CSE 364: Computer Security

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Course Description

This course is for computer science and engineer students learning computer security for the first time. The course will cover 1) design principles of building systems for security sensitive applications and 2) security practices that analyze the insecurity of a deployed system and patch it against discovered threats.

The course will use two security-sensitive application scenarios for instruction: systems programming and cryptocurrency/blockchains. It will cover the topics listed on the course schedule as follows:

https://docs.google.com/document/d/1h4OoNpa9OWZKrDOH-meegSp8YPwG99l-n-h7V2N19a8/edit?usp=sharing

This is a 3-credit course.

Learning Objectives

Students will be able to 1) understand common threats in the development of applications with operating systems and blockchains, 2) design defense schemes to protect these applications against such threats.

Texts

Lecture slides are required readings.

Optional materials

- Computer & Internet Security, Wenliang Du (3rd or 2nd edition)
    - Desk copy: Bird Library, Carnegie Library
    - Resources: https://www.handsonsecurity.net/resources.htmla
- Hacking: The Art of Exploitation, 2nd Edition: Jon Erickson
- Mastering Ethereum: Smart contract and decentralized applications, Andreas M. Antonopoulos, Gavin Wood [online book]
- Mastering Bitcoin: Programming the Open Blockchain, Andreas Antonopoulos, [online book]

Grading

- Labs: 40% - Presentation: 40% - Exercises: 20%

Policies

- Late submission: 10% off within one day, 40% off within two days, 50% off within three days, 70% off within one week.
- All labs have to be finished individually; no collaboration will be allowed.
- No copy-and-paste is allowed in any circumstances.
- Any questions about grading should be directed to Dr. Tang.
- Notes from SU: https://provost.syr.edu/important-syllabus-reminders/