

COMP5970, COMP6970, COMP7976

iPhone Application Development

****All instruction delivered by distance education ****

Instructor

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Objectives

At the conclusion of the course the student will know how to develop applications for iOS using the Swift programming language, for devices such as the Apple iPhone, iPod Touch, and iPad.

Textbooks

1. **Beginning iPhone Development with Swift 4**, by Molly Maskrey, Apress publisher, ISBN-13: 978-1484230718 ISBN-10: 9781484230718. This is not the newest edition of the book. DO NOT GET ANY OTHER EDITION BUT 4th.
2. **The Swift Programming Language**, <https://docs.swift.org/swift-book/>

Equipment/Versions

Getting Access to a Mac

You'll need access to a computer running the macOS (previously called OS X) operating system and the Xcode development environment to do this course. If you already own or are willing to buy a Mac, all you need to do is install Xcode, which is free from the App Store.

If you do not own or have immediate access to a Mac, there are several options, outlined here, <https://learnappmaking.com/develop-ios-apps-on-windows-pc/>. The option that seems viable to me is renting a Mac in the cloud (probably least hassle, but costs a little bit) from <http://macincloud.com>. Due to COVID-19, do not count on using any on-campus Mac labs.

The following two options do not appear to be legal according to the macOS license agreement. No comment.

1. Using VirtualBox and installing macOS on a virtual machine
2. Building a "hackintosh" by installing macOS to run natively in a partition on your Windows machine (not for the faint of heart)

Software

The versions of Xcode and iOS used in edition of the textbook I specified are no longer the newest ones, but the book is well organized, and the applications are much better than in the newest edition. I will mention in videos when the newest version of iOS or Xcode differs from the book. You should install the newest version of Xcode on your Mac – that's what the TA and I have on ours. A new major version of iOS is released nearly once a year, and it takes time to write and publish a book, so any textbook is **inherently** somewhat out of date. I have used this textbook series for every version of Xcode and iOS since the original iPhone, and it did a good job, until the 5th edition (do not get the 5th edition). If you plan on developing iOS apps over the long term, the rapid pace of version changes is a fact of life, and you will have to be conversant with multiple versions. If you have an old version of Xcode say back to version 9.3, we can probably handle it, but we'd rather you submit assignments using the newest version.

Access to an iOS Device (iPhone, iPod Touch, iPad) is NOT required, and as of Xcode 7 you no longer have to be a member of Apple's Developer program to download your apps onto your own devices if you have them. If you want to sell your own apps you'll need to have an Enterprise Apple Developer account. I will add that in general, most semesters, I have someone making money on the App Store before they are finished with the iOS courses. I can't think of another college course than can say anything like that in terms of converting knowledge into cash.

Note on Format of Class

This class will be delivered 100% online, with videos uploaded to Canvas. All class announcements will be made by email or through Canvas. You will be responsible for taking the time at your convenience to view the recorded lectures. Tests (including final exam) and projects will be submitted online through Canvas.

Grades

Your grade will be computed as follows

1. Midterm exam: one worth 17%
2. iOS programs: 3 assignments worth 13% each (39% total)
3. Final project : 21%
4. Final exam: 23%

Tentative Schedule (the semester is 10 weeks, so roughly 1 module/week)

Module 1: Introduction, iOS "Hello, world", Mobile phone software market, lightweight software processes, model-view-controller paradigm,

Module 2: outlets and actions, application delegates, **program 1 due**

Module 3: Swift: compare/contrast to C++, Objective C and Java

Module 4: More user interface features

Module 5: size classes, rotation , adaptive layout **program 2 due, midterm exam**

Module 6: multi-view applications

Module 7: Tab views and pickers, **program 3 due**

Module 8: table views and navigation controllers, **project proposal due**

Module 9: preferences and defaults

Module 10: persistent storage **final project due, FINAL EXAM**

Academic Integrity

All tests, homework assignments, and especially programming assignments are expected to be exclusively the work of the one student submitting the assignment. Now, let me say that again, in different language. Do not give anyone a line of your code. Do not copy a single line of code from any other student, or any web site, or any previous student. If you do, it is cheating. You could fail the course or suffer other penalties. If you have any doubt about whether what you are doing is ethical, ask me -- I won't penalize anyone for asking, or for following my advice. Be aware I sometimes use a program that compares all student programs for algorithmic (not textual) similarity.

Special Accommodations

Students who need special accommodations should make an appointment to discuss your needs during office hours as soon as possible. If you do not have an Accommodation Memo, but need special accommodations, contact the appropriate university office.