USC Viterbi

School of Engineering
Information Technology Program

ITP 342
iOS App Development

Units: 4
Fall 2021
Days: Mon, Wed
Times: 6:00-7:50 pm
Location: TBD

Instructor: Bennett Lee
Office: OHE 412
Office Hours: Listed on Blackboard
Contact Info: bennettl@usc.edu

Teaching Assistant: TBD
Office: Listed on Blackboard
Office Hours: Listed on Blackboard
Contact Info: Listed on Blackboard

IT Help: Provided by Viterbi IT
Hours of Service: 8am–5pm M-F
Walk-in: DRB 205
Contact Info: (213) 740-0517
Email: engrhelp@usc.edu

Course Description

This course teaches how to develop applications for iOS mobile devices using the iOS SDK (Software Development Kit) and Apple's Xcode IDE (Integrated Development Environment). Students learn the fundamentals of the Swift programming language and the various frameworks needed to build native mobile apps for iPhone and iPads. Students build various apps from start to finish that follow Apple's Human Interface Guidelines, handle user input, and properly use important software design patterns.

Learning Objectives

- Develop iOS mobile app using Swift
- Design UI for iPhones and iPad screens
- Evaluate and integrate third-party APIs and libraries into mobile app
- Apply principles of effective UI design
- Understand the hardware and software constraints of developing for mobile platforms
- Learn and use the software design patterns needed for mobile app development

Prerequisite(s): ITP 365 or CSCI 104L

Format

This course will make use of Blackboard for content and assignments. Lecture slides and any supplemental course content will be posted to Blackboard for use by all students. Any and all announcements for the course will be posted to Blackboard. All assignments will be posted to Blackboard and will be submitted through Blackboard. **Please familiarize yourself with Blackboard before the course begins**.

Required Readings and Supplementary Materials

Keur, Christian. *iOS Programming: The Big Nerd Ranch Guide (6th edition)* Big Nerd Ranch Guides, 2017.
ISBN: 978-0134682334

Supplementary Books

Apple Education. *Intro to App Development with Swift*. Apple Inc. - Education, 2017. iBooks, https://itunes.apple.com/us/book/intro-to-app-development-with-swift/id1118575552?mt=11

Grading Breakdown

Item	% of Grade
Assignments (weighted proportionally)	50
Exam #1	15
Exam #2	15
Final Project Proposal (in Assignments)	
Final Project (see breakdown below)	20
Total	**100**

Grading Scale

Course final grades will be determined using the following scale

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

Programming Assignments

Programming assignments will generally be due 10-14 days after they are assigned and should be completed individually. App code should be submitted on Blackboard and must compile.

Final Project Details

Schedule
Week 12 – Submit project proposal (worth 10 points and calculated in Assignments)
Week 14 – Revise project proposal if necessary
Weeks 14 to 16 – Work on project
Final exam period – Final project due (Demo to instructor and answer questions)

Basic Requirements
The final project must be a mobile app that is successfully deployed on an iOS device. The concept of the app is determined by the student. The various technical requirements include the use of multiple view controllers, at least one view controller that follows the delegate design pattern, the MVC (Model-View-Controller) design pattern, and an Apple framework not covered by other homework assignments. The proposal should include wireframes of the initial idea / design and a general description of the app.

The final app will be graded on how it fulfills the requirements and the quality / completion of the code. Successful projects will follow Apple's style guidelines and UI standards, allow for user interaction, and demonstrate concepts learned during the course. The final project is taking the place of a final exam. 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 provide links to any reference material will be considered cheating.

Final Project Rubric (20% of overall grade)

Item	Points
Proper use of Swift	5
App icon and other images in assets with multiple resolutions	10
Storyboard and multiple seques	5
Delegation and MVC design patterns used	10
Persistent storage	5
Technology #1: API	15
Technology #2: various options	15
App compiles, runs and is fully implemented	10
User interface: flow, Apple's guidelines	15
Comments in code and project files organized well	10
Total	**100**

Each student will demonstrate their final project app individually to an instructor or teaching assistant. The instructor or teaching assistant will also ask questions of the student regarding the design patterns used, persistent storage, and technologies implemented. This usually takes 7-10 minutes per student. With one instructor and two teaching assistants, 40 students can be graded in two hours. This will be done during the final exam time scheduled for the class or at an agreed-upon time during Week 15 or Finals Week.

