



95-844 Introduction to Cyber Intelligence

Thursdays, 6:30p to 9:20p, Location: ZOOM

Semester: Spring (Mini 3) Year: 2024

Units: 6 Section(s): Z3

Instructor information

Name	Dr. Thomas P. Scanlon (Tom)
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Office hours	By Appointment

TA Information [If applicable]

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Office hours	By Appointment

Course Description

Cyber intelligence; a phrase often used, but interpreted by government agencies, private companies, and the general public in many different ways. For the purposes of this course, cyber intelligence is the acquisition and analysis of information to identify, track, and predict cyber capabilities, intentions, and activities to offer courses of action that enhance decision making. Students will explore different aspects of the definition to develop an analytic framework capable of discerning the interdependencies of and external influences on cyber intelligence, as it relates to an organization's environment, data gathering, functional analysis, strategic analysis, and decision making. Cyber intelligence will be explored within the context of threat modeling and the cyber kill chain. Students will learn how traditional intelligence practices and emerging technologies influence cyber intelligence; empowering students to assess the likelihood of cyber threat actors executing attacks, the impact attacks have on an organizations business, and the risk threats pose because of an organization's known vulnerabilities.

Learning Objectives

- Learn and exercise a framework for implementing a structured approach to managing cyber intelligence
- Understand threat modeling techniques and how to apply them
- Learn the cyber kill chain and how to reduce the risk of cyber attacks

Learning Resources

- There are no required textbooks for this course
- Course readings will consist of readings from publicly available sources
- Students will need to have access to a personal computer with internet access, an internet browser, and basic productivity software
- No special equipment or software will need to be purchased for this course

Assessments

The final course grade will be calculated using the following categories (see note on attendance below):

Assessment	Percentage of Final Grade
Assignment 1	10%
Assignment 2	10%
Assignment 3	10%
Assignment 4	10%
Assignment 5	10%
Group Project	25%
Final Exam	25%

Students will be assigned the following final letter grades, based on calculations coming from the course assessment section.

Grade	Percentage Interval
A+	98-100%
A	92-97%
A-	90-91%
B+	88-89%
B	82-87%
B-	80-81%
C+	78-79%
C	72-77%
C-	70-71%
D	65-69%
R (F)	0-64%

Course Policies

- **Attendance & Participation:** Attendance is required for this course. No grade points are awarded for attending class, but missing class will result in a 2% penalty off the final grade *for each missed class* after the first one. Missing one class will result in no penalty, for each missed class after the first one, the 2% penalty will be applied per absence.
- **Late-work policy:** Late work will be accepted with the following conditions:
 - Work submitted 24 hours or less past the original due date & time will be accepted with no penalty
 - Work submitted more than 24 hours past the original due date & time will be accepted with a 10% penalty for up to 5 days (120 hours) past the original due date & time
 - Work will not be accepted more than 5 days (120 hours) past the original due date & time
- **Laptops & Mobile Devices:** Students are permitted to use laptops and mobile devices during class sessions, such as for note-taking purposes. Please ensure audio sounds are muted so as not to disturb the class. Some class activities may benefit from students having laptops & mobile devices, such as for referring to online sources, but laptops & mobile devices will never be required to have during class sessions.
- **Re-grade policy:** Students may request a re-grade within one week from the date the graded assignment is returned to students. If requesting a regrade, students should be prepared to make a compelling argument as to why the original grade needs to be reconsidered. *The student should discuss the grade with the TA first before requesting instructor re-grade.* The process for requesting an instructor re-grade is to email the instructor with the request within one week from the date the graded assignment is returned. The instructor and student(s) will then decide on a mutually agreeable time and place to discuss the assignment. If an instructor re-grade occurs, the instructor will re-grade from scratch, which may result in new point deductions as well as new point awards.
- **Hacking & Criminal Activity:** Assignments for this course will involve gathering cyber threat information – all information must be gathered from legal public sources. No one should engage in criminal activity, cyber hacking, catfishing, impersonation, or other illegal/improper methods to gather information.

Course Schedule

Date	Theme/Topic	Assignments Due
1/18	Course Introduction Cyber Kill Chain Environmental Context	
1/25	Threat Modeling Data Gathering	Assignment 1
2/1	Threat Analysis Group Presentations	Assignment 2 Group Project – Part 1
2/8	Strategic Analysis Application Security	Assignment 3
2/15	Reporting and Feedback Future of Cyber Intelligence	Assignment 4 Group Project – Part 2
2/22	Group Final Presentations AI & Cyber Intelligence	Assignment 5 Group Project – Part 3
2/29*	EXAM WEEK	Exam

| *Exact Date, Time & Location TBD |

Statement on Inclusivity

We must treat every individual with respect. We are diverse in many ways, and this diversity is fundamental to building and maintaining an equitable and inclusive campus community. Diversity can refer to multiple ways that we identify ourselves, including but not limited to race, color, national origin, language, sex, disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Each of these diverse identities, along with many others not mentioned here, shape the perspectives our students, faculty, and staff bring to our campus. We, at CMU, will work to promote diversity, equity and inclusion not only because diversity fuels excellence and innovation, but because we want to pursue justice. We acknowledge our imperfections while we also fully commit to the work, inside and outside of our classrooms, of building and sustaining a campus community that increasingly embraces these core values.

