risk management to include the definitions of risk, related elements, risk management, response, etc.
- Identify standards and other literature that provide direction on how to conduct analysis and manage uncertainty.
- Implement the OCTAVE Allegro and FORTE process methodologies.
- Explore the use of other methodologies and tools for risk management.
- Research and analyze those factors that are important to the successful implementation of a risk management program within an organization.
- Develop and justify practical strategies, tools and practices that can lead to an adaptive approach to risk management in a variety of settings, scales, and diverse industry applications.

COURSE REQUIREMENTS:

Class Participation: 10% of total grade (10 points)

Real-world risk managers are expected to attend and participate in all meetings that are concerned with the management of their program and to conduct themselves professionally at those meetings. Students in this course are considered to be professionals who are learning the art and science of risk management. As this is the case, behavior during any interactions via classroom discussion, message boards, or otherwise that either violates a course or university policy, or that negatively affects the ability of other students to concentrate or participate, will involve deductions in points that are appropriate. ***Participation will be a factor in your final grade. For this virtual offering, this mostly relies upon your team feedback regarding your contributions that is provided at the end of the course.***

Participation

Participation is based on quality over quantity. Participation can come in many forms. Inquiry via message board discussion, Canvas Discussions, announcements, virtual presentations – these

are valid ways to participate in class. This percentage is to encourage you to be active in this course and to draw out thoughts, comments, and opinions. I will be tracking participation closely.

Readings

Directed reading will be updated every week of class.

Tests: 40% of total grade (40 points)

- One test will be given during the session

Group Project & Assignments: 50% of total grade (50 points)

- Groups may consist of no more than 5 students unless special permission is granted by me – groups will be assigned

o Assignments only need to be submitted by one group member

- The class project will consist of several deliverables within this mini-session that build on each other
- Your team will be newly hired at an Information Technology firm of my choosing—for this mini, I would like you to cover Tesla. You are tasked with drafting a risk management plan for the firm. Some examples of activities in this effort will include:
 - Developing a plan for identification, analysis, and response to operational as well as enterprise risks.
 - Establishing a governance structure to include drafting charters for relevant committees.
 - Developing a risk appetite statement as well as documenting the process and related assumptions for doing so.
 - Drafting policy and procedure to carrying out critical activities necessary for managing risk in the organization.
 - Your plan needs to be specific enough that you can create a brief proposal explaining the need, identify and address the stakeholders, charter a governance structure, establish a risk appetite statement, create a proposed budget, create a high-level project schedule for implementation (with milestones), and provide measurements to determine the relative success of the program.
 - A detailed schedule of deliverables will be posted on Canvas.

FINAL GRADING APPROACHES:

- Each student's final grade will be computed as the sum of all points earned in the course minus any points deducted according to the grading policies. Grades are based on a total possible score of 100 points for the semester.

- **Final Letter grades will be assigned into letter grade categories reflecting the performance of the class as a whole, and I reserve the right to adjust a specific student's final letter grade depending upon their individual situation.**
- I will likely use the following grading criteria to assign a final letter grade, but ranges may be adjusted on the basis of class performance levels overall

100 A+

94-99 A 77-<79 C+

90-<93 A- 73-<76 C

87-<89 B+ 70-<72 C-

83-<86 B

80-<82 B-

- I foresee no incompletes to be given due to the nature and timing of the assignments. If there is a problem, please consult with me for discussion about it prior to assignment due dates.
- **Getting an A- , B+ or B is not considered to be a serious performance problem in this course as these grades are all representative of above-average work. I will help students if they are experiencing serious learning issues, but it is not appropriate to expect only to achieve an A.** Those who attend class, work hard and seriously attempt to do well, will earn good grades appropriate for their effort. Above-expectation performance on assignments will be recognized with additional points. **Students who have serious concerns about their ability to perform well should discuss this with me to determine options. Other than the approaches mentioned here, there will be no extra-credit assignments.**
- **Note to Graduate Students:** The final grades of "C" or below represents inability to master numerous concepts or poor-quality work. Graduate students may not earn a passing grade lower than "C-", which represents a serious situation, so it is advised that we work together to do all that is possible to improve your performance.
- **Please note that I receive emails at the end of every course asking for "more points" or a better grade.** Unless I make an actual error in grading, I am not going to change grades based on a last-minute plea. Consider this as you start the semester – the time to put in the hard work is NOW.

Penalty for Late Assignments of any type:

Point deduction as per situation based on the following:

- 0 – No deduction - Assignment on time, or late due to extenuating circumstances that are the same as those listed for missing class.
- -5 points – Assignment up to 1 day late
- -10 points – Assignment submitted 2-3 days late
- Student will fail the assignment with a score of zero if more than 3 days late

POLICIES:

Course Announcements and Discussion Boards

Students are responsible for ensuring that they receive all notifications regarding the course. As such, they need to go to Canvas / Account (Upper Left) / Notifications then select the checkmarks next to three areas: Announcement, Discussion and Discussion Post. There is also a Canvas app that provides notifications regarding the course. Note that it is rare that I post any discussion board topics, as we cover so much in class. I will advise the class via announcement or otherwise if I post a discussion board thread.