General 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. The assignments will be posted on Blackboard under the "Assignments" section. Each assignment will include instructions, a due date, and a link for electronic submission. Assignments must be submitted using this link.

Late Policy

It is the student's responsibility to submit assignments on or before the due date. Assignments turned in one day (24 hours) late will have 10% of the total points deducted from the graded score. Assignments turned in over one day and up to three days (>24 hours and <= 72 hours) late will have 50% of the total points deducted from the graded score. After three days, submissions will not be accepted, and you will receive a 0. Each student will be allowed to submit ONE assignment with no late penalty, but this means you still must submit it within three days (72 hours) of the due date. You must indicate that you are using your free late submission in the comments when you submit the assignment, and this may not be used on the final project.

Grading

Assignments will be graded within two weeks. Students have one week to contest a grade once it has been posted on Blackboard. To contest a grade, create a private post on Piazza with your name, the assignment name, and your reasons. This will allow the grader and instructor to view your submission and make a decision.

Exams

No make-up exams (except for documented medical or family emergencies) will be offered. If you will not be able to attend an exam due to an athletic game or other valid reason, then you must coordinate with the instructor before the exam is given. You may arrange to take the exam before you leave, with an approved university personnel during the time you are gone, or within the week the exam is given. If you do not take an exam, then you will receive a 0 for the exam.

If you need accommodations authorized by DSP (Disability Services and Programs), notify the instructor at least two weeks before the exam. This will allow time for arrangements to be made.

Attendance

Attendance will be taken during lecture sessions electronically using Blackboard. Do not share the code with students that are not in the room; doing so is an academic integrity violation. If you would like to be considered for an excused absence, then create a private note on Piazza and select the absent folder. In the post, include your name, week (1-15), day, date, reason, and documentation.

Attendance is not part of the grading breakdown, although attending lectures will help you learn the material and succeed in this class. If you are not able to attend lectures and be an active learner, then do not take this class. The instructor expects you to pay attention during lectures and refrain from distracting your classmates. Chatting while the instructor is talking, texting on your mobile device, and participating on social media sites during class is disrespectful to the instructor and your classmates.

ITP Computers

ITP has 20 Mac laptops with Xcode that are available to borrow for a week at a time. Visit the ITP office in OHE 412 during the week (Monday - Friday, 8:30 am - 5 pm) to fill out a loan contract and then receive a laptop and power adapter. If all of them have been checked out, then you will be placed on the waiting list. You must return it each week. If there is no one on the waiting list, then the laptop will be renewed to you for another week. If you do not return it after a week, then you will lose the privilege and the laptop will be repossessed.

You will not be able to save your work on the ITP lab computers and the ITP laptops. Once they are restarted, all work will be deleted. Use an external USB drive or a repository like GitHub or Dropbox to save your work. ITP is not responsible for any lost work.

ITP offers Open Lab use for all students enrolled in ITP classes. These open labs are held beginning the second week of classes through the last week of classes. They are listed on the ITP website at http://itp.usc.edu.

Late Add

If a student adds the course after the first meeting, they are responsible for any lectures and work that was missed. If due dates for assignments were missed, then the student will have one week from their registration date to submit the assignments.

If the course is added during the third week of classes, then the student must meet with the instructor to create a plan together on how to catch up to the rest of the class.

Academic Integrity

SCampus is USC's Student Guide to Policies and Conduct Code and can be found at http://scampus.usc.edu. Students will be referred to the Office of Student Judicial Affairs and Community Standards (SJACS) for further review, should there be any suspicion of academic dishonesty. The Review process can be found at http://www.usc.edu/student-affairs/SJACS/.

