USC Computer Science 530 (CSci 530): Security Systems - Fall 2018

Lecture Friday - 9:00 to 11:50 AM, OHE 122
Clifford Neuman

(information on other semesters)

Class Web Page
HTTP://CCSS.USC.EDU/530

Announcements

First Lecture, Friday 24 August 2018, OHE122

Schedule

- First Lecture - Friday 24 August 2018 - 9:00 AM - 11:50 AM.
- Mid-term exam - Friday 5 October 2018 - 9:00AM-10:40 AM
- Final Exam - Monday 10 December 2018 - 11:00 AM to 1:00 PM

Course Materials

- Syllabus and Reading List
- Class lectures
- Pre-mid-term Slides (ppt)

Course Summary

This class will provide students an overview of network and distribtued systems security, its workings, and its role in protecting data and computing resources. The course begins with a discussion of the fundamental problem and tools in protecting a computing system, and proceeds through the various security services that apply to these systems. By the end of the course, at the highest level, students will be able to:

- Discuss the technical, business, societal, and ethical aspects of probems in computer security.
- Describe and assess a broad range of security systems deployed or suggested for solving those problems.
- Understand the fundamental mathematics and engineering underlying security systems.
- Judge the suitability of security systems for particular applications.
- Know how to develop new security systems and features.

Pre-Requisites - The student should have a basic backgournd in computer operating systems and computer networks. This background would have been provided by an undergraduate operating systems and computer networks class at USC or at the students previous college or university. A remedial lecture (online) will be available to fill in for the networking background if needed.

Textbook

- Bishop, Computer Security: Art and Science, Addison-Wesley Professional, 1st Edition. ISBN 0201440997
  (required - it is available from the USC Book Store, or online from many sources.)

Instructors and Assistants

Clifford Neuman
- Office: Information Sciences Institute - 310-448-8736
- Office hours: 12:20-12:50 and 4:30-5:00 on Fridays - Office RTH-512 - or by appointment
- Email: csci530 at usc.edu (to Instructor and TAs)
- Email: bcn at isi.edu (to just instructor)

Yatin Wadhawan (Teaching Assistant)
- Office Hours - Thursday 4PM-6PM (for start of semester in GER 202B)
- Email: csci530 at usc dot edu (to Instructor and Assistant)
- Email: ywadhawa@usc.edu

David Morgan (Lab Instructor)
- Office Hours - TBD
- Email: csci530l at usc dot edu (to Instructor and Assistant)

Assignments

Three Assignments will be assigned plus a research paper. For the three assignments students may receive an automatic extension of 48 hours total that may be applied across the three homework assignments. If you turn in one of your assignments 8 hours late, then you will only have 40 hours remaining in extensions to use on subsequent assignments. I suggest not using the whole 48 hours on the first assignment, because if you have an unforseen scheduling issue arises later in the semester, it will be your problem. Late assignments (beyond any extension) will be assesed 1 full letter penalty per day they are late, and if the topic of an assignment is covered in the lecture following the due date, then the assignment will not be accepted beyond that lecture.

- Assignment #1 - Due 12 September 2018 -->
- Research Paper Proposal - Due 26 September 2018
- Research Paper - Due 30 November 2018
- Weekly Lab assignments

Course Grade Components

The course grade will be based on 3 short homework assignments (15 percent of base grade), several hands on laboratory experiments (high pass, pass, low pass, fail), a midterm exam (25 percent of base grade), a written paper or project (30 percent of base grade), and a final exam (30 percent of base grade).

The final exam is cumulative, meaining it will cover all of course material, although there will be an emphasis on the second half of the course (after the midterm).

The labs are required (you must complete 8 of 10) and your scores figure into a supplimental grade component: cumulative lab scores of high pass or low pass will improve or lower your grade. An introduction to the coming weeks lab will be presented at 4:30 on Friday in OHE 122, and will also be available for vieiwing via the web on DEN. Actual completion of the lab occurs during the following week during times that you will select during the first week of class.

The paper assignment will ask for an 8-12 page paper discussing in detail the implementation and implications of either an existing security system, or one proposed by the student. Other paper topics or projects may be approved by the instructor. The paper or project must constitute work completed for CSci530, although topics may be chosen so that the paper or project forms the basis of future work by the student. Papers or projects are to be the individual work of the student. The tentative due date for the paper will be the last lecture for the class. Paper proposals will be due in late September.

As they are graded and returned, letter grades will be assigned for each component of the course grade. The final course grade will be calculated twice, once as a weighted average of the individual component grades, and then with an extra 10% weight calculated as an "A+" for class participation. Your actual course grade will fall somewhere between these two numbers, depending on your actual participation in class, lab, and in the online discussion forums. It will be to your advantage to make useful contributions to discussion in the online forum, as that is the record of class participation that is most readily reviewed by me at the end of the semester.

Academic Integrity

As an instructor I take academic integrity seriously. Cases of academic misconduct will result in the assignment of a failing grade for the class and referal of the matter to the student conduct office. In each of the past several years I have turned in multiple students for cheating and assigned failing grades. Information on what constitutes academic dishonesty can be found on the CSci530 academic integrity page, and by following links to university resources found on that page.

Other readings

Other readings will be assigned with links to online version provided from the syllabus on this page. Where the online papers are available through the ACM or IEEE digital libraries, you may retrieve them using USC's subscription if you connect from a USC internet address. When accessing these papers from home, you may need to use USC's VPN to obtain a USC Internet address that allows retrieval of the documents. For more information on VPN access visit the USC ITS VPN page.

Course content

- Syllabus and Reading List
- Discussion boards and webcasts of lectures avalable by logging in to DEN
- Links to supplementary readins in the Syllabus.
- Links to lecture sides will be posted by the night before lecture and linked from the Syllabus.

Lab Instruction on Fridays - 4:30 - 5:20 PM
Time for hands on lab activities to be selected
by students in coordination with lab instructor.

Exams from Prior years

The following are copies of the exams from prior years which may be used to help prepare for this years mid-term and final.

- Mid-Term Fall 2003
- Mid-Term Fall 2004
- Mid-Term Fall 2005
- Mid-Term Fall 2006
- Mid-Term Fall 2007
- Mid-Term Fall 2008
- Mid-Term Fall 2009
- Mid-Term Fall 2010
- Mid-Term Fall 2011
- Mid-Term Fall 2012
- Mid-Term Fall 2013
- Mid-Term Fall 2014
- Mid-Term Fall 2015
- Mid-Term Fall 2016
- Final Fall 2003
- Final Fall 2004
- Final Fall 2005
- Final Fall 2006
- Final Fall 2007
- Final Fall 2008
- Final Fall 2009
- Final Fall 2010
- Final Fall 2011
- Final Fall 2012
- Final Fall 2013
- Final Fall 2014
- Final Fall 2015
- Final Fall 2016