Spring 2013 CS 6930 Advanced Topics in Web Security and Privacy - 3 Credit Hours
Syllabus and Course Policies

Instructor	Chuan Yue
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Course Day & Time	Tuesday, Thursday 07:30pm - 08:45pm 01/22/2013 – 05/17/2013
Lecture Location	Engineering Building (ENGR) Room 101
Office	ENGR Room: 194
Office Hours	Tuesday, Thursday 03:00pm - 04:30pm, or by appointment

COURSE DESCRIPTION

This course will explore a series of important research topics in Web Security and Privacy. The general format of the course includes introductory lectures, paper reading and paper summaries, student presentations and discussions of the selected research papers, and research projects.

COURSE EXPECTATIONS

This course focuses on discussing important research topics related to Web Security and Privacy. When you conduct research in any area, you must understand the background information, have good observations, be able to critically assess others' research, be able to come up good ideas, and be able to convincingly justify your own work. Because this is a research course, we will spend the semester to read and discuss papers on various Web Security and Privacy topics. Every student is expected to **read** the selected papers and **write** short summaries. Each student should **present** two papers and should actively **discuss** the papers presented by others. Each student will **work on** a research project, and will present the research results and write a project report by the end of the semester.

PREREQUISITES

Have the motivation to do high-quality research. Have the basic knowledge in Computer Security and Cryptography. Have a good background in Algorithms, Web Systems, Operating Systems, and Computer Network. Have a good background in Programming.

COURSE MATERIALS

Textbook: no textbook is required
Essential materials: recent and classical research papers in Web security and privacy

EMAIL COMMUNICATION

Students are expected to check their UCCS campus e-mail account on a regular (at least weekly) basis. Students may forward their campus e-mail to a private e-mail account, but are expected to assure the forwarding of messages is working properly.

COURSE SCHEDULE (TENTATIVE)

This course schedule only represents my best estimate. I reserve the right to amend it at any time. The latest version of this schedule and the related materials will be updated online at: http://www.cs.uccs.edu/~cyue/teaching/2013CS6930ReadingList/presentations.htm

Week	Date	Presenter	Topic
1	Tu 01/22	Chuan Yue	Introduction
1	Th 01/24	Chuan Yue	OWASP Top 10
2	Tu 01/29	Chuan Yue	HTTP Cookie Management
2	Th 01/31	Chuan Yue	Phishing Attack
3	Tu 02/05	Chuan Yue	Secure Kiosk Browsing
3	Th 02/07	Chuan Yue	Insecure JavaScript Practices
4	Tu 02/12	Chuan Yue	Password Security
4	Th 02/14	Rui Zhao and Chuan Yue	Password Security
5	Tu 02/19	Self-Study; ***We do not meet in the classroom***	Economics of Information Security
5	Th 02/21		Economics of Information Security
6	Tu 02/26		XSS Attack
6	Th 02/28		CSRF Attack
7	Tu 03/05		Drive-by download Attack
7	Th 03/07		SQL Injection Attack
8	Tu 03/12		Clickjacking
8	Th 03/14		Cascading Style Sheets (CSS) Related Attacks
9	Tu 03/19		Web Privacy
9	Th 03/21		**Project Proposal Presentation**
10	Tu 03/26		Spring Break (No class, no office hour) **Project Proposal Report Due (11:59pm)**
10	Th 03/28		Spring Break (No class, no office hour)
11	Tu 04/02		Web Privacy
11	Th 04/04		JavaScript Security
12	Tu 04/09		Web Browser Security
12	Th 04/11		Web Browser Security
13	Tu 04/16		Browser Extension Security
13	Th 04/18		Web Application Security
14	Tu 04/23		Web Application Security
14	Th 04/25		Web Content Integrity
15	Tu 04/30		Web Content Integrity
15	Th 05/02		Web Advertisements
16	Tu 05/07		Humans
16	Th 05/09		**Final Project Presentation**
17	Tu 05/14		**Final Project Presentation (07:30pm – 10:00pm)**
17	Th 05/16		**Final Project Report Due (11:59pm)**

GRADING POLICY

Final grades are computed using the following weights:

Class Attendance and Participation	15%
Paper Summaries	15%
Paper Presentations	30%
Project	40%

All grades are based on a scale from 0-100 as follows:

93 ≤ {A};	90 ≤ {A-} < 93;	
87 ≤ {B+} < 90;	83 ≤ {B} < 87;	80 ≤ {B-} < 83;
77 ≤ {C+} < 80;	73 ≤ {C} < 77;	70 ≤ {C-} < 73;
67 ≤ {D+} < 70;	60 ≤ {D} < 67;	
60 > {F};		

A linear shift may be applied to **final** grade averages as a one-time scale at the professor's discretion.

CLASS ATTENDANCE AND PARTICIPATION

Your class attendance and participation will be a combination of attendance, discussion, etc. Most every day in class we will have one paper presentation and we will discuss the paper. Class attendance and participation count for 15% of your grade. Even if you have an excused absence from class (we'll work excused absences on a case-by-case basis), you are 100% responsible for all material and announcements covered in class.

