

San José State University
Department of Computer Science
CS 166 / SE 166, Information Security, Section 4, spring, 2017

Course and Contact Information

Instructor: Prakash Atawale

Office Location: DH 282

Telephone:

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Office Hours: Wednesdays: 5:45pm-7.00pm

Class Days/Time: Mondays and Wednesdays 4.30pm to 5.45pm

Classroom: MH 422

Prerequisites: CS 146 (with a grade of "C-" or better) and either CS 47 or CMPE 102 or CMPE 120 (with a grade of "C-" or better), or instructor consent. Ability to code basic Java program is required.

Course Description:

Fundamental information security topics including cryptography, protocols, passwords, access control, software security, and network security. Additional topics selected from multilevel security, biometrics, web security, e-commerce, secure software development, reverse engineering, intrusion detection, and Java Cryptography Architecture.

Course Learning Outcomes:

After completing this course you should be knowledgeable of the major technical security challenges in each of the following four areas: cryptography, access control, protocols, and software.

Course Resources:

Textbook:

Information Security: Principles and Practice, 2nd Edition, Mark Stamp, ISBN-10: 0470626399

Online:

We will be using **Canvas** for everything. Course materials such as slides, notes, homework etc. will be posted to Canvas. This is also the preferred way to communicate.

Computer and software:

Wireless laptop with fully charged battery. Student should have administrator access to the laptop. Fully functioning Java Development Kit must be installed on the laptop.

Other Readings

- Java Cryptography Architecture reference guide. This is the official documentation from Oracle. Information provided here will be useful to complete the coding assignments.
<https://docs.oracle.com/javase/7/docs/technotes/guides/security/crypto/CryptoSpec.html>
- Java tutorial, security trail: <https://docs.oracle.com/javase/tutorial/security/index.html>
- *A Bug Hunter's Diary: A Guided Tour through the Wilds of Software Security*, Tobias Klein, No Starch Press, 2011. Lots of interesting real-world examples of vulnerable code.
- [Software Reverse Engineering \(SRE\)](#) website. This website, which was created by a former master's student, includes lots of good information and detailed exercises with solutions.
- *Security Engineering: A Guide to Building Dependable Distributed Systems*, Ross Anderson, John Wiley & Sons, Inc., 2001, ISBN: 0-471-38922-6; see Ross Anderson's *Security Engineering* website <http://www.cl.cam.ac.uk/~rja14/book.html>, where you can obtain a free (and legal) copy of the 1st edition of the book. This is an excellent book for an overview of security in general, but it is not too focused or technically detailed.
- OWASP Top 10: powerful awareness document for web application security. The OWASP Top Ten represents a broad consensus about what the most critical web application security flaws are.
https://www.owasp.org/index.php/Category:OWASP_Top_Ten_Project
- *Computer Viruses and Malware*, John Aycock, Springer, 2006, ISBN: 0387302360. This book gives a good introduction to research topics related to malware. The book is well-written and surprisingly easy reading, given the technical nature of the material.

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in [University Policy S12-3](#) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

This course requires you to complete tests, coding projects, weekly homework assignments, classroom assignments, quizzes and a final examination.

NOTE that [University policy F69-24](#) at <http://www.sjsu.edu/senate/docs/F69-24.pdf> states that “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.”

Grading Policy

1. Midterm test, 100 points
2. Homework (10): 100 points
3. Quizzes, class participation, and other work as assigned, 50 points.
4. Project: 50 points.
5. Final, 100 points.
6. Semester grade will be computed based on the percentage of the points earned.
7. *No* make-up tests or quizzes will be given and *no* late homework (or other work) will be accepted. Also, in-class work must be completed in the section that you are enrolled in.
8. Nominal Grading Scale:

Percentage	Grade
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92 and above	A
90 - 91	A-
88 - 89	B+
82 - 87	B
80 - 81	B-
78 - 79	C+
72 - 77	C
70 - 71	C-
68 - 69	D+
62 - 67	D
60 - 61	D-
59 and below	F

- **Homework:** Homework is due *typewritten* (include source code, but not executable files) by class starting time on the due date. Each assigned problem requires a solution and an explanation (or work) detailing how you arrived at your solution. Cite any outside sources used to solve a problem. When grading an assignment, I may ask for additional information. A *subset* of the assigned problems will be graded. Exact mechanism for submitting digital content will be communicated at the time homework is assigned.
- **Project:** Your project will dive deep into one of the topics you learn in this class. You are required to create original work related to your chosen information security topic. Coding, preferably using Java, is expected as a component of the project. Points will be based on the completed features, and achieved milestones, design documents, test cases created and other artifacts produced.

Note that “All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades.” See [University Policy F13-1](http://www.sjsu.edu/senate/docs/F13-1.pdf) at <http://www.sjsu.edu/senate/docs/F13-1.pdf> for more details.

Classroom Protocol

I expect every student to be exemplary. Learn, and let others learn. Constructive participation and discussions are allowed.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

CS 166 / Information Security, Section 4, spring 2017, Course Schedule

Schedule is subject to change with fair notice. Notice will be made available in class and via Canvas.

Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines
1		
1	1/30/17	Class information, Introduction.
2	2/1/17	Cryptography
2	2/3/17	Cryptography
3	2/6/17	Cryptography
3	2/8/17	Cryptography
4	2/13/17	Cryptography
4	2/15/17	Cryptography
5	2/20/17	Access control
5	2/22/17	Access control
6	2/27/17	Access control
6	3/1/17	Access control
7	3/6/17	Access control
7	3/8/17	Access control
8	3/13/17	Midterm
8	3/15/17	Protocols
9	3/20/17	Protocols
9	3/22/17	Protocols
10	4/3/17	Protocols
10	4/5/17	Protocols
11	4/10/17	Software
11	4/12/17	Software
12	4/17/17	Software
12	4/19/17	Software
13	4/24/16	Software

Week	Date	Topics, Readings, Assignments, Deadlines
13	4/26/17	Software
14	5/1/17	Project
14	5/3/17	Project
15	5/8/17	Project
15	5/10/17	Project
16	5/15/17	Review, conclusion
Final Exam	5/23/17	MH 422, 2:45pm -5:00pm. The official finals schedule is here: http://info.sjsu.edu/static/catalog/final-exam-schedule-spring.html