Ethical Standards

Students are expected to maintain the highest ethical standards with respect to plagiarism and cheating. Neither plagiarism nor cheating will be tolerated on any exercises, quizzes, exams or assignments. Students may collaborate with others only when expressly permitted by the instructor. Students who violate academic standards will at a minimum receive a failing grade for the assignment and may also receive a failing grade for the course. Such cases will be referred to the Associate Dean, who may decide to take further action.

Recording of Class Sessions

No student may record or tape any classroom activity without the express written consent of the instructor. If a student believes that they are disabled and needs to record or tape classroom activities, they should contact the Office of Equal Opportunity Services, Disability Resources to request an appropriate accommodation. For this course, I will be recording class sessions and making them available to you after classes for your personal, educational use. Recordings must not be shared with anyone outside your course-section. The purpose of these recordings is so students in this course (and only students in this course) can watch or re-watch past class sessions. The recordings are not a substitute for coming to class (you won't be able to join class remotely), and they will only become available after that day's class sections are finished. Feel free to use the recordings if you would like to review something we discussed in class or if you are temporarily unable to attend class.

Communications:

This is a graduate level class in a top US university. You are expected to communicate both orally and written in a manner and style that is reflective of your acceptance to a graduate program at Carnegie Mellon University. Grammar, punctuation, and template used should be professional and appropriate for a course that is designed to prepare you for project management in the information technology field. For assistance with the written or oral communication assignments in this class, visit the Global Communication Center (GCC). GCC tutors can provide instruction on a range of communication topics and can help you improve your papers and presentations. The GCC is a free service, open to all students, and located in Hunt library. You can make tutoring appointments directly on the GCC website: <http://www.cmu.edu/gcc>. You may also visit the GCC website to find out about communication workshops offered throughout the academic year.

Students with Disabilities:

Our community values diversity and seeks to promote meaningful access to educational opportunities for all students. CMU and I are committed to your success and to supporting Section 504 of the Rehabilitation Act of 1973 as amended and the Americans with Disabilities Act (1990). This means that in general no individual who is otherwise qualified shall be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity, solely by reason of having a disability. If you believe that you need accommodations for a disability, please contact me ASAP, and we will work together to ensure that you have the correct access to resources on campus to assist you through your coursework and time at CMU.

Academic Integrity:

Carnegie Mellon University sets high standards for academic integrity. Those standards are supported and enforced by students, including those who serve as academic integrity hearing panel members and hearing officers. The presumptive sanction for a first offense is course failure, accompanied by the transcript notation "Violation of the Academic Integrity Policy." The standard sanction for a first offense by graduate students is suspension or expulsion. Please see <http://www.cmu.edu/academicintegrity/> for any questions.

Policy Regarding Students Using English as a Foreign Language:

Assignments in this course are graded with reference to evidence of the acquisition of concepts, presentation format, and accuracy of information. Having done business in countries that use languages other than English, I understand that the use of an unfamiliar language can result in unusual word choices or grammatical errors that are not critical to the overall understanding of the information. Therefore, I will take into account your need to function in a language that may be unfamiliar to you. The group projects in this course will help on the assignments by providing opportunities for the group overall to edit final text. I will provide feedback as appropriate if I feel that language or grammar you have used in assignments would be best if it were configured in a different way.

Use of Canvas System for this course:

The Heinz School uses Carnegie Mellon University's Canvas system to facilitate distance learning as well as to enhance main campus courses. In this course, I will use the Canvas system generally to post lecture notes and related documents and to receive assignments electronically from students. To access Canvas go to www.cmu.edu/canvas.

Take Care of Yourself

Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep, and taking some time to relax. This will help you achieve your goals and cope with stress.

All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus, and an important part of the college experience is learning how and when to ask for help. Asking for support sooner rather than later is often helpful.

If you, or anyone you know, experiences any academic stress, difficult life events, or feel anxiety or depression, then we strongly encourage you to seek support. Counseling and Psychological Services (CaPS) is available to help. Please call 412-268-2922 or visit the website at <http://www.cmu.edu/counseling/>. Consider reaching out to a friend, faculty, or family member that you trust for help in getting connected to support that can help.

Food Insecurity

If you are worried about affording food or feeling insecure about food, there are resources on campus that can help. Email the CMU Food Pantry Coordinator to schedule an appointment: [Pantry Coordinator / cmu-pantry@andrew.cmu.edu](mailto:cmu-pantry@andrew.cmu.edu) / 412-268-8704 (SLICE office)