

## CSE 481S Security

### Credits

5.0 (3 hrs lecture, 2 hrs+ meeting times)

### Lead Instructor

Yoshi Kohno and Franz Roesner

### Textbook

None

### Course Description

Students work in teams to design and implement a software project involving multiple areas of the CSE curriculum. Emphasis is placed on the development process itself, rather than on the product.

### Prerequisites

CSE 484

### CE Major Status

Selected Elective

### Course Objectives

Student teams will be tasked with creating a computer security themed product. The work will progress from product conception to requirements to design to implementation to evaluation. Along the way, students will incorporate key computer security tools and practices, including threat modeling, penetration testing, and bug fixing. Examples include password managers, censorship resistance systems, and mobile payment systems.

### ABET Outcomes

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics (H)
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors (H)

3. an ability to communicate effectively with a range of audiences (H)
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts (H)
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives (H)
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions (H)
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. (H)

## **Course Topics**

- Ethics
- Threat modeling and risk management
- Software security
- Cryptography
- Web security
- HCI-security
- Network security
- Mobile device security
- Malware
- Advanced topics