Mobile Application Development
ITP 342 (3 Units)

Fall 2014

Objective
This course teaches how to develop applications for mobile devices such as iPhones and iPads (iOS). We will go through the process of building a mobile application from start to finish using the iOS SDK (Software Development Kit). In lecture sessions, you will learn the basics of the Objective-C programming language, how to design mobile interfaces, how to use the libraries to build applications that have the proper look and feel, how to use table views, how to design and handle user input, and other aspects as time permits. During the lab sessions, students will create applications using the Xcode IDE (Integrated Development Environment).

Concepts
Mobile app development, object-oriented programming, data persistence

Prerequisites
• ITP 365 or CSCI 104
• May be waived for other programming classes such as EE 355

Instructor
Trina Gregory

Contacting the Instructor
trina.gregory@usc.edu

Office Hours
Listed on Blackboard under Contacts

Lab Assistants
Listed on Blackboard under Contacts

Lecture/Lab
2 hours, twice a week, for a total of 4 hours

Required Textbooks

Optional Textbooks

Website
All course material will be on Blackboard (http://blackboard.usc.edu).
Grading
The following percentage breakdown will be used in determining the grade for the course.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>50%</td>
</tr>
<tr>
<td>Midterm</td>
<td>25%</td>
</tr>
<tr>
<td>Final Project</td>
<td>25%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
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Grading Scale
The following shows the grading scale to be used to determine the letter grade.

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

If you are taking the class with a grade of P/NP, you must earn a grade of 70% or higher in order to receive a P.

Policies
No make-up exams (except for documented medical or family emergencies) will be offered. The University determines the Final Exam schedule. No changes can be made to it. The final project is due during the final exam time for this class, and attendance is required.

The labs will be posted on Blackboard under the “Assignments” section. Each lab will include instructions, a due date, and a link for electronic submission. Labs must be submitted using this link. Do not email them to the lecturer or lab assistant. Always keep a backup copy of them.

It is your responsibility to submit your assignments on or before the due date. Assignments turned in one day late will have 10% of the total points deducted from the graded score. Assignments turned in two days late will have 20% of the total points deducted from the graded score. Assignments turned in three days 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.

ITP will have open lab hours starting the second week of the semester. They give you an opportunity to work on assignments or projects. An ITP 342 lab assistant may not be present.
Each time the class meets, a roster will be passed around the room. Please initial by your name for the appropriate week. A tool such as Top Hat Monocle may be used in place of a paper roster. Do not sign in for another student. Doing so is an academic integrity violation.

**Incomplete and Missing Grades**

The University Grading Handbook covers all grading concerns and can be found at: [http://www.usc.edu/dept/ARR/grades/gradinghandbook/index.html](http://www.usc.edu/dept/ARR/grades/gradinghandbook/index.html).

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).”

**Academic Integrity**

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. Scampus is USC’s Student Guide to Policies and Conduct Code and can be found at: [http://scampus.usc.edu](http://scampus.usc.edu). Section 11 contains the Behavior Violating University Standards and Appropriate Sanctions and can be found at: [http://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/](http://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/).

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/](http://www.usc.edu/student-affairs/SJACS/). An academic integrity tutorial can be found at: [http://www.usc.edu/libraries/about/reference/tutorials/academic_integrity/index.php](http://www.usc.edu/libraries/about/reference/tutorials/academic_integrity/index.php).

Examples of behavior violating University standards:

- The submission of material authored by another person but represented as the student’s own work, whether that material is paraphrased or copied in verbatim or near-verbatim form.
- Acquisition of term papers or other assignments from any source and the subsequent presentation of those materials as the student’s own work, or providing term papers or assignments that another student submits as his/her own work.
- Obtaining for oneself or providing for another person a solution to homework, a project or other assignments, or a copy of an exam or exam key without the knowledge and expressed consent of
the instructor.

- Unauthorized collaboration on a project, homework or other assignment. Collaboration between students will be considered unauthorized unless expressly part of the assignment in question or expressly permitted by the instructor.
- Fabrication: Submitting material for lab assignments, class projects or other assignments which is wholly or partially falsified, invented or otherwise does not represent work accomplished or undertaken by the student.
- Forgery, unauthorized alteration or unauthorized use of any university document, records, keys or instruments of identification, or of documents or records related to functions of the university.