PAPER SUMMARIES

Paper summaries (15%): You need to submit a summary of the paper that will be discussed in each class, except for the papers that will be presented by yourself. The point of the summaries is really to ensure that you come to class prepared. Summaries will be due before the class in which the paper is discussed. Each summary should be approximately between 150 and 300 words. You can write longer summaries if you really want to discuss some of your own opinions. **Summaries should be written in your own words**; you cannot directly copy the sentences from the paper! Ideally, each summary should be a critical analysis of a research paper from some perspectives such as threat model, assumptions, techniques, and evaluation; it should not simply be a description of the organization of that paper.

Summaries should be submitted to the Blackboard before the start of each class. You will use the Blog tool on Blackboard to submit summaries. You have your own individual Blog to post your Blog Entries (each summary should be in a new blog entry, with the paper's title as the blog entry's title). All others enrolled in the course are able to and are encouraged to view and add comments to your Blog Entries.

PAPER PRESENTATIONS

Each student will give two paper presentations: one individual presentation and one team presentation. Each paper presentation is about 40~45 minutes. At 45 minutes, the presentation should be finished. Then, we will have Q&A and more discussions. Presentations should be made using a projector. The classroom computer has Microsoft PowerPoint and PDF reader installed. If you use other presentation software, you need to use your own laptop.

The elements of a presentation include a summary of the key points of the paper, background and related work, a critique of the paper, and analysis of the lessons to be gained from the paper. The key to a good presentation is selecting what points to cover, not trying to cover everything. Please feel free to use the paper authors' presentation slides (if you can get them), but you should acknowledge this in your presentation and you should also add some new contents based on your understanding of the paper.

A good guideline for your presentation is to have:

- At least 10 slides on preceding work, technology that existed before the publication of the paper, and other factors that led to the research described in this paper. What is the background of the paper? What issues were going on when it was written? Why was the research done?
- At least 10 slides discussing the important points of the paper. This *is not a summary of the entire paper*.

- At least 3 slides forming a critical analysis of the paper (both good and bad points).
- At least 5 slides discussing following work, the effects of the paper, and where the idea is today. For more current papers, what are the competing ideas? What has happened to the paper since publication? Citeseer or Google Scholar can help with this, but you need to present more than just the number of citations. How has the idea been applied since then? What happened to it? Why did it (or didn't it) win?

These are just guidelines, but your presentation should have this information contained in it. Specifically, you will receive:

- 5 points for describing related/motivated work, beyond what is in the background section of the paper
- 5 points for discussing the *key points* of the paper.
- 5 points for an analysis of the paper, drawn from your own observations and from other people's observations.
- 5 points for a discussion of following work and what happened to the idea, or what the current competing ideas are.

Important notes:
The key issue is to identify the main points of the paper. Remember that people typically don't remember more than a sentence worth of what a paper or presentation is about unless they're in the area. You want to decide what the paper's sound bite is, then two or three points that support the sound bite. *This is not a complete outline of the paper in any way. It may have nothing to do with the section headings used in the paper.*

The presenter should post an electronic copy of the presentation file (e.g., PPT or PDF file) to his or her Blog on Blackboard before the start of the presentation, making it available to others. Failure to do so will result in a one point penalty to your presentation grade.

PROJECT

You will conduct a research project over the course of the semester. At most two students can form a team to perform the same project. You are strongly encouraged to identify a good Web Security and/or Privacy research topic by yourself. If you really cannot identify a good topic by yourself, you can select a topic provided by the instructor. You need to write a 2-page **project proposal report** and a 6-page **final project report**. You should use the Manuscript Templates for IEEE Conference Proceedings (two-column) to write your reports. The content organization of your reports should be similar to those of the conference papers discussed in the class. The originality and quality of your project determine the grade you can earn.

PLAGIARISM & CHEATING

Absolutely no cheating, copying, or plagiarizing on the paper summaries, project, project proposal report, and final project report.

Cheating will result in an AUTOMATIC ZERO (0) for the entire paper summary or project. For further details on academic honesty the student is referred to the University Catalog.

LATE DROP

Dropping of a class after the deadline listed in the UCCS Course Calendar (http://www.uccs.edu/~cic/) is governed by departmental and college policy. The student must show documented evidence supporting reasons for a request to drop a class after the deadline. Each request is considered on an individual basis for determining acceptance.

GETTING HELP

I'll be available during my official office hours and by appointment. If you stop by my office outside my official office hours without an appointment, I may have time to talk with you immediately, but I may also have the right to schedule an appointment with you for a later time. You can always contact me **anytime by e-mail**; I'll reply you as soon as I can.

CAMPUS POLICIES

- UCCS Course Calendar: http://www.uccs.edu/~cic/
- UCCS Student Code of Conduct http://www.uccs.edu/dos/student-conduct.html

DISABILITIES SERVICES

Students with disabilities should turn in their disability verification letters within the first two weeks of class. For further information, contact Disability Services, Main Hall 105, 255-3354. For more information, see the Disability Services page: http://www.uccs.edu/~dservice

MILITARY STUDENTS

If you are a military student with the potential of being called to military service and/or training during the course of the semester, you are encouraged to contact your UCCS course instructor no later than the first week of class to discuss the class attendance policy. Please see the Military Students website for more information: http://www.uccs.edu/~military