CS 460 (ECE 419) - Security Laboratory

Instructors:

Computer Security Laboratory in the past has been taught by Professor Susan Hinrichs. However, it is currently (Spring 2014) being taught by John Bambanek (a research programmer at UIUC). Much of the teaching is done by TAs.

Prerequisites:

Formally, Computer Security I is listed as a prerequisite, although the course is very doable without Security I. It is recommended to take Security I beforehand, or have some familiarity with security principles.

When to Take It:

The course is typically offered during the Spring semester. Generally, a student that desires to take the security courses takes Security I in the Fall, and doubles up Security Lab and Security II in the Spring. Students that desire to obtain internships in Computer Security should take this course during Spring semester of Sophomore or Junior year.

Class Content:

Security Lab provides the most hands-on, tangible skills in the Computer Security track. There are roughly 7-9 labs throughout the semester. Depending on who is teaching the course, the labs may be due each week or every other week. It has no midterms or final, although it may have up to 3 writing assignments. Additionally, there is a final project that involves securing a virtual business. Typically this means maintaining service availability, defending against attackers and attacking other teams in the class.

Topics covered and lab assignments include:

- OS Security (Windows ACLs, SELinux)
- Network Security (Intrusion Detection, Firewalls, Wireless)
- Web Security (SQL, PHP, Apache)
- Malware Analysis/Reverse Engineering
- Vulnerability Analysis (Metasploit)
- Worm construction

Work:

This is the more involved class of the Security track (CS 461 (Computer Security I), CS 463 (Computer Security II), CS 460 (Security Lab)). As the course progresses, the workload increases. The simpler labs can take as little as 5-10 hours of work, but the more complicated ones can take much longer. Expect to spend at least 15-20 hours on the final project/competition per person. As a lab course, the workload is comparable to EC E 385 (Digital Systems Laboratory).

Life After:

If you really enjoyed this course, consider a career in Cyber Security. The course develops skills for a variety of fields, such as IT, Cyber Security, Malware Analysis, and even Penetration Testing/Red Teaming. The CS department has offered a section of CS 498 as Malware Analysis, which dives deep into topics of Reverse Engineering. Check the Special Topics listing in the CS course catalog for relevant courses.

Consider applying for internships at places such as Raytheon, MIT Lincoln Labs, Sandia National Labs, MITRE and many government agencies (NSA, FBI, DHS). Also, research in this area is highly valued and available for Undergraduate and Graduate Students within the Information Trust Institute at UIUC.