

# Syllabus CS 795 – 004 | ISA 797 – 002

Spring 2019  
Tue 16:30-19:10  
Planetary Hall 212

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Office Hours: M 10:00-11:30

## About:

Cybersecurity has become a de facto part of almost everything we do online (and in some cases, things that happen in meat-space as well). Many central aspects of cybersecurity relate either directly to, or through, near adjacencies to the Internet's underlying infrastructure and systems. Consider what enables Distributed Denial of Service (DDoS) attacks: inter-domain routing and numbering? How can nation-states easily (and covertly) eavesdrop on traffic from across the world: inter-domain routing? Why are data breaches becoming so large and so common: lack of deployable object-security frameworks?

In this topics-course we will discuss aspects of Internet research that relate to cybersecurity topics. Cybersecurity is a very broad area that covers both technical engineering and softer subjects, like human-to-human interactions. In this course, we will focus much more on the areas related to the former by examining existing literature in the spheres of academia, standards, operations. This course will likely include aperiodic guest lecturers from industry professionals to offer topical, historical, or in-depth perspectives on material. We will examine what substrates exist, or are evolving, how they are (or are not) positioned to affect the areas of cybersecurity that they relate to, and (in some cases) how they can be extended and overloaded to aid aspects of cybersecurity that their designs may not directly discuss.

*Please note the syllabus is subject to change. Feel free to email [eoster@gmu.edu](mailto:eoster@gmu.edu) for questions*

## Format:

This course will cover a fair amount of literature and be comprised of **student** presentations of papers, and participation in classroom discussions of all material. Students will be expected to present at least two papers (either from the course-approved list or other papers that students request approval from the instructor for, prior to presenting them in class). In addition to presentations students should be prepared to participate in all presentation discussions for participation credit. Sign-up for papers will be first-come/first-serve, and will be done in class.

Each presentation (including Q&A) should take about half of the class. The presenter should include observations made during the reading of the paper, questions for the audience, thought provoking commentary, etc.

Students are expected to be able to follow-up each presentation with a Q&A session in which the audience members will ask questions, offer observations, etc. about the presented paper

and/or the presentation itself. Throughout the course, the exact form of class participation may evolve, so this description serves only as a starting point. To that end, students will be evaluated on criteria such as: were extra papers (beyond the requisite two) presented, how well was the presentation given (were the student's original thoughts presented with the paper's material, or just a summary of the paper, etc.), did the student ask questions of other students' presentations, make observations of other presentations, etc. Conversely, was the student absent/not participating. Suggestion: do all of the assigned reading and prepare some number of observations/questions about all papers to contribute during class.

### **Grading:**

Students will be expected to do the readings, present at least two papers (per above description), attend and participate in class (e.g. to ask questions, make comments, suggest observations, actively participate in discussions, and maybe more, per the above description), attend guest lectures (unless excused in advance by the instructor), and produce a final paper that discusses novel observations of the two papers chosen AND area(s) covered from the student's presentations (i.e. more than just a report of what the papers state, but a 5-10 page paper that looks at the research topic and coverage of related citations/publications/work/etc.).

### **Academic integrity:**

The [University Honor Code \(https://oai.gmu.edu/mason-honor-code/\)](https://oai.gmu.edu/mason-honor-code/) is upheld and supported by the [Office for Academic Integrity \(http://oai.gmu.edu/\)](http://oai.gmu.edu/).

*The integrity of the University community is affected by the individual choices made by each of us. Mason has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited, using MLA or APA format. A simple listing of books or articles is not sufficient. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please see me.*

### **Disability accommodations:**

*Disability Services at George Mason University is committed to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University. If you are seeking accommodations, please visit <http://ds.gmu.edu/> for detailed information about the Disability Services registration process. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: [ods@gmu.edu](mailto:ods@gmu.edu) | Phone: (703) 993-2474*

### **Reading:**

A starting point for the reading list (which may evolve) is available here:

<https://cs.gmu.edu/~eoster/2019-795/2019-spring-795-reading.html>