San José State University
Department of Computer Science
CS166, Information Security, Section 1, Fall, 2021

Course and Contact Information

Instructor:	Fabio Di Troia
Office Location:	MH217
Telephone:	
Email:	fabio.ditroia@sjsu.edu
Office Hours:	TTh, 10:30 – 11:30am
Class Days/Time:	TTh 16:00
Classroom:	HyFlex / DH250
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); Computer Science, Applied and Computational Math, or Software Engineering Majors only; or instructor consent.

Course Format

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on Canvas Leaning Management System course login website at http://sjsu.instructure.com. You are responsible for regularly checking with the messaging system through MySJSU at http://my.sjsu.edu (or other communication system as indicated by the instructor) to learn of any updates.

Course Description

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.

Course Learning Outcomes (CLO)

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.

Required Texts/Readings (Required)

Textbook

Information Security: Principles and Practice, Mark Stamp | ISBN-10: 0470626399, ISBN-13: 978-0470626399

Other Readings

None

Other technology requirements / equipment / material

None

Course Requirements and Assignments (Required)

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.

Homework, Midterm and Final exam are expected for this class. Homework is due on Canvas 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.

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."

Recording Zoom Classes
This course or portions of this course (i.e., lectures, discussions, student presentations) will be recorded for instructional or educational purposes. The recordings will only be shared with students enrolled in the class through Canvas. The recordings will be deleted at the end of the semester. If, however, you would prefer to remain anonymous during these recordings, then please speak with the instructor about possible accommodations (e.g., temporarily turning off identifying information from the Zoom session, including student name and picture, prior to recording). Students are not allowed to record without instructor permission. Students are prohibited from recording class activities (including class lectures, office hours, advising sessions, etc.), distributing class recordings, or posting class recordings. Materials created by the instructor for the course (syllabi, lectures and lecture notes, presentations, etc.) are copyrighted by the instructor. This university policy (S12-7) is in place to protect the privacy of students in the course, as well as to maintain academic integrity through reducing the instances of cheating. Students who record, distribute, or post these materials will be referred to the Student Conduct and Ethical Development office. Unauthorized recording may violate university and state law. It is the responsibility of students that require special accommodations or assistive technology due to a disability to notify the instructor.

Students are required to have an electronic device (laptop, desktop or tablet) with a camera and built-in microphone. SJSU has a free equipment loan program available for students.

Students are responsible for ensuring that they have access to reliable Wi-Fi during tests. If students are unable to have reliable Wi-Fi, they must inform the instructor, as soon as possible or at the latest one week before the test date to determine an alternative. See Learn Anywhere website for current Wi-Fi options on campus.

Zoom Classroom Etiquette

- Mute Your Microphone: To help keep background noise to a minimum, make sure you mute your microphone when you are not speaking.
- Be Mindful of Background Noise and Distractions: Find a quiet place to "attend" class, to the greatest extent possible.
  - Avoid video setups where people may be walking behind you, people talking/making noise, etc.
  - Avoid activities that could create additional noise, such as shuffling papers, listening to music in the background, etc.
- Position Your Camera Properly: Be sure your webcam is in a stable position and focused at eye level.
- Limit Your Distractions/Avoid Multitasking: You can make it easier to focus on the meeting by turning off notifications, closing or minimizing running apps, and putting your smartphone away (unless you are using it to access Zoom).
- Use Appropriate Virtual Backgrounds: If using a virtual background, it should be appropriate and professional and should NOT suggest or include content that is objectively offensive or demeaning.

Final Examination or Evaluation

The final test will be published on Canvas and will be submitted online.

Grading Information

- Homework, 25%
- Midterm 1, 25%
- Midterm 2, 25%
- Final, 25%

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 at http://www.sjsu.edu/senate/docs/F13-1.pdf for more details.

Determination of Grades

Semester grade will be computed as a weighted average of the scores obtained in each of the three categories listed above.
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.

Nominal Grading Scale:

Percentage	Grade
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

Classroom Protocol

- **Cheating** will not be tolerated.
- Student must be respectful of the instructor and other students. For example, No disruptive or annoying talking.
- Turn off cell phones
- Class begins on time
- Valid picture ID required at all times

University Policies (Required)

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 at http://www.sjsu.edu/gup/syllabusinfo/". Make sure to review these policies and resources.

CS166 / Information Security, Fall 2021, Course Schedule

The schedule is subject to change with fair notice communicated via Canvas course page

Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines
1	08/19	Introduction
2	08/24	Crypto: Symmetric Key Crypto – Basic Crypto Algorithms
2	08/26	Crypto: Symmetric Key Crypto – Stream Ciphers
3	08/31	Crypto: Symmetric Key Crypto – Block Ciphers
3	09/02	Crypto: Public Key Crypto – Modular Arithmetic and RSA
4	09/07	Crypto: Public Key Crypto – Diffie-Hellman, Signature
4	09/09	Crypto: Hash and Randomness
5	09/14	Recap
5	09/16	**Midterm 1**
6	09/21	Access Control: Authentication and Authorization
6	09/23	Access Control: Authentication and Authorization
7	09/28	Access Control: Authentication and Authorization
7	09/30	Access Control: Firewall and Intrusion Detection Systems
8	10/05	Protocols: Networking Basics
8	10/07	Protocols: Simple Authentication Protocols
9	10/12	Protocols: Simple Authentication Protocols
9	10/14	Protocols: Simple Authentication Protocols
10	10/19	Recap
10	10/21	**Midterm 2**
11	10/26	Protocols: Real-World Security Protocols
11	10/28	Protocols: Real-World Security Protocols
12	10/02	Protocols: Real-World Security Protocols
12	11/04	Software: Software complexity and Malware
13	11/09	Software: Malware Detection
13	11/11	VETERAN'S DAY – No Lecture
14	11/16	Software: Software Flaws, Buffer Overflow
14	11/18	Software: Software Reverse Engineering, Open/Closed Source software
15	11/23	TBD
15	11/25	THANKSGIVING HOLIDAY
16	11/30	TBD
16	12/02	Recap

Final Exam	12/09	2:45-5:00 PM