

CSC 4992 Cyber Security Practice

Fengwei Zhang

Who Am I?

- Fengwei Zhang
 - Assistant Professor of Computer Science
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 - Website: <http://fengwei.me>
- 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
 - <http://blackboard.wayne.edu>
- Making sure your file can be unzipped across platforms (Windows, Mac OS X, Linux)

Team Projects

- A research project with 3-5 individuals
 - building a new system
 - improving an existing technique
 - performing a large case study
- Project proposals due on Feb 21
 - a 2-page description
- Project presentations are on April 18 & 20
- Project final reports due on April 20

Course Prerequisites

- CSC 2110 Computer Science I and CSC 2111 Computer Science I Lab
- 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 4992 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
csc4992@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!

