

# San Jose State University

## Department of Computer Science

### CS 166, Information Security, Spring 2022

#### Course and Contact information

- **Instructor:** Dr. Paul Sanghera
- **Office Location:** Online Office
- **Canvas:** <https://sjsu.instructure.com/courses/1474048/pages/office-dr-paul-sanghera>
- **Zoom:** Join URL: <https://sjsu.zoom.us/j/88664679542>
  
- **Office Hours:** Tuesdays: 7:15---8:15
- **Telephone:** 408-858-1655
- **Email:** [paul.sanghera@sjsu.edu](mailto:paul.sanghera@sjsu.edu) (preferred)
- **Class Days/Times:** Tuesday and Thursday, 10:30-11:45 am

Class Location: Zoom: Join URL: <https://sjsu.zoom.us/j/88664679542>

- **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.

#### Course Description

This course covers fundamental security topics including cryptography, protocols, passwords, access control, software security, and network security. Additional topics selected from multilevel security, biometrics, tamper-resistant hardware, information warfare, e-commerce, system evaluation and assurance, and intrusion detection are also addressed.

#### Zoom Class Meeting

**Tuesday:** 10:30 --- 11:45 am

**Thursday:** 10:30 --- 11:45 am

#### Course Format

**Technology Intensive:** In-Person, started as Online with Zoom

This course will be taught online. You need Internet connectivity and zoom installed on your a computer to participate in the classroom activities and submit assignments.

#### Installing Zoom

<https://www.youtube.com/watch?v=fVu9BILRkww>

## Learning Outcomes

After completing this course you should be able to know and explain the fundamental concepts, principles, and protocols of information security and understand the major technical security challenges in each of the following four areas: cryptography, access control, protocols, and software.

**Note.** You are responsible for regularly checking with the messaging system through Canvas including [The Course Announcement](#) to learn of any updates, and actions to preform.

## Required Texts/Readings

### Textbook

#### Required:

[Information Security: Principles and Practice](#), 2nd/3rd edition, Mark Stamp, (Wiley, May 2011, ISBN-10: 0470626399, ISBN-13: 978-0470626399).

#### Recommend

Principles of Information Security by Michael E. Whitman, Herbert J. Mattord.

### Other Readings

Other readings will be listed on the class schedule.

## Course Requirements and Assignments

**Purpose** of the assignments is two fold: 1) *test/reinforce* the learning of course material, and 2) *enhance learning* both in scope and understanding.

### Homework Assignments:

Homework assignments will include problems giving you the opportunity in apply ideas and principles you learned to reach solutions. Although all related to what your learned in the course, some may include extra learning and a little bit of search/research; *enhancing learning*.

### Quizzes:

There will be around 10 quizzes aimed at checking your understanding, on the go, about the learned material, including Lectures, Textbook Reading Assignments, and any articles if assigned to read. A quiz will be announced/scheduled a week ahead, and you must be in the online classroom to take the quiz. Missed quizzes **cannot** be made up.

Quiz questions are often deliberately aimed at exposing the holes and weaknesses in your understanding. Due to these holes and weaknesses, some time it may look like you are being tricked or the question the confusing. When it happened to you, it is time to revisit the concepts

or principles involved in the question. This is one way quizzes enhance your learning or understanding.

### **Midterm Exam:**

The midterm exam will take place in the classroom during class time on [March 24](#) during regular class hours.

### **Final Exam:**

The final exam will be comprehensive, i.e. can ask any question from the scope of the entire course.

**Note:** Assignments are due by 11:59 PM Pacific Time on the specified day.

**Late homework assignments will NOT be accepted**

## Grading Information

**This course uses the clear grading criteria as described in this and following section.**

The final grade in the course will be calculated based on the following percentages:

1. Homework Assignments: 30%
2. Quizzes: 20%
3. Midterm: 20%
4. Final Exam: 25%
5. Participation online discussion forum, [CS166 Forum Interact](#): 5%

## Grading Scale

**Nominal grading scale:**

### **Percentage    Grade**

93 and above    A

90 - 92            A-

87 - 89            B+

82 - 86            B

80 - 81	B-
77 - 79	C+
72 - 76	C
70 - 71	C-
67 - 69	D+
62 - 66	D
60 - 61	D-
59 and below	F

## Online Tool Canvas

As a tool, Canvas is an integral of my teaching whether the course is online or in-person. For example, in this course, you will follow the syllabus live on [Canvas](#)==> [Modules](#) as it is being covered; at a given time, the schedule may not exactly match with that of the static schedule presented in the beginning of the course. Other Canvas features used include the following:

1. [Homework Assignments](#) are posted on and submitted to Canvas. [Tests/exams](#) are also posted and taken in Canvas. Your grades show up in Canvas Grade Books.
2. Other than the class lectures, in Zoom or Room, my main method of communication with the class with "[Course Announcement](#)" feature of of Canvas. You don't wanna miss it.
3. [CS166 Forum Interact](#). You will be using this multipurpose Forum to interact mainly with other student in the class, but also with me. This is the Forum where you get most of the help on non-confidential course topics/issues, help other students, interact with other students in professional manners, and contribute to establishing an atmosphere that facilitated learning.

