

CompSci 402: Mobile App Development - Spring 2020



Course Description

A project-intensive course on mobile development using iOS as a platform. Overview of mobile platforms and their characteristics, mobile interface design and best practices using such technologies as GPS, camera, persistence, notifications and others. Software used for course assignments requires a Mac so students must have their own.

PREREQS: COMPSCI 321

Objectives

1. Become proficient in the major technologies and paradigms of mobile application development using iOS.
2. Develop experience creating real world mobile applications.

Requirements

The following items are required for this class:

- Intel-based Mac
- [Xcode](#)
- [Github Account](#)

Recommendations

The following items are not required but will help in developing mobile applications

- An iOS device (iPad, iPhone or iPod Touch)
- iOS developer account

Schedule

| Date | Description | Assignment Due | Resources |
|---------|--|-----------------------|-----------------------------------|
| Aug 25 | Introduction to iOS Xcode 10 Overview, Git | | |
| Aug 27 | Introduction to Cocoa Touch, iOS devices, device capabilities, OS versions and differences. | | |
| Sept 1 | Intro to Swift . Views and View Controllers (classes, variables, properties, ARC, class vs instance methods) | | Chapter 1 |
| Sept 3 | Swift Advanced, View Controllers and UIKit | | |
| Sept 8 | Layout Constraints, UIKit, Optionals | | |
| Sept 10 | Optionals, classes, communication between view controllers, debugging | Homework 1 Due | EA Tutorial |
| Sept 15 | Collections, planning an app, prototyping apps | | Collections |
| Sept 17 | Workspaces and CocoaPods, the business of the App Store | | |
| Sept 22 | Data persistence (Plists, JSON, User Defaults) | | SwiftUI Tutorials |
| Sept 24 | Web Services (ReST, JSON, APIs), Notification Center | | |
| Sept 29 | TableViewController, Delegates, Data Sources | | Recorded |
| Oct 1 | Camera, UIAlertController and Maps | Homework 2 Due | |
| Oct 6 | Maps and location (GPS) | | |

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|--------|--|--------------------------|-----------------------------|
| Oct 8 | Core Data | | EA Tutorial |
| Oct 13 | Core Data | | |
| Oct 15 | Core Data Review App | | Core Data |
| Oct 20 | WebViews | | |
| Oct 22 | Backends for Supporting Mobile Apps (attendance optional) | Homework 3 due | |
| Oct 27 | Building large apps, design patterns and software architecture | | |
| Oct 29 | Mobile App Development Professionally (optional) | Project 1 due | |
| Nov 3 | Releasing Apps to the Store | | |
| Nov 5 | Intro to Android development with Kotlin (attendance optional) | | Locations |
| Nov 10 | App from Scratch | | |
| Nov 12 | App from Scratch | | |
| Nov 17 | Game Dev on Mobile (optional) | Project 2 due | |
| Nov 19 | Game Dev on Mobile (optional) | | |
| Nov 24 | Thanksgiving Break | | |
| Nov 26 | Thanksgiving Break | | |
| Dec 1 | App from Scratch | | |
| Dec 3 | TBD | | |
| Dec 8 | TBD | | |
| Dec 10 | Workshop - Attendance optional | | |
| Dec 13 | | Final Project Due | |

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| Homework | 50% |
| Projects | 25% |
| Final Project | 25% |

Course Requirements

- Completing all requirements will yield a grade of 80%. Going above and beyond, adding features not taught in class, being creative, adding additional items to the requirements can yield the remaining 20% or more.
- Attendance is required. Email me prior to absence to get a link to the recorded course.
- Project source code must be in your GitHub repository and shared with BSUMobileDev (MichaelZiray@BoiseState.edu)
- Repositories should be named as such:[LastName]-20XX-Fall
- The assignment must be able to be built in Xcode. I will pull your code from Git, open and build it in Xcode. Failure to run or compile could result in a grade of zero.
- Your app must work and appear appropriately on any iPhone Simulator.
- Your app must work in different orientations for both phone and tablet. This means if you rotate the device to landscape that your interface displays in landscape mode (or locks portrait).
- Each assignment requires a git tag or comment your commit to show me it's your final commit
- You will be graded on:
 - If your app compiles properly straight from Git
 - If your app looks and feels like a proper iOS app (ask if you have questions about this)
 - Rotation works
 - If your app functions on both iPhone and iPad sized iOS devices
 - Each assignment will have a grading rubric it will be graded against
- Code quality. It should be obvious to me what your code does. If there's a variable or method name that is confusing, points will be taken off. Your code should be self documenting but feel free to add comments if needed.

Discord

<https://discord.gg/qHnsmKG>

Github

<https://github.com/ElectronicArmory/2020-iOS-Development>

Student Well-being:

If you are struggling for any reason (COVID, relationship, family, or life's stresses) and believe these

may impact your performance in the course, I encourage you to contact the Dean of Students at (208) 426-1527 or email deanofstudents@boisestate.edu for support. Additionally, if you are

comfortable doing so, please reach out to me and I will provide any resources or accommodations

that I can. If you notice a significant change in your mood, sleep, feelings of hopelessness or a lack of self worth, consider connecting immediately with Counseling Services (1529 Belmont Street, Norco Building) at (208) 426-1459 or email healthservices@boisestate.edu.