Course Syllabus: CS/ECE/PUBP6727 Cyber Security Practicum

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Instructors

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Teaching Assistants

Check Canvas.

General Course Information

Description

In this course, students will work on a cybersecurity capstone project that focuses on a real-world cybersecurity problem and offers opportunities for "in-context" learning. Students will apply knowledge gained from courses they have taken in their program thus far. The scope of the problem should be appropriate for a 5-credit hour course. Students will start by identifying a cybersecurity problem, either policy-related or technical, and develop and implement a solution to it. They will submit regular progress reports and provide feedback to their peers on their progress. At the end of the course, students will deliver a final presentation and demo (when applicable) and submit a detailed final report that describes their solution, its efficacy and limitations.

Pre- &/or Co-Requisites

Pre-registration approval is required.

Course Objectives

- Identify and define a novel technical or policy-related cybersecurity problem, and develop an approach to solve it.
- Design and implement a solution to the identified problem.
- Evaluate and validate the solution's effectiveness at solving the problem.

Course Materials

Course Text

No textbook.

Additional Materials/Resources

Outside materials and technologies required are dependent on each project's individual needs.

Course Website and Other Classroom Management Tools

All course materials and videos are located on Canvas.

Course Requirements, Assignments & Grading

Data Privacy

Please do not include any confidential or proprietary data in your project's final report. If you intend to use potentially confidential or proprietary data (e.g., conducting research in your employer's setting) in your project, it is important that you obtain permission and anonymize it in the final report to protect any individuals or organizations involved. By doing so, you can ensure that your project complies with ethical and legal standards and avoids any potential issues or liabilities. Please keep in mind that failure to properly handle confidential or proprietary data may result in penalties or other consequences.

Assignment Distribution and Grading Scale

Assignment	Weight
Initial Project Proposal	*(At the end of first week of the semester)*
On-Boarding Quiz	*(Required to verify identity using proctoring software)*
Ongoing Feedback on Peer Proposals	25% *4 points for each bi-weekly feedback discussion and 5 points for final presentation feedback*. These posts must provide constructive and meaningful information and show an understanding of the project being reviewed.
Weekly Progress Reports	25% *5 points for each report*. These reports should reflect approximately 30 hours of effort over two weeks.
Final Presentation	20%
Final Project Report	30%

Grading

The project will be graded in two parts. The first part includes assessments related to progress reports and peer feedback during the entire semester. The second part will be based on the final presentation and the final report. Each part will be assigned a letter grade separately according to the following scale:

Letter Grade	Percentage
A+	95%-100%

Letter Grade	Percentage
A	90-94%
B+	85-89%
B	80-84%
C+	75-79%
C	70-74%
D	60-69%
F	0-59%

The final course grade will be determined as follows. Based on the grade of each part above (**Part 1 is progress reports & peer feedback, AND Part 2 is final presentation & final report**), the highest possible grade will be assigned.

A	B+ or higher on each part with at least one of the grades being an A or A+.
B	C+ or higher on each part with at least one of the grades being an A or A+, or both grades being B or B+.
C	C or higher on each part.
D	At least one part grade is D.
F	Both parts' grades are F.

Assignment Due Dates
All assignments are due at 11:59:00pm EST, unless otherwise noted. All assignments are due relative to the Eastern Standard Time Zone (EST). Eastern Standard Time is UTC -5. Eastern Daylight time is UTC -4. We will not accept assignments submitted late due to time zone issues. You should update your canvas to account for EST if you are in a different time zone. There are no exceptions.

Late and Make-up Work Policy
There will be no make-up work provided for missed assignments. Of course, emergencies (illness, family emergencies) will happen. In those instances, please contact the Dean of Students office. The Dean of Students is equipped to verify emergencies and pass confirmation on to all your classes. For consistency, we ask all students to do this in the event of an emergency.

Attendance policy

Because this course is fully asynchronous, there are no required class meetings and no attendance is taken. Instead, regular participation is demonstrated through engagement with course materials and completion of assignments by the stated deadlines. Students are expected to access weekly modules, complete required activities, and submit assignments on time.

Technology Requirements and Skills

Computer Hardware and Software

- High-speed Internet connection
- Laptop or desktop computer with a minimum of a 2 GHz processor and 16 GB of RAM ● Windows for PC computers OR Mac iOS for Apple computers.
- Complete Microsoft Office Suite or comparable and ability to use Adobe PDF software (install, download, open and convert)
- Mozilla Firefox, Chrome browser, and/or Safari browsers (Chrome required for on-boarding quiz)

Canvas

This class will use Canvas to deliver course materials to online students. ALL course materials and assessments will take place on this platform.

Course Policies, Expectations & Guidelines

Communication Policy

You are responsible for knowing the following information:

1. Anything posted to this syllabus
2. Anything emailed directly to you by the instructional team (including announcements via Ed Discussion), 24 hours after receiving such an email.

Because Ed Discussion announcements are emailed to you as well, you need only to check your Georgia Tech email once every 24 hours to remain up-to-date on new information during the semester. Georgia Tech generally recommends students to check their Georgia Tech email once every 24 hours. So, if an announcement or message is time sensitive, you will not be responsible for the contents of the announcement until 24 hours after it has been sent.