### Note the following:

- 1) If you missed in the class or are still not sure about it, you can ask question or discuss the *relevance of any course content*, in [CS166 Forum Interact](#).
- 2) The *feedback about student work* is provided by various means: 1) course announcements (collective students feedback), 2) Individual feedback as comments in the student's Grade Book, 3) Personal feedback provoked by students' question or quarry using Canvas Inbox, 4) Unprovoked personal feedback initiating from me using Canvas Inbox, if deemed necessary by the instructor.

## Classroom Protocol

- **Keys to success:**
  - Do the readings and assignments, and attend class.
  - Regular attendance is an integral part of the learning process. Please arrive on time for the classes.
  
- **Laptop or desktop with Internet connection is required.** During the online Zoom class, I will be sharing my **PowerPoint Presentation** with the class. You can get more from the lecture by following the pointer on the PowerPoint just like room class presentation, but this time it would be on your computer screen instead of Overhead Projector screen.
- In Many aspects, Zoom class is like Room class; so:
  - Please, reveal your identity, e.g. use video with live you, not your static picture.
  - Be on your laptop (not phone), and at a safe place, not on the run.
- **Cheating** will not be tolerated. Working together is encouraged, but no copying of the answers; use the online discussion forum: **CS166 Forum Interact**
- **Professionalism.** Student must be respectful of the instructor and other students. In the class session, keep your video on.

## Students Help/Assistance

As a part of my teaching philosophy, I am very responsive to questions and comments from students. You will receive the needed responses and reasonable help if you follow your part of the following protocol:

- 1. For personal/confidential topic/issue** such as individual grade, quarries should be made, or information/assistance should be sought by leaving message in Canvas Inbox for me.
- 2. On non-confidential topic/issue**, help could be provided both by me or/and your fellow students. You can post about general course issues/concept and problem solving questions including those from the assignments, if you are stuck, on :

[CS166 Forum Interact: General Concept and Problem Solving](#)

## University Policies

Office of Graduate and Undergraduate Programs maintains university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. You may find all syllabus related university policies and resources information listed on GUP's [Syllabus Information web page \(Links to an external site.\)](#) at <http://www.sjsu.edu/gup/sylla>

## Course Schedule

Please note that the schedule is subject to change with fair notice, which will be posted through [Canvas](#).

Week	Date	Topics
1	Jan 27	Introduction
2	Feb 1	Crypto basics I
2	Feb 3	Crypto basics II
3	Feb 8	Symmetric Key Crypto I
3	Feb 10	Symmetric Key Crypto II
4	Feb 15	Public Key Crypto I
4	Feb 17	Symmetric Key Crypto II
5	Feb 22	Hash Functions
5	Feb 24	Hash Functions & Other topics
6	Mar 1	Authentication I
6	Mar 3	Authentication II
7	Mar 8	Authentication iii

Week	Date	Topics
7	Mar 10	Network security basics I
8	Mar 15	Network security basics II
8	Mar 17	Simple Authentication Protocols I
9	Mar 22	Simple Authentication Protocols II
9	Mar 24	Midterm Exam
10	Mar 29	Spring Break: No class
10	Mar 31	Spring Break: No class
11	Apr 5	Network Basics
11	Apr 7	Network Basics
12	Apr 12	Real-world Security Protocols I
12	Apr 14	Real-world Security Protocols II
13	Apr 19	Real-world Security Protocols III
13	Apr 21	Software Flaws and Malware I

Week	Date	Topics
14	Apr 26	Software Flaws and Malware II
14	Apr 28	Software Flaws and Malware III
15	May 3	Insecurity in Software I
15	May 5	Insecurity in Software II
16	May 10	Other Security Topics I
16	May 12	Other Security Topics II
17	May 16 (Monday)	Last Day of Instructions
Final Exam		5:15 pm-7:30 pm; TBD

**Note:**

[SJSU ACADEMIC YEAR CALENDAR 2021/22](#)



