Cyber Security Lab
COMPSCI-658-002

Instructor: Rafat Elsharef
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Office Hours: TBA
Prerequisite: Jr. St.
Required Textbook:

2. Black Hat Python: Python Programming for Hackers and Pentesters
   1st Edition

Course outline and outcome:

This class will address latest security concerns and weaknesses of different Applications, Systems and Networks using hands-on labs. Students will be using different security tools and techniques including but limited to scanning, capturing, logging, and penetrations testing. In addition to the recommend labs, students are required to present a final project (using a real-world security case) as a team of three and deliver a final report and a poster detailing their findings.
**Topics Covered:**

1. Introduction to Network
2. Introduction to Virtualization
3. Scanning
4. Packet sniffing and spoofing
5. Penetration testing
6. Firewall
7. DNS Attack
8. Wireless Security
9. Mobile devices security
10. SQL injection attack
11. TCP/IP attack
12. Cross-site scripting attack
13. Buffer Overflow
14. Intrusion detection and intrusion prevention (IDS / IPS)
15. Botnet and Honeynet
16. Critical infrastructure security
17. Malware (spyware, ad-ware, etc.) forensics
Grading Policy:

- In-Class Labs and assignments 80%
- Final Project 20%