Online Student Conduct and (N)etiquette

Communicating appropriately in the online classroom can be challenging. In order to minimize this challenge, it is important to remember several points of **"internet etiquette"** that will smooth communication for both students and instructors:

1. *Read first, Write later*. Read the ENTIRE set of posts/comments on a discussion board before posting your reply, in order to prevent repeating commentary or asking questions that have already been answered.
2. *Avoid language that may come across as strong or offensive*. Language can be easily misinterpreted in written electronic communication. Review email and discussion board posts BEFORE submitting. Humor and sarcasm may be easily misinterpreted by your reader(s). Try to be as matter-of-fact and professional as possible.
3. *Follow the language rules of the Internet*. Do not write using all capital letters, because it will appear as shouting. Also, the use of emoticons can be helpful when used to convey nonverbal feelings. ☺
4. *Consider the privacy of others*. Ask permission prior to giving out a classmate's email address or other information.
5. *Keep attachments small*. If it is necessary to send pictures, change the size to an acceptable 250kb or less (one free, web-based tool to try is picresize.com).
6. *No inappropriate material*. Do not forward virus warnings, chain letters, jokes, etc. to classmates or instructors. The sharing of pornographic material is forbidden.

***NOTE**: The instructor reserves the right to remove posts that are not collegial in nature and/or do not meet the Online Student Conduct and Etiquette guidelines listed above.*

University Use of Electronic Email
A university-assigned student e-mail account is the official university means of communication with all students at Georgia Institute of Technology. Students are responsible for all information sent to them via their university-assigned e-mail account. If a student chooses to forward information in their university e-mail account, he or she is responsible for all information, including attachments, sent to any other e-mail account. To stay current with university information, students are expected to check their official university e-mail account and other electronic communications on a frequent and consistent basis. Recognizing that some communications may be time-critical, the university recommends that electronic communications be checked minimally twice a week.

Plagiarism & Academic Integrity
Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. All students enrolled at Georgia Tech, and all its campuses, are to perform their academic work according to standards set by faculty members, departments, schools and colleges of the university; and cheating and plagiarism constitute fraudulent misrepresentation for which no credit can be given and for which appropriate sanctions are warranted and will be applied. For information on Georgia Tech's Academic Honor Code, please visit http://www.catalog.gatech.edu/policies/honor-code/ or http://www.catalog.gatech.edu/rules/18/.
This course uses Turnitin to identify and quantify material copied from other sources or created using generative AI technology. Students should review their Turnitin scores, and, if necessary, make revisions prior to submitting the assignment. Supplementary use of generative AI tools is not banned but their use must be identified, and the actual prompts and tool(s) used cited. Software tools should never be used as a substitute for the student's own thinking and writing, only as a supplement. Unacceptably copying, missing quotation marks and/or failure to provide citations to others' work – as indicated by a high Turnitin score – will result in penalties to the grade. In addition, a student suspected of cheating or plagiarizing on an assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

LLMs and Generative AI Tools Use
In this course, using generative AI tools in the work of the course (including programming, discussions, and language editing) is allowed. As with any technology, generative AI tools need to be used critically and according to academic and professional expectations. When using generative AI tools, you are expected to adhere to the following principles:

- **Responsibility:** You are responsible for the work you submit. This means that any work you submit should be your own, with any AI-generated assistance appropriately disclosed (see Transparency below) and any AI-generated content appropriately cited (see Documentation below). It is your responsibility to ensure that any factual statements produced by a generative AI tool are true, and that any references or citations produced by the AI tool are correct and verifiable.
- **Transparency:** Any AI-generated content you use in the work of the course should be clearly acknowledged. Transparency in attribution is needed not only when you use content directly produced by a generative AI tool, but also when you use a generative AI tool in the

process of composition or discovery (for example, for brainstorming, outlining or synthesizing information sources, or translation).

- **Documentation:** You should cite any content generated by an AI tool as you would when quoting, paraphrasing, or summarizing ideas, text, images, or other content made by other people.

A word of advice: Please do not simply copy an LLM output verbatim. We suggest keeping documentation of your chat prompts and output, particularly for attribution of specific programming lines or tasks and in replication of your analyses. Using generative AI tools in the course without adhering to these principles may be considered an infraction of Georgia Tech's Academic Honor Code, subject to investigation by the Office of Student Integrity.

Accommodations for Students with Disabilities
If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or http://disabilityservices.gatech.edu/, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement
At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See http://www.catalog.gatech.edu/rules/22/ for an articulation of some basic expectations that you can have of us and that we have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Course Deliverables

Modules	Deliverables
Module 1	**Project Proposal** (Proposal is for feedback only and will not be assigned a grade)
	Project Progress Report I Refine and better scope proposal based on feedback, conduct additional background research and further identify deliverables and timeline
	Prepare Video I and post it for peer feedback Provide Peer Feedback
Module 2	**Project Progress Report II** Must outline solution approach and how it is informed by background research.
	Prepare Video II and post for peer feedback Provide Peer Feedback Work on solution design or policy outline.
	Project Progress Report III Continue work on implementation and/or policy development
	Prepare Video III and post for peer feedback Provide Peer Feedback Continue work on implementation and/or policy development
	Project Progress Report IV Continue work on implementation and/or policy development
	Prepare Video IV and post for peer feedback Provide Peer Feedback Continue work on implementation and/or policy development
	Project Progress Report V Outline Final Project Report Develop an evaluation plan for solution
	Prepare Video V and post for peer feedback Provide Peer Feedback Continue evaluation
Module 3	**Post Final Presentation Video** Explore limitations, deployment feasibility etc.
Module 4	Review Peer Presentation Videos Post **Feedback on Peer Presentations**
	Write Final Project Report Submit Final **Project Report**