Assignments and projects in computer programming courses are different from those in some other types of courses. Students may NOT collaborate, work together, share code, or in any way exchange solutions for assignments and projects. All assignments are analyzed by software that looks for similarity. Any sharing of ideas or code will be considered a violation of academic integrity (cheating); an SJACS report will be filed with the recommended penalty of an F in the course. Do not share your code with anyone else in this or a future section of the course, as allowing someone else to copy your code carries the same penalty as you copying the code yourself.

If the instructor, a grader, or a lab assistant suspects you of academic dishonesty, it has to be reported to SJACS. Do not share assignments with another person. Do not submit another person's work as your own. Do not look at other students' papers during exams. Do not leave the room during an exam without permission. Do not cheat! As Trojans, we are faithful, scholarly, skillful, courageous, and ambitious.

Course Material

Do not reproduce, distribute, or post any lecture material, assignments, or exams publicly without the written consent of the instructor. Students may take notes and make copies of course materials for their own use. They may not post the course materials on sites such as CourseHero. Doing so is a copyright violation and an academic integrity violation that will be dealt with accordingly.

Course Schedule: A Weekly Breakdown

	Topics/Daily Activities	Readings	Deliverable/ Due Dates
Week 1	Xcode Interface Components, Icon Images	Ch. 1 (Keur)	HW 0 – Install Xcode by second class meeting
Week 2	Swift Auto Layout	Ch. 2 (Keur)	HW 1 – Profile Due Friday of Week 2
Week 3	User Interaction Outlets and Actions	Ch. 3 (Keur) Ch. 4 (Keur)	HW 2 – Choose
Week 4	View Controllers Alert Controllers	Ch. 5 (Keur)	HW 2 – Choose Due Friday of Week 4
Week 5	Structs and Classes Model and Collections	Ch. 6 (Keur)	HW 3 – Tip Calculator
Week 6	Design Patterns – MVC & Singleton Debugging and Unit Testing	Ch. 9 (Keur)	HW 3 – Tip Calculator Due Friday of Week 6
Week 7	Review Exam #1	Covers Ch. 1-6, 9 (Keur)	Study
Week 8	Closures and Animation Touch Events and Gesture Recognizers	Ch. 8 (Keur) Ch. 18-19 (Keur)	HW 4 - Flashcards
Week 9	Table Views Editing Table Views	Ch. 10 (Keur) Ch. 11-12 (Keur)	HW 4 – Flashcards Due Friday of Week 9
Week 10	Navigation Controller Data Persistence	Ch. 14 (Keur) Ch. 16 (Keur)	HW 5 – Data Persistence
Week 11	Web Services Collection Views	Ch. 20 (Keur) Ch. 21 (Keur)	HW 5 – Data Persistence Due Friday of Week 11
Week 12	Camera and Pickers Memory Management	Ch. 15 (Keur)	Project Proposal Due Friday of Week 12
Week 13	Review Exam #2	Covers Ch. 8-12, 14-16, 18-21 (Keur)	Study
Week 14	Localization Stack Views	Ch. 7 (Keur) Ch. 13 (Keur)	Update Project Proposal if needed Work on Final Project
Week 15	Accessibility Deployment	Ch. 24 (Keur)	Work on Final Project
FINALS			Final Project Due during schedule final exam time as determined by USC

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" https://policy.usc.edu/scampus-part-b/. 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.

Support Systems

Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. https://engemannshc.usc.edu/counseling/

National Suicide Prevention Lifeline - 1-800-273-8255
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. http://www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender-based harm. https://engemannshc.usc.edu/rsvp/

Sexual Assault Resource Center
For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: http://sarc.usc.edu/

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086
Works with faculty, staff, visitors, applicants, and students around issues of protected class. https://equity.usc.edu/

Bias Assessment Response and Support
Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. https://studentaffairs.usc.edu/bias-assessment-response-support/

The Office of Disability Services and Programs
Provides certification for students with disabilities and helps arrange relevant accommodations. http://dsp.usc.edu

Student Support and Advocacy – (213) 821-4710
Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. https://studentaffairs.usc.edu/ssa/

Diversity at USC
Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. https://diversity.usc.edu/

USC Emergency Information
Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, http://emergency.usc.edu

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime.
Provides overall safety to USC community. http://dps.usc.edu