San José State University
College of Engineering/Computer Engineering Department
CMPE 209, Network Security, Fall 2012

Instructor:	Dr. Xiao Su
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Office Hours:	Tu & Th, 11:00-12:00
Class Days/Time:	Tu. 6:00pm-8:45pm
Classroom:	ENG 331
Prerequisites:	CMPE 206 or EE 281
TA:	

Faculty Web Page and MYSJSU Messaging

You are responsible for regularly checking the following: 1) the messaging system through MySJSU; 2) the class' D2L (Desire2Learn online learning management system) site.

Course Catalog Description

The course covers network security protocols and applications, cryptography algorithms, authentication systems, intrusion detection, network attacks and defenses, system-level security issues, and how to build secure systems.

Program Outcomes

1. Be able to demonstrate an understanding of advanced knowledge of the practice of computer/software engineering, from vision to analysis, design, validation and deployment.
2. Be able to tackle complex engineering problems and tasks, using contemporary engineering principles, methodologies and tools.
3. Be able to demonstrate leadership and the ability to participate in teamwork in an environment with different disciplines of engineering, science and business.
4. Be aware of ethical, economic and environmental implications of their work, as appropriate.

5. Be able to advance successfully in the engineering profession, and sustain a process of life-long learning in engineer or other professional areas.
6. Be able to communicate effectively, in both oral and written forms.

Course Goals and Student Learning Objectives

Upon successful completion of this course, students will be able to:

- Gaining in-depth understanding of tools and common techniques in different network attacking phases and effective defenses against these attacks.
- Gaining in-depth understanding of cryptography algorithms and standards, authentication protocols.
- Capable of proficiently utilizing network monitoring and analysis tools.
- Capable of collecting, classifying, and critically evaluating the design of Internet technologies.
- Capable of working collaboratively and productively in a team environment.

Required Texts/Readings

Textbook

Charlie Kaufman, Radia Perlman, and Mike Speciner, *Network Security: PRIVATE Communications in a PUBLIC World*, Prentice Hall PTR, 2002. ISBN: 0-13-046019-2.

Ed Skoudis, Tom Liston, *Counter Hack Reloaded, A Step-by-Step Guide to Computer Attacks and Effective Defenses*, 2nd edition, Prentice Hall PTR, 2006. ISBN: 0-13-148104-5.

Reference books

John Viega and Gary McGraw, *Building Secure Software,* Addison Wesley, 2002.

Jon Erickson, *Hacking: the Art of Exploitation,* No Starch Press, 2008.

Andrew S. Tanenbaum, *Computer Networks,* 4th edition, Prentice Hall PTR, 2003.

Ross Anderson, *Security Engineering: a Guide to Building Dependable Distributed Systems,* Wiley, 2008

Classroom Protocol

Each student is required to engage in classroom activities, participate in project presentations, submit assignments and reports on time, *and* take exams and tests on time.

UNIX Account

Each student is encouraged to have a UNIX account, which can be applied online through https://unix.engr.sjsu.edu/wiki/doku.php. Each student is required to have his own setup of Linux OS via virtual machine or multiple disk partition.

E-Learning Platform

All course materials, including lecture slides, projects, course assignments, are hosted by San Jose State University's chosen e-learning platform – Desire2Learn. You can go to site: https://sjsu.desire2learn.com/ to log into your account. If you don't know your login information yet, see the resources for students: http://www.sjsu.edu/ecampus/students/

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic calendar web page located at http://www.sjsu.edu/academic_programs/calendars/academic_calendar/. The Late Drop Policy is available at http://www.sjsu.edu/aars/policies/latedrops/policy/**.** Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the Advising Hub at http://www.sjsu.edu/advising/.

Assignments and Grading Policy

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Grading Policy

10% Homework assignments
25% Project presentation and reports
25% Midterm Exam
40% Final Exam

Letter Grade Assignment

A+/A/A-	40%
B+/B/B-	50%
C+/C/C-	5-10%
D or F	up to 2%

Any categories may be changed by +/-5 to 10% at the discretion of the instructor.

Late Penalty

Assignments submitted after the deadline carry 10% deduction every day.

Makeup Exam

NO makeup exams will be given. If you have situations that are out of your control, you need to speak to instructors at least two weeks in advance. Your request WILL NOT be granted if you come back after the scheduled final exam date and request a makeup exam.

University Policies

Academic integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University's Academic Integrity policy, located at http://www.sjsu.edu/senate/S07-2.htm, requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The Student Conduct and Ethical Development website is available at http://www.sa.sjsu.edu/judicial_affairs/index.html.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the Disability Resource Center (DRC) at http://www.drc.sjsu.edu/ to establish a record of their disability.

Department Policies

All non-proctored report (or similar sized) assignments in courses where some of the final grade depends on prose writing will be submitted to turnitin.com.

CMPE 209, Network Security, Sec 1, Fall 2012
Course Schedule

The schedule is tentative and subject to change with fair notice.

Table 1 Course Schedule

Week	Date	Topics
1	8/28	Introduction to Linux setup, DETER testbed, network security
2	9/4	Reconnaissance and network scanning
3	9/11	Gaining access through buffer overflow
4	9/18	Gaining access through network attacks
5	9/25	Maintaining access
6	10/2	Covering tracks and hiding
7	10/9	Midterm exam (close book, close notes)
8	10/16	Introduction to crypto
9	10/23	Secret key crypto
10	10/30	Cipher block modes
11	11/6	Public key crypto
12	11/13	Key distribution center and certificate authority
13	11/20	Authentication protocols
14	11/27	Project presentation
15	12/4	Project presentation
	12/18	Final exam (comprehensive, close-book, close notes), time: 5:15pm-7:30pm