CSC 5290 Cyber Security Practice

Fengwei Zhang

Who Am I?

- Fengwei Zhang
  - Assistant Professor of Computer Science
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- Course Information
  - Course website: http://www.cs.wayne.edu/fengwei/18sp-csc4992/index.html
  - Office Hours: Friday, 01:00PM - 02:30PM

Why Study Security?
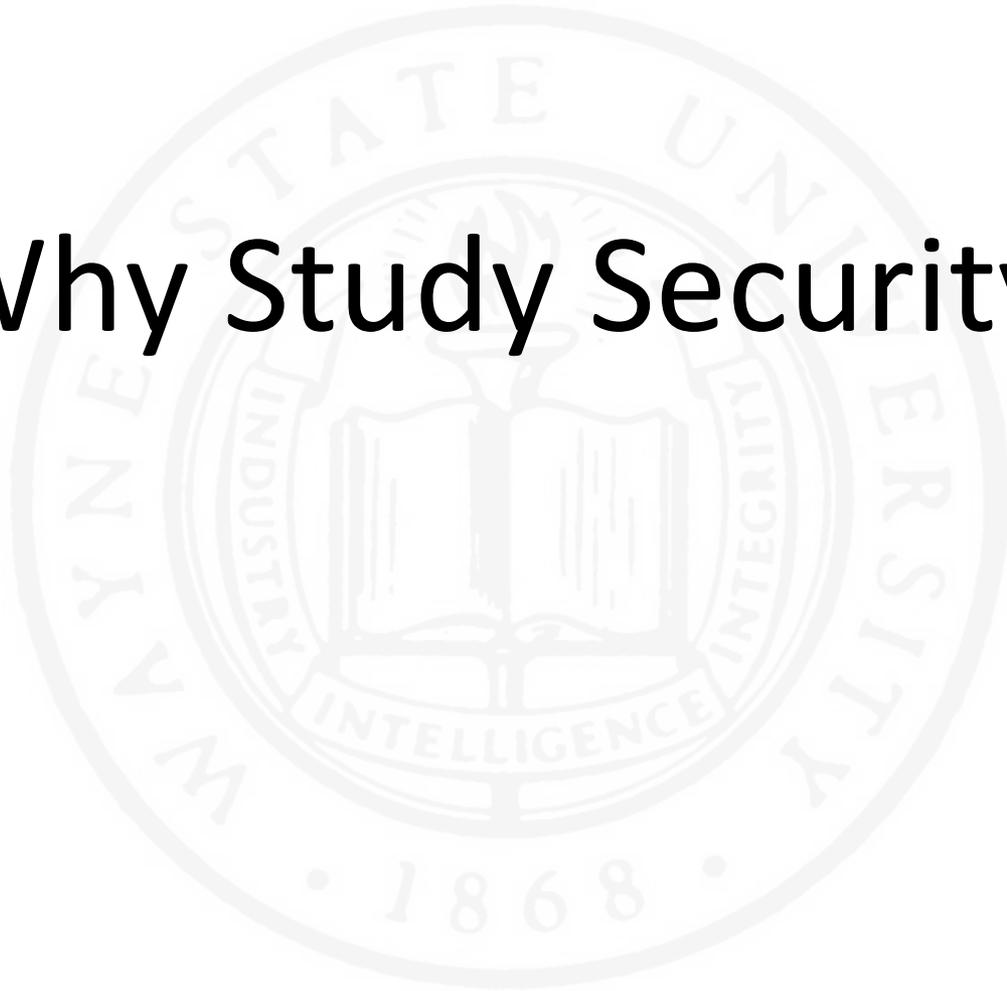
Why Study Security?

It's cool to be a hacker

It's a hot topic and media talk about it

It's useful for finding a job

Course Overview

- Providing hands-on experience in playing with security software and network systems in a live laboratory environment

- Taking both offensive and defense methods to help student explore security tools and attacks in practice

- Focusing on attacks, hacking fundamentals, defenses.

Course Objectives

- Understanding on real-world security vulnerabilities, exploits and defenses

- Having hands-on labs in network and system security experiments

- Learning knowledge of practical security problems and their solutions

Course Labs

- Lab 1: Packet Sniffing and Wireshark
- Lab 2: Buffer Overflow
- Lab 3: Scanning and Reconnaissance
- Lab 4: Metasploit Framework
- Lab 5: Reverse Engineering and Obfuscation
- Lab 6: OS Security for the Internet of Things
- Lab 7: Wireless Exploitation & Defenses
- Lab 8: Firewalls & Intrusion Detection Systems (IDS)

Lab Assignments

- 8 lab assignments
  - Source code
  - Write up PDF
- Submitting via Blackboard with a single Zip file
  - https://canvas.wayne.edu
  - Making sure your file can be unzipped across platforms (Windows, Mac OS X, Linux)

Term Projects

- A research project with 1-2 individuals
  - building a new system
  - improving an existing technique
  - performing a large case study
- Project proposals due on Feb 20
  - a 2-page description
- Project presentations are on April 17 & 19
- Project final reports due on April 19

Course Prerequisites

- CSC 4420 Computer Operating Systems

- Linux/Unix Commands

- Basic computer security concepts

- Basic C, operating systems, and computer networks

Policies on Late Submissions

- Lab and project deadlines will be firm.

- Late homework will be accepted with a 10% reduction in grade for each day they are late by.

- Once a homework assignment is discussed in class, submissions will no longer be accepted.

Grading Policy

Topics	Grade
Class Participation	100
Lab 1: Packet Sniffing and Wireshark	80
Lab 2: Buffer Overflows and Defenses	80
Lab 3: Scanning and Reconnaissance	80
Lab 4: Metasploit Framework	80
Lab 5: Reverse Engineering and Obfuscation	80
Lab 6: OS Security for the Internet of Things	80
Lab 7: Wireless Exploitation & Defenses	80
Lab 8: Firewalls & Intrusion Detection Systems (IDS)	80
Team Project	260
Total	1000

Grading Scale

The grades for the course will be based upon the percentages given below

A	90 - 100%	C	70 - 73%
A-	87 - 89%	C-	67 - 69%
B+	84 - 86%	D+	64 - 66%
B	80 - 83%	D	60 - 63%
B-	77 - 79%	D-	57 - 59%
C+	74 - 76%	F	0 - 56%

Academic Integrity

- Please read the University's Academic Integrity Page
  - http://doso.wayne.edu/academic-integrity.html

- WSU Student Code of Conduct.
  - http://doso.wayne.edu/assets/codeofconduct.pdf

Student Disabilities Services

- If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations.

- The Student Disability Services (SDS) office is located in the Adamany Undergraduate Library. The SDS telephone number is 313-577-1851 or 313-202-4216 (Videophone use only).

Other Resources

- VMware software and Microsoft products through Dreamspark at WSU.
  - Install VMWare on your laptops for home desktops
  - http://apps.eng.wayne.edu/MPStudents/Dreamspark.aspx

- Kali Linux - Penetration Testing Linux Distribution.
  - https://www.kali.org/downloads/

Lab 0

- Make sure you can login as CSC 5290 student on Zero Client
  - Use your WSU access ID and pass
  - Provide you VMs for lab experiments

Lab 0 (cont'd)

- Subscribe course mailing-list csc5290@lists.wayne.edu
  - List Home page (web interface for subscribers to join/leave list, post messages, view archives): http://lists.wayne.edu

- Send an email to the list to introduce yourself by next class

- Send a zipped test.txt file on Backboard by this week

Next Class

- Lab 1: Packet Sniffing and Wireshark
  - Be prepared!