

Course Outline for CIS*6540 - Advanced Penetration Testing and Exploit Development

Department: School of Computer Science

College: University of Guelph

Campus: Main Campus

Course Name: Advanced Penetration Testing and Exploit Development

Course Code: CIS*6540

Credit Weight: Not specified

Semester Offered: Summer 2024

Calendar Description:

This course involves advanced techniques in penetration testing and exploit development. Students will explore in-depth methodologies to identify, exploit, and mitigate security vulnerabilities in various digital infrastructures. **Prerequisites:** Knowledge in basic cybersecurity concepts and programming skills are recommended.

Detailed Course Description:

The course provides a hands-on approach to learning advanced penetration testing and exploit development, covering the latest tools, techniques, and methodologies used by cyber security professionals to test and secure networks and applications. It includes practical lab sessions and projects that simulate real-world security vulnerabilities and scenarios.

Instructor:

- **Name:** Abbas Yazdinejad
- **Email:** ayazdine@uoguelph.ca
- **Office Hours:** Wednesday 1:00 PM – 2:00 PM
- **Location:** 150 Research Lane

Class Schedule and Location:

- **Lecture:** Wednesdays 9:00 AM – 12:00 PM
- **Location:** 150 Research Lane

Final Examination:

- **Date and Time:** To be announced

Course Content:

1. Introduction to Exploit Development
2. Introduction to Penetration Testing
3. Reconnaissance
4. Vulnerability Scanning
5. Sniffing
6. Exploitation

7. Attacks on authentication
8. Wired and Wireless Networks Exploits
9. Web Exploits
10. Social Engineering

Course Learning Outcomes:

Upon successful completion of this course, students will be able to:

1. Develop a comprehensive penetration testing report identifying and addressing security vulnerabilities.
2. Apply ethical, regulatory, and best practices in penetration testing and exploit development.
3. Collaborate effectively within teams to conduct research and present findings.

Required Texts and Resources:

- **Primary Textbook:** (Specific texts will be announced)
- **Recommended Reading and Resources:** Additional reading materials and resources will be provided during lectures.

Delivery Method: In-person lectures complemented by practical labs and project work.

Weekly Schedule/Syllabus:

The intended weekly schedule will include lectures, hands-on labs, guest lectures, and project work. Specific weekly details will be provided during the first class session and on the course website.

Assessment Information:

- **Quizzes/Class activities:** 10%
- **Hands on Labs Assignments:** 50%
- **Research Project Assignment:** 40%

Detailed Information on Assignments and Exams:

Assignments will involve real-world scenarios requiring students to apply lecture materials and lab experiences. Detailed rubrics will be provided for each assignment. The assignments will test both theoretical knowledge and practical skills.

Institutionally Approved Standard Statements:

Students are encouraged to familiarize themselves with the university's academic integrity and misconduct policies. These can be found on the University of Guelph's official website under the Academic Calendar and Policies section.