
CSE 484 Computer Security

Credits

4.0 (3 hrs lecture, 1 hr section)

Lead Instructor

Tadayoshi Kohno

Textbook

- *Foundations of Security*, Daswani

Course Description

Foundations of modern computer security, including software security, operating system security, network security, applied cryptography, human factors, authentication, anonymity, and web security.

Prerequisites

either CSE 326 or CSE 332; either CSE 351 or CSE 378.

CE Major Status

Selected Elective

Course Objectives

Give students a foundation in modern computer security. A primary goal is to help enable students to think about computer security (i.e., develop the security mindset) so that they can apply that mindset when evaluating new products and new technologies in the future. As part of this mindset, students are taught to consider the ethical issues surrounding computer security (e.g., decisions to / not to patch vulnerabilities, decisions to / not to disclose vulnerabilities, implications with releasing new technologies with unexpected (by consumers) security and privacy properties). Additional goals are to make students conversant in modern cryptography, software security, Web security, HCI-security, network security, mobile device security, and malware.

ABET Outcomes

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multi-disciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) knowledge of contemporary issues

Course Topics

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