CAP 6135: Malware and Software Vulnerability Analysis

Spring 2014

Instructor: Dr. Cliff Zou (HEC 243), 407-823-5015, czou@cs.ucf.edu

Course Time: MoWe 10:30am-11:45am, **ENGR 388**

Office Hour: MoWe 12:00pm-2:00pm

Course Webpage: http://www.cs.ucf.edu/~czou/CAP6135-14/

Prerequisite: Senior standing or graduate student. Knowledge on programming language (preferring C or C++), computer architecture, algorithm, and networking. Knowledge of basic usage of Unix machine.

Description:

This course will provide an introduction to several important aspects about malicious codes and software security, including Internet virus/worm/spam, typical software vulnerabilities (e.g., buffer overflow), software fuzz testing, secure programming, vulnerability prevention techniques, etc. In addition, we will provide representative research papers on software security and malware research for students to read, present and discuss in order to learn the frontier of software security research. Students will have a research-format term project to work on a software security related research topic selected by themselves. During the semester, we will have about three programming projects on topics such as buffer-overflow exploit, fuzz testing, network traffic monitoring, etc.

Textbook: No require textbook. We will use research papers, online resources, and some contents from the following reference books.

1. Building Secure Software: How to Avoid Security Problems the Right Way. by John Viega, Gary McGraw
2. Software Security: Building Security In. by Gary McGraw
3. 19 Deadly Sins of Software Security (Security One-off) by Michael Howard, David LeBlanc, John Viega
4. Hacking: The Art of Exploitation, 2nd Edition by Jon Erickson

Course Teaching Tools:

We will use UCF Tegrity system for video streaming. Tegrity videos can be accessed via a link in Webcourse. Both face-to-face session (0R01) and online session (0V61) students can access the Tegrity lecture video. Each class video will be available in late afternoon after each face-to-face lecture. Webcourse will be used for assignment release and submission.

Grading: +/- grading system will be used (A, A-, B+, B, etc). The tentative weights are:

	Face-to-face students	Online session students
In-class presentation	18%	N/A
In-class participation	6%	N/A
Paper review reports	N/A	24%
Homework	10%	10%
Program projects	36%	36%
Term project	30%	30%