From Hackers to CEOs: An Introduction to Information Security
ITP 125 (2 Units)

USC Viterbi
School of Engineering

Spring 2013

Objective

Upon completing this course, students will:
- Understand the fundamentals of information security
- Learn the basics of securing a workstation
- Understand basic networking and security technologies
- Understand the relationship between security and management
- Have a motivation t learn and improve their awareness and understanding of computers and security

Concepts

This course is designed to be an introductory course in information and computer security. This course starts with an analysis of threats to information integrity. Students will then get an introduction to security mechanisms and policies. Students will learn how security infrastructure will integrate with the rest of the business and IT infrastructure, through the use of hands-on projects

Prerequisites

None

Instructor	Joseph Greenfield
Contacting the Instructor	joseph.greenfield@usc.edu 213-740-4604
Office Hours	Posted to the ITP website (itp.usc.edu)
Lab Assistants	Posted to the ITP website (itp.usc.edu)
Lecture/ Lab	Monday, 5:00 – 7:50 PM, OHE 406

Required Textbooks

CISSP All-in-One Exam Guide, 5th Edition
Shon Harris
ISBN: 0-07-602178

Website

All course material will be on Blackboard (http://blackboard.usc.edu).

Additional Resources

Think like a computer scientist (Python Resource):
http://openbookproject.net/thinkcs/python/english2e/

Beginners Guide to Python
http://wiki.python.org/moin/BeginnersGuide

Grading

Grading will be based on percentages earned in assignments. Students will have structured labs throughout the semester, to be conducted during the scheduled lab time. In addition, students will have a programming assignment, as well as a midterm and final exam.

The following percentage breakdown will be used in determining the grade for the course.

Lab Assignments	50%
Midterm Exam	15%
Final Exam	25%
Programming Assignment	10%
Total	100%

Grading Scale

The following shows the grading scale to be used to determine the letter grade.

93% and above	A
90% - 92%	A-
87% - 89%	B+
83% - 86%	B
80% - 82%	B-
77% - 79%	C+
73% - 76%	C
70% - 72%	C-
67% - 69%	D+
64% - 66%	D
63% and below	F

Policies

No make-up exams (except for documented medical or family emergencies) will be offered nor will there be any changes made to the Final Exam schedule.

The labs will be posted on Blackboard under the "Assignments" section. Each lab will include instructions, a due date, and a link for electronic submission. Labs must be submitted using this link.

It is your responsibility to submit your assignments on or before the due date. Every 24 hours past the due date will result in a 5% deduction to the graded score. After five days, submissions

will not be accepted and you will receive a 0.

All assignments will be digitally submitted through Blackboard except where specified. Do not email them to the lecturer or lab assistant.

Incomplete and Missing Grades

Excerpts for this section have been taken from the University Grading Handbook, located at http://www.usc.edu/dept/ARR/grades/gradinghandbook/index.html. Please see the link for more details on this and any other grading concerns.

A grade of Missing Grade (MG) "should only be assigned in unique or unusual situations… for those cases in which a student does not complete work for the course before the semester ends. All missing grades must be resolved by the instructor through the Correction of Grade Process. One calendar year is allowed to resolve a MG. If an MG is not resolved [within] one year the grade is changed to [Unofficial Withdrawal] UW and will be calculated into the grade point average a zero grade points.

A grade of Incomplete (IN) "is assigned when work is no completed because of documented illness or other 'emergency' **occurring after the twelfth week** of the semester (or 12th week equivalency for any course scheduled for less than 15 weeks)."

Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. *Scampus,* the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: http://www.usc.edu/dept/publications/SCAMPUS/gov/. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/.

Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to your course instructor (or TA) as early in the semester as possible. DSP is located in STU 301 and is open from 8:30am to 5:00pm, Monday through Friday. Website and contact information for DSP http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html (213) 740-0776 (Phone), (213) 740-6948 (TDD only), (213) 740-8216 (FAX) ability@usc.edu

Emergency Preparedness/Course Continuity in a Crisis

In case of emergency, when travel to campus is difficult, if not impossible, USC executive leadership will announce a digital way for instructors to teach students in their residence halls or homes using a combination of the Blackboard LMS (Learning Management System), teleconferencing, and other technologies. Instructors should be prepared to assign students a "Plan B" project that can be completed 'at a distance.' For additional information about maintaining your classes in an emergency, please access: http://cst.usc.edu/services/emergencyprep.html

Course Title
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Course Outline
Note: Schedule subject to change
Labs will be conducted in conjunction with the topics presented

Week 1 – Introduction, Computer Security, Ethics
- Course Overview
- What is a hacker?
- I'm being hacked!?!
- Hacker methodology
- Ethics and Computer Law

Reading
> Learning with Python, Chapters 1 & 2

Week 2 – Martin Luther King Holiday – NO CLASS

Week 3 – Networking
- OSI 7-Layer model
- Overview of networked systems
- Wireless and wired networking

Reading
> Learning with Python, Chapters 3 & 4

Week 4 – TCP/IP
- Modern Networking
- TCP Ports
- Handshaking

Reading
> Learning with Python, Chapters 5 & 6

Week 5 – Physical Security
- Mechanical Security
- Surveillance Systems

Reading
> Learning with Python, Chapters 7 & 9

Week 6 – President's Day Holiday – NO CLASS

Week 7 – Operating Systems
- Processes

- Multitasking
- Memory management
- OS Architecture
- Client/Server architecture
Reading
    Chapter 24

Week 8 – Hacking & Cryptography
- One-way hashes
- Authentication
- Message digests
- Attacks on hashes
- PKI
Reading
    Chapter 19

Week 9 – Midterm

Week 10 – Threats, Attacks and Exploits
- Basic threat vectors
- Buffer overflows
- SQL injection
- Post-exploit access
Reading
    TBA

Week 11 – Social Engineering
- Introduction to Social Engineering
- Phishing
- Human behavior and psychology
Reading
    Notes and Handouts

Week 12 – Lockdown and Defense
- Workstation security
- Server security
- Database security
- Perimeter defense
Reading
    Handouts

Week 13 – Information Security and Policy Managements
- Infosec policies
- AUPs

- Protecting the organization

Reading
> TBA

Week 14 – Incident Response
- Responding to being hacked
- Introduction to forensics
- Triage and containment

Reading
> TBA

Week 15 – Conclusion
- Final exam review
- Conclusion