Each of us is responsible for creating a safer, more inclusive environment.

Unfortunately, incidents of bias or discrimination do occur, whether intentional or unintentional. They contribute to creating an unwelcoming environment for individuals and groups at the university. Therefore, the university encourages anyone who experiences or observes unfair or hostile treatment on the basis of identity to speak out for justice and support, within the moment of the incident or after the incident has passed. Anyone can share these experiences using the following resources:

- **Center for Student Diversity and Inclusion:** csdi@andrew.cmu.edu, (412) 268-2150
- **Report-It online anonymous reporting platform:** reportit.net username: *tartans* password: *plaid*

All reports will be documented and deliberated to determine if there should be any following actions. Regardless of incident type, the university will use all shared experiences to transform our campus climate to be more equitable and just.

Student Wellness

As a student, you may experience a range of challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. CMU services are available, and treatment does work. You can learn more about confidential mental health services available on campus at: <http://www.cmu.edu/counseling/>. Support is always available (24/7) from Counseling and Psychological Services: 412-268-2922.

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

412-268-8704 (SLICE office)

Accommodations for Students with Disabilities

If you have a disability and have an accommodations letter from the Disability Resources office, I encourage you to discuss your accommodations and needs with me as early in the semester as possible. I will work with you to ensure that accommodations are provided as appropriate. If you suspect that you may have a disability and would benefit from accommodations but are not yet registered with the Office of Disability Resources, I encourage you to contact them at access@andrew.cmu.edu.

Academic Integrity

Honesty and transparency are important features of good scholarship. On the flip side, plagiarism and cheating are serious academic offenses with serious consequences. If you are discovered engaging in either behavior in this

course, you will earn a failing grade on the assignment in question, and further disciplinary action may be taken. For a clear description of what counts as plagiarism, cheating, and/or the use of unauthorized sources, please see the University's Policy on Academic Integrity (revised in April 2013): http://www.cmu.edu/policies/documents/Academic_Integrity.htm

Recording of Class Sessions

For this course, I do not intend to record class sessions. However, circumstances may arise where this policy is changed and all or some class sessions are recorded. If a class session is being recorded, students will be notified as soon as practical, and the recording will be made available to all students. In the event one or more class sessions is recorded, the following policy applies:

Class recordings are for your personal, educational use. Recordings of class sessions are covered under the **Family Educational Rights and Privacy Act (FERPA)** and 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. 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.

SASC Resources

SASC programs to support student learning include the following (program titles link to webpages):

- [Academic Coaching](#) – This program provides holistic, one-on-one peer support and group workshops to help undergraduate and graduate students implement habits for success. Academic Coaching assists students with time management, productive learning and study habits, organization, stress management, and other skills. Request an initial consultation [here](#).
- [Peer Tutoring](#) – Peer Tutoring is offered in two formats for students seeking support related to their coursework. Drop-In tutoring targets our highest demand courses through regularly scheduled open tutoring sessions during the fall and spring semesters. Tutoring by appointment consists of ongoing individualized and small group sessions. You can utilize tutoring to discuss course related content, clarify and ask questions, and work through practice problems. Visit the [webpage](#) to see courses currently being supported by Peer Tutoring.
- [Communication Support](#) – Communication Support offers free one-on-one communication consulting as well as group workshops to support strong written, oral, and visual communication in texts including IMRaD and thesis-driven essays, data-driven reports, oral presentations, posters and visual design, advanced research, application materials, grant proposals, business and public policy documents, data visualisation, and team projects. Appointments are available to undergraduate and graduate students from any discipline at CMU. Schedule an [appointment](#) (in-person or video), attend a [workshop](#), or consult [handouts or videos](#) to strengthen communication skills.
- [Language and Cross-Cultural Support](#) – This program supports students seeking help with language and cross-cultural skills for academic and professional success through individual and group sessions. Students can get assistance with writing academic emails, learning expectations and strategies for clear academic writing, pronunciation, grammar, fluency, and more. [Make an appointment](#) with a Language Development Specialist to get individualized coaching.

Use of Generative AI

Certain assignments in this course will permit or even encourage the use of generative artificial intelligence (AI) tools, such as ChatGPT. When AI use is permissible, it will be clearly stated in the assignment prompt posted in Canvas. Otherwise, the default is that use of generative AI is disallowed. In assignments where generative AI tools are allowed, their use must be appropriately acknowledged and cited. For instance, if you generated the whole document through ChatGPT and edited it for accuracy, your submitted work would need to include a note such as “I generated this work through Chat GPT and edited the content for accuracy.” Paraphrasing or quoting smaller samples of AI generated content must be appropriately acknowledged and cited, following the guidelines established by [the APA Style Guide](#). It is each student's responsibility to assess the validity and applicability of any AI output that is submitted. You may not earn full

credit if inaccurate or invalid information is found in your work. Deviations from the guidelines above will be considered violations of [CMU's academic integrity policy](#). Note that expectations for “plagiarism, cheating, and acceptable assistance” on student work may vary across your courses and instructors. Please email me if you have questions regarding what is permissible and not for a particular course or assignment.