Lecture 0: Course Logistics

ENGG5105/CSCI5470
Computer and Network Security

Spring 2014

Patrick P. C. Lee

About the Instructor

- Patrick P. C. Lee (http://www.cse.cuhk.edu.hk/~pclee)
  - B. Eng. in Information Eng., CUHK, 2001
  - M. Phil. in Computer Sci. & Eng., CUHK, 2003
  - Ph. D. in Computer Sci., Columbia, 2008
  - Postdoc in Computer Sci., UMass Amherst, 2009
  - Asst. Prof., Computer Sci. & Eng., CUHK, 2009 - now
- Research interests:
  - Applied/systems topics including cloud computing and storage, distributed systems and networks, operating systems, and security/resilience. Focus on system prototyping and implementation.

Course Information

- Course website:
  - http://www.cse.cuhk.edu.hk/engg5105
- TAs
  - LI Yan Kit (Wilson), SHB 118
  - CHAN Chun Wing (Jeremy), SHB 118
  - QIN Chuan, SHB 118
  - XU Min, SHB 118

Course Pre-requisites

- Must have taken courses on introduction to computer networks
- Knowledge you need to know:
  - Data structures
  - Basic networking concepts
  - **C programming in Linux**
    - How to use gcc, Makefile

Course Newsgroup

- Facebook group:
  - http://www.facebook.com/groups/1444164362466768/
- I will make announcements in class, on course website, and Facebook group
- Please post your assignment questions to the Facebook group

Course Materials

- No required textbook
- Reading materials are online or in library
  - Search under “Course reserves”, “CSCI 5470”

- Some recommended books that our notes are heavily based on (reserved in library):
  - C. Kaufman, R. Perlman, Mike Speciner, “Network Security – Private Communication in a Public World”, Prentice Hall, 2nd edition, 2002.
  - W. Stallings, “Cryptography and Network Security – Principles and Practices”, Prentice Hall, 5th edition, 2010.
  - Skoudis and Liston, “Counter Hack Reloaded”, 2006.

Course Materials

- Some research paper readings are required
  - Papers will be posted on course website
- Reading is important!!

Course Assessment

- 3 programming assignments (45%)
  - group assignments of **1-2** people
- 3-hour final exam (55%)
  - computer-based
  - must be individual-based
  - you need to get at least 20 out of 100 in the final in order to pass this course
    - Getting more than 20 out of 100 doesn't mean you must pass the course

Academic Honesty

- In short, don't cheat!
- Don't copy code or solutions from your classmates or third-party sources, and don't let others copy yours.
- Cases will be reported to the school
- Details:
  - CUHK: http://www.cuhk.edu.hk/policy/academichonesty/
  - Faculty of engineering: http://www.cse.cuhk.edu.hk/v5/other/A5_BookletN3.pdf
- Ask me if you are unsure

Course Objectives

- **Goal**: to develop the skillsets and mindsets of designing and implementing secure computer systems and network applications
  - From an attacker's perspective, how to bring down a system?
  - From a defender's perspective, how to protect systems against what attackers can do?

Topics to Cover

- Applied cryptography
  - Protect data information from attacks
- Network security
  - network attacks, DoS attacks, worms, botnets, firewall, intrusion detection
- Web security
  - session hijacking, cross-site attacks, privacy leakage

Topics to Cover

- Computer security
  - Password protected systems, dictionary attacks, buffer overflow, storage security
- Wireless security
  - 802.11 security, smartphone attacks, cellular network attacks
- Hop topics
  - Storage security

Student/Faculty Expectations

- Goal: to enhance teaching and learning qualities

- http://www.erg.cuhk.edu.hk/Student-Faculty-Expectations

Schedule Change

- Make-up class for Week 5
- Final exam date