CSC 5991 Cyber Security Practice

Fengwei Zhang
Who Am I?

• Fengwei Zhang
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  – Website: http://fengwei.me

• Course Information
  – Course website: http://www.cs.wayne.edu/fengwei/16sp-csc5991/index.html
  – Office Hours: M, W 12:20PM – 01:20PM
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: Metasploit Framework & Heap Spray
• Lab 4: Malware and Kernel Rootkits
• Lab 5: Scanning and Reconnaissance
• Lab 6: Denial of Service (DOS)
• 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 2-3 individuals
  – building a new system
  – improving an existing technique
  – performing a large case study

• Project proposals due on Feb 24
  – a 2-page description

• Project presentations are on April 20 & 25

• Project final reports due on April 25
Course Prerequisites

• CSC 4290 Introduction to Computer Networking

• CSC4420 Computer Operating Systems

• CSC5270 Computer Systems Security
Policies on Late Submissions

• Lab and project deadlines will be hard.
• 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

<table>
<thead>
<tr>
<th>Topics</th>
<th>Grade</th>
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<tbody>
<tr>
<td>Class Participation</td>
<td>100</td>
</tr>
<tr>
<td>Lab 1: Packet Sniffing and Wireshark</td>
<td>80</td>
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<tr>
<td>Lab 2: Buffer Overflow</td>
<td>80</td>
</tr>
<tr>
<td>Lab 3: Metasploit Framework &amp; Heap Spray</td>
<td>80</td>
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<td>Lab 7: Wireless Exploitation</td>
<td>80</td>
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<tr>
<td>Lab 8: Firewalls &amp; Intrusion Detection Systems (IDS)</td>
<td>80</td>
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<tr>
<td>Team Project</td>
<td>260</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
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Grading Scale

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
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<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 - 100%</td>
<td>C</td>
<td>70 - 73%</td>
</tr>
<tr>
<td>A-</td>
<td>87 - 89%</td>
<td>C-</td>
<td>67 - 69%</td>
</tr>
<tr>
<td>B+</td>
<td>84 - 86%</td>
<td>D+</td>
<td>64 - 66%</td>
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<tr>
<td>B</td>
<td>80 - 83%</td>
<td>D</td>
<td>60 - 63%</td>
</tr>
<tr>
<td>B-</td>
<td>77 - 79%</td>
<td>D-</td>
<td>57 - 59%</td>
</tr>
<tr>
<td>C+</td>
<td>74 - 76%</td>
<td>F</td>
<td>0 - 56%</td>
</tr>
</tbody>
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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

• Kali Linux - Penetration Testing Linux Distribution.
  – https://www.kali.org/downloads/
Lab 0

• Sign the CSC 5991 Cyber Security Practice Class Student Agreement

• Make sure you can login as CSC 5991 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 csc5991-security@lists.wayne.edu
  – List Home page (web interface for subscribers to join/leave list, post messages, view archives): http://lists.wayne.edu/cgi-bin/wa?A0=csc5991-security

• 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!