XACS215- Mobile Security

Course Syllabus

Course Description

From smartphones to tablets to watches, users are relying more and more on the convenience of mobile technology. Organizations must meet this growing trend with greater security measures to support critical business functions and protect sensitive data on enterprise devices. Mobile architectures, applications, networks and services must all be developed and managed in compliance with the oversight of a strong IT workforce.

This course provides an in-depth technical overview of the security features and limitations of modern mobile operating systems, including the top risks and vulnerabilities, every IT professional needs to know.

Course Topics

- **Module 1 – Course Overview**
  Approximate video length in module: 2 minutes

- **Module 2 - Overview of Mobile App Development and OSes**
  Approximate video length in module: 63 minutes
  Estimated time to complete all exercises in module: 5 minutes

  The following topics will be discussed in this module:
  - Smartphone, tablet, and watch markets
  - Mobile application architectures
  - Threats to mobile applications
  - Permission models and defending against circumvention

- **Module 3 - Android Secure Model and Secure Development**
  Approximate video length in module: 125 minutes
  Estimated time to complete all exercises in module: 5 minutes

  The following topics will be discussed in this module:
  - Android threats and marketplace issues
  - Android security architecture
  - Communication mechanism and information leaks
  - Android app security
  - Web apps and webview

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- **Module 4 - iOS Security Model**
  Approximate video length in module: 164 minutes
  Estimated time to complete all exercises in module: 5 minutes

  The following topics will be discussed in this module:
  - iOS threats and marketplace issues
  - iOS security architecture
  - privacy mechanisms for service through iMessage and iCloud
  - network oversight through Bluetooth and AirDrop
  - Detecting private data leaks

- **Module 5 - Mobile Device Management**
  Approximate video length in module: 33 minutes
  Estimated time to complete all exercises in module: 5 minutes

  The following topics will be discussed in this module:
  - Device and OS management
  - Application management
  - Monitoring and enforcement
  - Trade-offs and limitations

Instructors

Dan Boneh
Professor of Computer Science and of Electrical Engineering, Stanford University

Neil Daswani
Chief Information Security Officer, LifeLock

John Mitchell
Professor of Computer Science and, by courtesy, of Electrical Engineering and of Education, Stanford University

To contact an instructor or the Teaching Team, please email ask-the-professor-acs@lists.stanford.edu.

Course Requirements

Please watch all course videos and complete all course assignments.

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Successful completion of the assignments, final examination and course evaluation are required to complete this course. The link to the "Final Steps" section of the learning platform will unlock after you have completed all of the other course activities.

The exam consists of multiple choice questions and is done online. You may attempt the final examination multiple times. A score of 85% is required to successfully pass the exam. Once you have passed the examination and completed the evaluation, a digital record of completion will be emailed to you.

Course Materials

All course materials are provided within the course learning platform. These include videos, handouts and assignment instructions.

The course learning platform is available for 60 days after the date of enrollment via your my**stanford**connection account.

For more information regarding how to use the course learning platform, watch a quick tutorial video.

Confidentiality

Your communications and personal information are held in strict confidence and will not be shared with others without your express permission in compliance with the U.S. Federal Education Report and Privacy Act (FERPA). The Stanford Center for Professional Development will not sell or market your information to third parties.

Questions

For questions related to course content, please contact ask-the-professor-acs@lists.stanford.edu. Be sure to include your name, the course you are taking and your questions.

For questions relating to course materials, billing, testing and general program information, please contact scpd-acs-mail@stanford.edu or 650-741-1547 from 8:30 am-4:30 pm PT, Monday-Friday.

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