

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

IDSN 599: iOS Programming with Swift
Units: 2
Spring 2023—Mondays—7:30-9:20pm

Location: Online

Instructor: Douglas Hewitt

Office: online

Office Hours: Wednesdays 7:30pm - 9:30pm

Contact Info: EMAIL: hewittd@usc.edu CELL: 510 495-5329

IT Help: Digital Campus Online Technical Support

Contact Info: 1-833-740-1273,

TechSupport@digitalcampus.2U.com

USC Technology Support Links

[Zoom information for students](#)

[Blackboard help for students](#)

[Software available to USC Campus](#)

Course Description

In this course students will be introduced to fundamental programming concepts using the Swift language and learn how to make apps using the SwiftUI framework. Through this class, students will be able to turn concepts into working MVPs to better pursue entrepreneurial endeavors. In addition students will become aware of common programmings patterns to be able to keep themselves current as technology changes and better collaborate with software engineers.

This class is for anyone, especially designers, who want to see their ideas and mockups come to life as real working applications.

Learning Objectives and Outcomes

By the end of the class students will have gained hands on experience writing code in the Swift language and using the SwiftUI framework to design user interfaces and build applications. Through weekly assignments and a final project students will combine user-centered design and technical know-how to bring ideas to life and develop a working prototype. Furthermore, students will possess a common technical foundation useful to them whether they decide to go deeper into Swift and iOS or pivot to another language or platform.

Prerequisite(s): None

Co-Requisite(s): None

Concurrent Enrollment: None

Recommended Preparation: No prior programming experience is needed. Tech Essentials may be helpful.

Course Notes:

The course is for a letter grade. All labs, assignments, and lecture notes will be posted to the Digital Campus.

USC Technology Rental Program

The university realizes that attending classes online and completing coursework remotely requires access to technology that not all students possess. If you need resources to successfully participate in your classes, such as a laptop or internet hotspot, you may be eligible for the university's equipment rental program. To apply, please submit an [USC Technology Rental Program Application](#) .

Required Hardware and Software

Each student must have a Mac computer of some kind (MacBook, Mac mini, iMac, etc.) running the latest version of macOS (which at the time of this writing is Ventura 13.1).

Their device must support the latest version of Xcode (version 14.2), Swift Playgrounds (version 4.2.1) and Details Pro (version 3.56.2) the instructor will assist with installation as necessary. Typically, if your device has Ventura installed you can run these apps, if any exception is found discuss with the instructor.

Once class begins we will use the latest version available for the entire semester, and students will be encouraged to remain on the same version and only update at the instructor's direction to ensure compatibility with class assignments.

Students will also need to have an Apple ID to register for the free development program with Apple which is required for local development. If students wish, they can pay the \$100 annual fee to Apple for a professional developer account in order to publish to the App Store.

Recommended Hardware and Software

While not strictly required, it is highly recommended students have an iPhone which they can run their applications on. An iPad would also be sufficient, and these devices must be on the latest version of iOS which at this time is 16.2. If no iOS device is available, students will use the simulator which is part of Xcode on the Mac.

If students have an iPad they may wish to use Swift Playgrounds and Details Pro on that device rather than a Mac, this is supported and up to the students discretion. Xcode however, requires a Mac.

Required Readings and Supplementary Materials

The Swift Programming Language [book](#) will be the main source of reading material. Parts of it will be required to read, others will be optional.

Some supplementary articles and videos will be recommended as well as part of each weekly assignment.

Description and Assessment of Assignments

There will be weekly individual assignments to ensure that everyone learns how to code in Swift. The first 5 of these assignments will be conceptual in nature and use interactive guides provided from Apple and the Swift Playgrounds App. The second group of 5 weekly assignments are coding assignments which are more involved. Finally there is a 2-person team project to create an app that can be submitted to the Apple App Store and a brief presentation shared on the last day of class.

Grading Breakdown

Assignments and the final project will be weighted as follows

Assignment	Points	% Grade
Conceptual Assignments (5 total)	200	20%
Programming Assignments (5 total)	400	40%
Final Project	400	40%
TOTAL	1000	100%

Grading Scale

Course final grades will be determined using the following scale

A	95-100
A-	90-94
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

Assignment Submission Policy

Weekly Assignments / Labs: Assignments are to be completed by Sunday 11:59 pm the week they are assigned. Detailed assignment descriptions can be found on Canvas and [Notion](#).

Team Project:

The final project (both the code and the presentation) will be due before class at 7:30PM PST on the final day of class. This will be a team project done in pairs. A detailed description of requirements can be found on Canvas and [Notion](#).

Grading Timeline

It is anticipated that most grading will be completed within one week of the due date.

Late work

Assignments submitted up to 24 hours late will receive a 20% deduction. Assignments between 24 and 48 hours will receive a 50% deduction. Assignments more than 48 hours late will receive a grade of 0.

Any exceptions to this late grading policy must be requested and approved in advance.

Course Schedule: A Weekly Breakdown (more details can be [found here](#))

	Topics/Daily Activities	Assignments Assigned
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Week 1	Introduction to the course, why learn to code? Introduction to Swift	Assignment 1
Week 2	History of Programming Paradigms Introduction to Object Oriented Programming and Swift's type system	Assignment 2
Week 3	History of Swift and Objective-C Programming Concepts 1	Assignment 3
Week 4	Programming Concepts 2 Review	Assignment 4
Week 5	History of UI frameworks Introduction to SwiftUI	Assignment 5
Week 6	SwiftUI 2 Animations	Assignment 6
Week 7	Intro to Xcode Design for iPad and Mac	Assignment 7
Week 8	Concurrency Design patterns and MVVM	Assignment 8
Week 9	Introduction to Details Pro	Assignment 9
Week 10	Introduction to Git	Assignment 10
Week 11	Introduction to Swift Package Manager Setting up teams for final project	Final Project Assigned
Week 12	Publishing to the Apple App Store	
Week 13	Server Side Swift	
Week 14	Work on team projects	

Week 15	Final project team presentations	Final Project Due
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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 Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on [Research and Scholarship Misconduct](#).

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University’s educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call

studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call

Studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086

eetix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298

usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776

osas.usc.edu

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

ombuds.usc.edu

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-3340 or otfp@med.usc.edu

chan.usc.edu/otfp

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.