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

Spring 2014

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	Jennifer Kassar
Contacting the Instructor	jkassar@usc.edu
Office Hours	9:00-9:30 AM Thursdays
Lab Assistants	Grant Derderian
Lecture/ Lab	Thurdays, 9:30AM-12:30PM, OHE 406

Required Textbooks

CISSP All-in-One Exam Guide, 6th Edition
Shon Harris
ISBN: 0-07-1781749

Code Academy – Python
http://www.codecademy.com/tracks/python

Website

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

Additional Resources

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

How to Think Like a Computer Scientist (Python 3):
http://openbookproject.net/thinkcs/python/english3e/

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.

Additionally, there will be 10 short programming assignments in python. These will be extra credit, worth up to one point each. These assignments are designed to prepare you for the final programming assignment.

Lab Assignments	45%
Class Participation	5%
Midterm Exam	15%
Final Exam	20%
Final Project	15%
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 will be offered nor will there be any changes made to the Final Exam schedule or assignment due dates (except for documented medical or family emergencies).
- It is your responsibility to submit your assignments on or before the due date. **It is not the responsibility of the lab assistant or the instructor.** Do **not** turn in anything to your lab assistant!
- Assignments are due on the date listed in the syllabus at the beginning of class unless otherwise changed by announcement in class or via e-mail. Any assignment turned in late will incur a 25% penalty for the first 24-hour period that it is late, an additional 50% off for the second 24-hour period that it is late, and will not be accepted after 48-hours. All assignments must be turned in either in person to the instructor or via Blackboard. Do not e-mail assignments.
- Grades will be posted on Blackboard and it is your responsibility to ensure that the grades online are accurate and to follow your progress in the class.
- You are expected to be in class, on time, and distraction free. As this class meets once a week and as it is lecture and lab any student who misses more than two classes is in danger of failing the course. Please see me immediately if you have missed that number of class meetings.

News Assignment

To promote class discussion, each student will be required to submit an article for class discussion starting January 23rd. Articles shall be posted with a hyperlink to the article and a one paragraph summary to the class blog at http://uscinfosec.blogspot.com. If you have not used this blog before, please submit your Google user name (which is not your USC e-mail address) to the instructor. Please take care not to duplicate stories that have been submitted that week.

News stories should directly pertain to topics covered in this class.

- Post a link on the blog by 9:30AM before class.
- Please submit a story that is no more than two weeks old.
- If the story is behind a pay-wall or subscription-wall or requires a login, please submit a PDF copy along with the link.
- Be prepared to give a short three-minute summary of the article and any surrounding background details to start the discussion.

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
> Code Academy – 1-3

Week 2 – Networking I
- OSI 7-Layer model
- Overview of networked systems
- Wireless and wired networking

Reading
> Code Academy – 4
> News – Group 1

Week 3 – TCP/IP
- Modern Networking
- TCP Ports
- Handshaking

Reading
> Code Academy – 5
> News – Group 2

Week 4 – Networking II & History of Hacking
- Review of Networking I
- Network Devices
- Security Devices
- Security Topology

Reading
> Code Academy – 6-7
> News – Group 3

Week 5 – Operating Systems
- Processes
- Multitasking
- Memory management
- OS Architecture
- Client/Server architecture

Reading
> Code Academy – 8
> News – Group 1

Week 6 – Guest Lecture (Attendance Mandatory)
- Topics TBA

Reading
> Code Academy – 9-10
> News – Group 2

Week 7 – Hacking, Cryptography & Authentication
- One-way hashes
- Authentication
- Message digests
- Attacks on hashes
- PKI

Reading
> Code Academy – 12
> News – Group 3

Week 8 – Information Gathering
- Google Hacks
- Information Gathering Techniques
- Searching

Reading
> Code Academy – 13
> News – Group 1

Week 9 – Midterm

Week 10 – E-mail & Web Threats
- Basic threat vectors
- Buffer overflows
- SQL injection
- Post-exploit access

Reading
> Code Academy – 14
> News – Group 2

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

Reading
> Code Academy – 15
> News – Group 3

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

Reading
> Code Academy – 19
> News – Group 1

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

Reading
> Code Academy – 20
> News – Group 2

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

Reading
> Code Academy – 21
> News – Group 3

Week 15 – Conclusion
- Conclusion to the Course
- Review for the Final Exam