CSCI 3907/6907.81
ADVANCED SECURITY SEMINAR

Syllabus
CSci 3907/6907.81: Advanced Security Seminar
Spring 2012
3 credits

Website
http://faculty.cs.gwu.edu/~clarkson/courses/csci6907/2012sp/

Course description

This is a graduate-level research seminar on computer security. Students will learn about recent and classic work in computer security, gain experience in navigating the literature in this field, think critically and analytically about existing research, and engage in original research.

The theme for this semester will be the science of security: What is the scientific basis of cybersecurity? How can we build secure systems? What are security policies, attacks, and defenses? How can we relate them? Can we quantify security? Can we compose two secure systems and get a new secure system? Can we experimentally determine the security of systems? Can we quantify privacy? Can we use logic to reason about security? Or cryptography? Can we reason about trust and trustworthiness? Can we establish mathematical foundations for security? What are the fundamental laws of cybersecurity?

This class is most suitable for PhD students and advanced undergraduates. MS students might also find the class suitable if they intend to pursue research (e.g., a PhD) next in their career.

Prerequisites

This course is open to any student who has mastered the material in CSci 6531 Computer Security. Students who have not taken 6531 must receive

permission from the instructor to enroll in 6907.81. To do so, attend the first meeting of 6907.81 and meet with the instructor immediately afterwards.

Class meetings

Monday and Wednesday, 3:45–5:00 pm, Old Main 312.

Attendance is required. You are responsible for knowing everything that is covered during class meetings, including announcements. If you must be absent from a class meeting, make arrangements with another student to find out what you missed.

There will also be a poster session at the end of the semester that you must attend to present your work. Details will be announced soon.

Online Q&A

We will use Piazza for announcements and online discussion. Please post questions on Piazza rather than emailing them to the instructor. Note that you can post public questions (which your classmates will see) or private questions (which only the instructor will see). Find our class's Piazza page at http://www.piazza.com/gwu/spring2012/csci690781. If you have any problems or feedback for the Piazza developers, email team@piazza.com.

You are responsible for being aware of all announcements made in class as well as on Piazza.

Instructor

Prof. Michael Clarkson
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202-994-0718
clarkson@gwu.edu

Office hours: I am easily available by appointment, which you can schedule by email: propose a few days and times that you are available, and tell me in a couple sentences what it is you'd like to discuss. Most afternoons I'm in my office, and I encourage you to drop by even without an appointment. If I'm otherwise engaged, we can at least agree on a time to meet.

Email: Email works well for some kinds of communications, but not so well for others.

- For questions about technical material, in-person communication is much better than email. Drop by or make an appointment to meet with me.
- For questions about the course, Piazza is better than email. Use it.
- For scheduling appointments, email works well.

Textbooks

There are no required textbooks. For the research project, I highly recommend reading the following book, which is on reserve at Gelman Library:

- Wayne Booth, Gregory Colomb, and Joseph Williams. The Craft of Research, third edition. Chicago, University of Chicago Press, 2008.

Assignments

Reading: Each class meeting will be organized around discussion of a topic and some technical papers. Some papers might be identified as "suggested" rather than "required." You are expected to have carefully read the required papers in advance and to participate in the discussion.

Reviews: You are expected to submit a hardcopy of a short review of each required paper at the beginning of each class.

Presentations: At least twice during the semester, you are expected to lead the class meeting by preparing a presentation and leading the discussion. As part of your preparation, you will meet a couple times with the instructor.

Project: The term project is an open-ended research project, done as individuals. You are expected to submit an initial proposal, a midterm survey paper, and a final report. You will present your finished project to the class, as well as at a poster session, and write peer reviews of one another's projects. Class time will frequently be used to update one another on our projects.

Grading

Your final grade will be calculated as follows:

50% Project (5% proposal, 10% midterm survey, 5% survey paper, 5% midterm draft, 20% final report, 5% class presentation, 5% poster session, 5% peer reviews)

30% Presentations

10% Reviews

10% Subjective factors

As a general rule of thumb, an A indicates "impressive", a B is just "adequate", and C indicates "many problems". Your work will primarily be evaluated on its quality, not on quantity nor effort.

Project: Your written project deliverables will be evaluated on technical correctness, presentation, relevance, and novelty. The spoken deliverables will be evaluated on content and delivery. Other students' peer reviews of your project will influence your grade.

Presentations: Each presentation will be evaluated on content and delivery, as well as mastery of material related to the presentation topic. Failing to do your fair share of the presentations will impact your grade.

Reviews: You will receive a grade of either "acceptable" or "needs improvement" for each class meeting. Your lowest two review grades will be dropped.

Subjective factors: These may include attendance, discussion participation, meetings with me, and any means by which you have demonstrated mastery of course content.

Late submissions will not be accepted without my approval at least three days in advance. No late reviews will be accepted.

There will be no difference between the undergraduate and graduate sections of the course.

Academic integrity

Absolute integrity is expected of every GW student in all academic undertakings. You are responsible for knowing and adhering to the GW Code of Academic Integrity. I will prosecute violations aggressively.

You may freely discuss papers with other students, but you may not look at one another's reviews; you must write your reviews yourself. Likewise, you may freely discuss your project with other students, but you must write your survey paper and report yourself.

In your research, you may use any idea from any person, inside or outside the class. (There's no point in reinventing the wheel.) But you must clearly state what you have borrowed and from whom. If you do not provide a citation—that is, you represent other people's work as your own—then you have violated academic integrity.

I may use automated tools to detect plagiarism. You have been warned.

Statements

On disabilities: Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Marvin Center, Suite 242, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to http://gwired.gwu.edu/dss/.

On wellness: If you are experiencing undue personal or academic stress at any time during the semester or need to talk to someone who can help, then contact me, your faculty advisor, or the University Counseling Center at 202-994-5300.