

Coding II: Introduction to Programming and App Development

ACAD-276 (4 units)

USC Iovine and
Young Academy
*Arts, Technology and the Business
of Innovation*

Objective

This course is an accelerated introduction to object-oriented programming using the Java programming language. After these foundations and principles are established, the course will apply these concepts to develop mobile applications supporting open-source operating systems such as Android.

Concepts

Programming fundamentals (including variables, control statements, arrays, and object-oriented programming) in Java applications, mobile development, tablet development, user interface design

Prerequisites

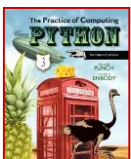
ACAD 275 or equivalent experience

Instructor	Rob Parke
Contacting the Instructor	parke@usc.edu 213.740.4542
Office Hours	OHE 412 – TBD
Lab Assistants	TBD
Contacting the Lab Assistants	TBD
Lecture/Lab	4 hours / week

Required Textbooks



Annuzzi, Jr., Joseph, et. al. Introduction to Android Application Development: Android Essentials (4th Edition). Addison-Wesley Professional, 2013.
ISBN: 0321940261



Savitch, Walter, and Frank M. Carrano. Java: Introduction to Problem Solving and Programming. Pearson Prentice Hall, 2012.
ISBN: 9780132162708

Optional Textbooks

none

Website

All course material will be on Blackboard (<http://blackboard.usc.edu>).

Grading

Participation	10%
Assignments	40%
Midterm	25%
Final Project	25%

Grading Scale

A	100-93	B-	82-80	D+	69-67
A-	92-90	C+	79-77	D	66-65
B+	89-87	C	76-73	F	64 or below
B	86-83	C-	72-70		

Final Project Details

Near the end of the semester, students will individually work on building and deploying a mobile app of their own design. Before beginning work on their project, students must have their proposal approved by the instructor. Working on a project which is not approved is not allowed.

Schedule

- Week 11 – Submit project proposal
- Week 12 – Revise proposal if necessary
- Weeks 13 to 16 – Work on project
- Final exam period – Final presentation (Graded)

Basic Requirements

The final project must be a mobile app (written in Java) that is successfully deployed on an Android device. Successful project will follow the Android style guidelines and UI standards, allow for user interaction, and demonstrate concepts learned during the course. A project must represent the student's sole effort; online tutorials or class examples may be consulted, but they must be improved upon and noted in the final documentation. Failure to note and provided links to any reference material will be considered cheating.

Proposal

Students will be required to submit a proposal prior to beginning work on the project. The necessary components of the proposal will be covered in class.

Documentation

Students will be required to submit documentation along with their project. This should include software comments as well as hardware explanation and schematics.

Grading

The final project is 30% of the overall semester grade, and the breakdown is as such:

Proposal	10%
Project requirements met	60%
Documentation	20%
Presentation	10%

Policies

Students are expected to:

- Attend and participate in lecture discussions and critiques
- Attend and complete weekly assignments
- Manage and complete individual class projects

Students are responsible for completing assignments and projects by stated deadlines. Most assignments will be uploaded to the course's Blackboard site.

Late Work

Assignments and projects will be accepted for full 50% credit for up to one week after the due date; after one week, late work will **not** be accepted. It is the responsibility of the student to contact the grader when posting late projects.

Incomplete and Missing Grades

Excerpts for this section have been taken from the University Grading Handbook, located at <http://www.usc.edu/dept/ARR/grades/gradinghandbook/index.html>. Please see the link for more details on this and any other grading concerns.

A grade of Missing Grade (MG) "should only be assigned in unique or unusual situations... for those cases in which a student does not complete work for the course before the semester ends. All missing grades must be resolved by the instructor through the Correction of Grade Process. One calendar year is allowed to resolve a MG. If an MG is not resolved [within] one year the grade is changed to [Unofficial Withdrawal] UW and will be calculated into the grade point average a zero grade points.

A grade of Incomplete (IN) “is assigned when work is not completed because of documented illness or other ‘emergency’ **occurring after the twelfth week** of the semester (or 12th week equivalency for any course scheduled for less than 15 weeks).”

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

Support Systems

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

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Course Outline

Subject to change throughout the semester

Week 1 – Introduction

- Course overview
- Java syntax review

Reading

Chapters 1-4 (Savitch)

Assignment

- Assignment 0 – Tool setup
- Assignment 1 – Instruction list

Week 2 – Using Data Structures: Arrays, Arrays, HashMap

- Programming with arrays
- Arrays in methods

Reading

Chapter 7 (Savitch)

Assignment

- Assignment 2 – Athletes

Week 3 – Classes

- Class definitions
- Instance variables

Reading

Chapter 5 (Savitch)

Assignment

- Assignment 3 – Superhero (part 1)

Week 4 – Class methods

- Object oriented programming

- Packages
- Method definitions
- Variable scope

Reading

Chapter 5-6 (Savitch)

Assignment

Assignment 4 – Superhero (part 2)

Week 5 – Inheritance

- Superclass or base class
- Subclass or derived class
- Overloading methods

Reading

Chapter 8 (Savitch)

Assignment

Assignment 5 – Athletes

Week 6 – Polymorphism

- Interfaces and abstract cases
- Overloading methods

Reading

Chapter 8 (Savitch)

Assignment

Midterm preparation

Assignment 6 – Vampire (two weeks)

Week 7 – Midterm

Assignment

Assignment 6 – Vampire (continue)

Week 8 – Introduction to Android

- Android Architecture
- Configuring Eclipse

Reading

Chapters 1-2, 4 (Annuzzi)

Assignment

Assignment 7a – Installing and Configuring Android

Assignment 7b – Hello Android

Week 9 – Activities, Manifest, Resources

- Activities
- Activity Lifecycle
- Resources
- Logging
- Toasts
- XML Listeners

Reading

Chapters 4-6 (Annuzzi)

Assignment

Assignment 8 – Basic interaction and layout

Week 10 – UI, Layout, and View

- Layouts
- Views and attributes
- Image views
- Action bar
- WebView
- Menus

Reading

Chapters 7, 17 (Annuzzi)

Assignment

Assignment 9 – Tip calculator (two weeks)

Week 11 – Listeners and Event Handling

- Listeners and inner classes
- Event Handling

Reading

Chapter 7 (Annuzzi)

Assignment

Assignment 9 – Tip calculator (continue)
Project proposal

Week 12 – Intents and Extras

- Activity Stack and Navigation
- Intents + Extras

Reading

Chapters 4-5 (Annuzzi)

Assignment

Assignment 10 – Coffee ordering (two weeks)

Revise project proposal (if necessary)

Week 13 – MVC and Data Persistence

- Software pattern: Model-View-Controlled
- SharedPreferences
- PreferenceActivity

Reading

Chapter 11 (Annuzzi)

Assignment

Assignment 10 – Coffee ordering (continue)
Final project designs / prototype

Week 14 – Lists and Adapters

- Collections
- Lists and adapters
- Singletons
- Image lists

Reading

Chapter 8-9 (Annuzzi)

Assignment

Final project

Week 15 – Publishing Apps

- Google Play store
- Monetizing apps
- Optimizing apps

Reading

Chapter 19 (Annuzzi)

Assignment

Final project

Final Project

Assignment

Final project due at the end of the scheduled final exam time