If the instructor, a grader, or a lab assistant suspects you of academic dishonesty, it has to be reported to SJACS. Do not share lab assignments with another student. Do not submit another student’s work as your own. Do not look at other students’ papers during exams. Do not leave the room during an exam. Do not cheat! As Trojans, we are faithful, scholarly, skillful, courageous, and ambitious.

**Students with Disabilities**

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to your course instructor (or TA) as early in the semester as possible. If you need accommodations for an exam, the form needs to be given to the instructor at least two weeks before the exam.

DSP is located in STU 301 and is open from 8:30am to 5:00pm, Monday through Friday. Contact info: 213-740-0776 (Phone), 213-740-6948 (TDD only), 213-740-8216 (FAX), ability@usc.edu, http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html.

**Emergency Preparedness/Course Continuity in a Crisis**

In case of emergency, when travel to campus is difficult, if not impossible, USC executive leadership will announce a digital way for instructors to teach students in their residence halls or homes using a combination of the Blackboard LMS (Learning Management System), teleconferencing, and other technologies. Instructors should be prepared to assign students a “Plan B” project that can be completed ‘at a distance.’ Additional information about Campus Safety and Emergency Preparedness can be found at: http://preparedness.usc.edu.
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Course Outline

Week 1 – iOS & Objective-C Fundamentals
- Course overview
- Intro to Xcode (IDE for iOS development)
- Testing apps in the iOS Simulator
- Variables and data types
- Classes and method messaging

Assignment/Lab
First iOS app – “Hello World”

Week 2 – User Interaction
- Connections - IBOutlets and IBActions
- Storyboards and Interface Builder
- Icon images

Assignment/Lab
Lab 1 – Pirate vs Ninja

Week 3 – Properties and User Interface
- Basic user interface components
- Properties
- Primitives

Assignment/Lab
Lab 2 – MadLibs

Week 4 – MVC (Model View Controller)
- Model
- Delegates

Assignment/Lab
Lab 2 – MadLibs

Week 5 – Collections and Gestures
- Collections classes – NSArray, NSDictionary
- Gestures – Tap, Swipe

Assignment/Lab
Lab 3 – iFortunes
Week 6 – Accelerometer and Animation
- Motion Events,
- Accelerometer, Gyroscope
- Animation
Assignment/Lab
  Lab 3 – iFortunes

Week 7 – Text Input and Memory Management
- Delegation
- Segues
- Code Blocks
- Memory Management – MRR & ARC
Assignment/Lab
  Lab 4 – add text input & table view

Week 8 – Tables and Tab Bars
- Table Views
- Tab Bars
- Singletons
Assignment/Lab
  Lab 4 – add tab bar & singleton

Week 9 – Midterm
- More user interface components
- Midterm review
- Midterm

Week 10 – Data Persistence
- User defaults
- File persistence
Assignment/Lab
  Lab 5 – add data persistence

Week 11 – Audio and Notifications
- Audio – play sounds
- Vibration – force device to vibrate
- Notifications
Assignment/Lab
  Lab 5 – add audio

Week 12 – iPad
- Master-detail app
- Split view and popup
- Web View
- Activity Indicator

**Assignment/Lab**
Lab 6 – Websites

**Week 13 – Core Location**
- Core Location
- Location Manager
- Map Kit

**Assignment/Lab**
App Proposal

**Week 14 – Camera and Photo Library**
- Accessing the camera
- Photo library
- Pickers

**Assignment/Lab**
Final Project

**Week 15 – Other Topics**
- Auto Layout and UIKit
- Internationalization and Localization
- APIs and REST
- Deployment

**Assignment/Lab**
Final Project

**Final Project**
- Final project app
- Each student will give a demonstration of their “Final Project” app

**Date, Time, and Place**
Friday, December 12, 2014, 2 – 4 pm, KAP 160

This schedule is subject to change.
All assignments with their requirements and due dates will be posted on Blackboard.