CS 175-02 Mobile Device Development Syllabus

San José State University, Spring 2021

Instructor Information

Instructor	Email	Zoom Office Hours
Yan Chen	yan.chen01@sjsu.edu	TR 14:45 – 15:45 or By Appointment

General Information

TR 13:30 – 14:45 @ https://sjsu.zoom.us/j/84683612112

Catalog Description

Mobile Platform APIs including those for networking, touch, graphics, data, location, and camera. Testing and profiling on devices and emulators/simulators.

Prerequisite(s)

CS 47, and knowledge of Java equivalent to that of CS 46A or CS 49J.

Course Format

Online Synchronous Mode: live lectures will be conducted at the set times/days via Zoom. Also, those lecture sessions will be recorded and posted on Canvas (https://sjsu.instructure.com/courses/1422492/). Office hours will also be held via Zoom (https://sjsu.zoom.us/j/87347407637).

Course Materials

There is no required textbook for this course. The most comprehensive and up-to-date information (documentation, guide, examples, etc.) can be found on http://developer.android.com/. All other materials (lecture notes, homework, etc.) will be posted on Canvas. You are responsible for regularly checking the Canvas course page for any updates, including its messaging system.

Software/Equipment

- Laptop/Desktop with internet connection that is capable of checking Canvas course page, submitting homework, and installing/running the required software, etc.
- Android Studio (https://developer.android.com/studio) is the official IDE for developing apps on Android devices. It includes emulators for you to run and test your apps. The latest version also includes a copy of the latest OpenJDK that is officially recommended for Android projects.
- Git (https://git-scm.com/downloads) is a version control system for you to submit your projects. We will use Bitbucket (https://bitbucket.org/) as the remote repository for collecting submissions and sharing the solutions. Please register a Bitbucket account using your school email (@sjsu.edu).
- Microsoft Office (https://portal.office.com/), free for students.
- (Optional) An Android phone may be helpful to have for better mobile application development experience.

Further Readings

- Android Programming: The Big Nerd Ranch Guide 4th Edition, Bill Phillips, Brian Hardy https://www.bignerdranch.com/books/android-programming-the-big-nerd-ranch-guide-4th/
- The Busy Coder's Guide to Android Development (Mark Murphy) https://commonsware.com/Android

Course Learning Outcomes (CLO)

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

- Become familiar with view management and UI layout. The student should understand good principles for UI design in embedded applications and apply those principles to real-world examples.
- Develop mobile applications for android. The student will write applications using the development tools and environment provided by the manufacturer, developing a fundamental understanding of the platform. The student will become familiar with the use of debugging tools and emulators in the development process.
- Gain exposure to peripheral-based development. Modern mobile operating systems allow access to a number of embedded peripherals, such as the accelerometer and GPS. The student will get experience interfacing with these devices by understanding and using manufacturer-supplied APIs.

Course Requirements and Assignments

Mini Projects

There will be 4 mini projects of Android apps throughout the course. Schedule your time well to protect yourself against unexpected problems. Start early so you have time to ask questions if you need helps. You can request late submission at least 24 hours before the deadline using the late pass, which can be obtained from taking optional quizzes (more details are below in the corresponding subsection). Otherwise, no late submission will be accepted.

Final Team Project

There will be a team project (up to 4 people per group) of your choice related to the course. The presentation date will be on final exam date at 12:15 - 14:30 PDT, Thursday, May 20. More details will be given in class.

Absolutely NO late submission for the final project.

Final project is mandatory as University policy S17-1 (http://www.sjsu.edu/senate/docs/S17-1.pdf) states:

> *"Faculty members are required to have a culminating activity for their courses, which can include a final examination, a final research paper or project, a final creative work or performance, a final portfolio of work, or other appropriate assignment."*

(Optional) Exercises

Exercises with detailed step-by-step instructions that are related to the topics discussed in class will be assigned on a per topic basis, locked by passwords that are ONLY given in the lectures. They can be used as templates/starter code for the mini projects. No late submission will be accepted for the exercises.

(Optional) Quizzes

In-class quizzes will be given throughout the course covering the required material discussed. They are 15-minutes quizzes that contain T/F and multiple choices. Open all material and you can discuss it with other students that are in the same breakout room (randomly assigned). Use them as chances of getting to know your classmates. The score will not count towards final grade calculation (except for rounding up your letter grade), but you can obtain 2 late passes at most for mini projects based on your quiz score: 5-day late pass if scored over 90%; 4-day late pass if scored over 80% but below 90%, and so on.

Although exercises and quizzes are optional, they are highly recommended to practice what you learned in class and to enhance your score. University Policy S16-9 (http://www.sjsu.edu/senate/docs/S16-9.pdf) states that:

> *"Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practice. Other course structures will have equivalent workload expectations as described in the syllabus."*

Grading Information

There will be 125 points available, including extra credits from optional exercises/activities, as shown in the following table. More details will be given in class.

