

San José State University
Department of Computer Science
Spring 2022
CS 175 – Mobile Device Development

Course and Contact

Information Instructor:	Ramin Moazeni, PhD
Class Hours:	TTh: 7:30PM - 8:45PM
Office Hours:	TTh: 12:00PM – 12:30PM, Over zoom https://sjsu.zoom.us/meeting/register/tZMvfu-gpzqkGtbLECnLzOmpAN-PKuu0KFv
Email:	Ramin.Moazeni@sjsu.edu
Classroom:	Boccardo Business Center 004
Prerequisites:	Knowledge of Java equivalent to that of CS 046A or CS 049J

Course Description

This course introduces the use of SDKs released by Google to facilitate the development of applications for the Android Phone. Android Phones are Linux based and are programmed in Java. The Linux OS is the most powerful and easiest to manage of all operating systems. The Java programming language with its superior GUI development capabilities provides a good platform for Android development. Knowledge of SDKs is certainly an advantage when developing for the Android platform. This course will cover the current Google SDK, Android platform and Java programming features.

For the official catalog description, please visit [the online catalog](http://info.sjsu.edu/web-dbgen/catalog/courses/CS175.html) at <http://info.sjsu.edu/web-dbgen/catalog/courses/CS175.html>

Learning Outcomes

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

- Gain an understanding of the capabilities of several popular mobile operating systems and their development environments. The student will be able to compare and contrast environments, with respect to tools, runtime environments, and supported peripheral devices
- Develop mobile applications for one or more platforms. 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
- 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.
- 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

Text

- The most comprehensive and up-to-date information can be found on <http://developer.android.com/>
- 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 Mechanics

Laptops

You will be required to have a laptop running Windows, Mac OSX, or a version of Linux to all classes and exams. It must be capable of installing and running the course software

An Android phone is not required but helpful to have for better mobile application development experience.

Course Requirements

Exams (50%)

One in-class mid-term (25%) and an in-class final exam (25%). Exams cannot be made up, except for reasons of illness, as certified by a doctor, or documentable extreme emergency.

Programming Assignments (40%)

There will be 5 programming assignments throughout the course. Schedule your time well to protect yourself against unexpected problems. I suggest starting early so you have time to ask questions if you need help. Late work is accepted with a penalty of 10% per day. Late homework is not accepted one work past its due date **All homework is due at 11:59PM** on the due date specified.

Exercises (5%)

Exercises related to the topics covered and is assigned on a per topic basis. They are due within ONE week of the date they are assigned. Late work is accepted with a penalty of 10% per day. Late work is not accepted one work past its due date

Quizzes (5%)

Quizzes will be given throughout the course covering the required material discussed. Generally, once I finish a particular topic, you can expect to have a quiz.

Grading Policy

Your grade for the course is based on the exams, the homework, and quizzes. Grades are calculated by weighting the scores as defined below.

At least	Letter Grade
93	A
90	A-
87	B+
83	B
80	B-
77	C+
73	C
70	C-
67	D+
63	D
60	D-
below 60	F

Individual Work

All homework, exercise and exams must be *your own individual work*. It is OK to have general discussions about the assignments or read other material for inspiration. You may *never* copy anything from anyone **without attribution**. This means if you find code on Stackoverflow or another web site, you need to give the URL where you found the code in a comment at the top of your class so that I can look at it if necessary.

You may copy from the textbook, the labs, or anything we do in class without attribution. For assignments and exams, you may not copy anything from any other student at all, and you may not collaborative produce results in pairs or teams. Your work must be entirely your own.

It is never okay to share your code with other students. If the other person submits your work, both students will receive a 0.

First incident of cheating will result in a 0 on that assignment or exam. Second incident will result in a F for the class.

BSCS Program Outcomes supported by this course:

- (a) An ability to apply knowledge of computing and mathematics to solve problems
- (b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- (c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- (i) An ability to use current techniques, skills, and tools necessary for computing practice
- (j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices
- (k) An ability to apply design and development principles in the construction of software systems of varying complexity

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 175, Mobile Device Development, Tentative Schedule

Week	Lesson	Class Date	Topics	Comments
1	1	27-Jan	Intro	
2	2	01-Feb	Android Basics, Android SDK	
	3	03-Feb	Android Lifecycle, First Android Program	
3	4	08-Feb	Android GUI, Layouts	
	5	10-Feb	Lab – Environment Setup	Exercise 0
4	6	15-Feb	Resources	
	7	17-Feb	List Based Views	
5	8	22-Feb	Action Bar, Dialogs	Exercise 1
	9	24-Feb	Fragments	
6	10	01-March	Intents	Exercise 2
	11	03-March	Intents (Contd)	HW1
7	12	08-March	Sensor	
	13	10-March	Sensor (Contd)	Exercise 3
8	14	15-March	Android Testing, Junit	
	15	17-March	Rotation, Localization, Exam Review	HW2
9		22-March	Midterm Exam	
	16	24-March	Data Storage	
10		29-March	No Class – Spring Recess	
		31-March	No Class – Spring Recess	
11	17	05-April	SQLite Database	Ex 4 – Sensor/File IO
	18	07-April	Location	
12	19	12-April	Location and Maps	Hw3 - Sensor
	20	14-April	Content Providers	
13	21	19-April	Content Providers (Contd)	
	22	21-April	XML and JSON	Ex5 – CP
14	23	26-April	Multithreading	
	24	28-April	Multithreading (Contd)	HW4
15	25	03-May	Android Services	
	26	05-May	Android Services (Contd)	Ex6 – Service
16	27	10-May	Android WebKit	
	28	May-12	Final Review	HW5
17	29	May-19	Final Exam	