	Points	Details
Mini Projects	35.00	Project 1 (5) + Project 2 (5) + Project 3 (10) + Project 4 (15)
Final Project	65.00	Documentation (15) + Quality (25) + Popularity (25)
(Optional) Exercises	18.00	9 exercises total, 2 pts each
(Optional) Others	7.00	Other class activities, more details will be given in class
Total	**125.00**	Mandatory (100) + Optional (25)

Grading scale

Grade	Points	Grade	Points	Grade	Points
A	Above 93.00	**B minus**	80.00 to 82.99	**D plus**	66.00 to 69.99
A minus	90.00 to 92.99	**C plus**	76.00 to 79.99	**D**	63.00 to 65.99
B plus	86.00 to 89.99	**C**	73.00 to 75.99	**D minus**	60.00 to 62.99
B	83.00 to 85,99	**C minus**	70.00 to 72.09	**F**	Below 59.99

- A+ will be given for those who receive over 100.00 AND have participated in at least 2 other class activities. If more than 1% of students meet these criteria, the top 1% of students will be given an A+.
- Grade near the borderlines will be rounded up depending upon your level and quality of class participation.
- The grade might be curved ONLY if the final grades of the class at the end of the semester are not normal.

Class Protocol

- Do NOT share any course material publicly (on Canvas, GitHub, etc.) without permission, including but not limited to lecture notes, lecture videos, passwords, homework/exam solutions, and class meeting links.
- No late homework questions (within 24 hours before due, excluding follow-ups) via email.
- You must be dressed for zoom sessions. You may wear pajamas and sweats if you want but wear a shirt.
- Instances of academic dishonesty will not be tolerated. Your own commitment to learning, as evidenced by your enrollment at San José State University and the University's Academic Integrity Policy (https://www.sjsu.edu/studentconduct/docs/Academic Integrity Policy F15-7.pdf) require you to be honest in all your academic course work. Cheating 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 reduction in final course grade (first incident of cheating will result in one letter grade off; second incident will result in a F for the class) and administrative sanctions by the University.

Important Dates

Date	Description
Jan. 28, Thursday	First Day of instruction (for this class)
Feb. 8, Monday	Last day to drop without a W grade
Feb. 15, Friday	Last day to add classes via MySJSU
Feb. 15, Friday	Last day to submit credit/no-credit option request
Mar. 14, Sunday	Daylight saving time starts (at 2:00 AM Pacific Time)
Apr. 22, Thursday	Last day to late drop/withdraw
May 13, Thursday	Last day of instruction (for this class)
May 16, Sunday	All class activities except for the final due (for this class)
May 20, Thursday	Final project presentation (for this class) 12:15 – 14:30 Pacific Time
May 29, Saturday	Grades viewable on MySJSU

Visit https://www.sjsu.edu/classes/calendar/2020-2021.php for the Academic Calendar.

University Policies

Per University Policy S16-9 available at http://www.sjsu.edu/senate/docs/S16-9.pdf, relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on Syllabus Information web page available at http://www.sjsu.edu/gup/syllabusinfo. Viewing these policies and resources is highly recommended.

Course Schedule

This is a tentative schedule and is subject to change but with fair notice.

Lesson	Date	Topics
0	Thur., Jan. 28	Syllabus
1	Tue., Feb. 2	First Android Program (in-class lab)
2	Thur., Feb. 4	Android Basics
3	Tue., Feb. 9	Android GUI, Layouts (part 1)
4	Thur., Feb. 11	Android GUI, Layouts (part 2)
5	Tue., Feb. 16	Resources
6	Thur., Feb. 18	List Based Views
7	Tue., Feb. 23	Action Bar, Dialogs
8	Thur., Feb. 25	Fragments
9	Tue., Mar. 2	Intents (part 1)
10	Thur., Mar. 4	Intents (part 2)
11	Tue., Mar. 9	Sensor (part 1)
12	Thur., Mar. 11	Sensor (part 2)
13	Tue., Mar. 16	Android Testing, Junit
14	Thur., Mar. 18	Rotation, Localization
15	Tue., Mar. 23	Data Storage
16	Thur., Mar. 25	SQLite, Databases
/	**Tue., Mar. 30**	**Spring Break, no class (enjoy the holiday!)**
/	**Thur., Apr. 1**	**Spring Break, no class (enjoy the holiday!)**
17	Tue., Apr. 6	Location
18	Thur., Apr. 8	Location and Maps
19	Tue., Apr. 13	Content Providers (part 1)
20	Thur., Apr. 15	Content Providers (part 2)
21	Tue., Apr. 20	XML and JSON
22	Thur., Apr. 22	Multithreading (part 1)
23	Tue., Apr. 27	Multithreading (part 2)
24	Thur., Apr. 29	Android Services (part 1)
25	Tue., May 4	Android Services (part 2)
26	Thur., May 5	Android WebKit (part 1)
27	Tue., May 11	Android WebKit (part 2)
28	Thur., May 13	Project Presentation
Presentation	**Thur., May 20**	**12:15 – 14:30 Pacific Time**