

CS 4153: Mobile Applications Development

Required Course: Elective

Course Number: CS 4153

Course Name: Mobile Applications Development

Credit Hours: 3

Lecture Hours: 3

Lab Hours: 0

Instructors: Dr. Blayne E. Mayfield

Book Title(s): *iOS Programming: The Big Nerd Ranch Guide*, 5th edition

Book Author(s): Keur

Book Title(s): *Android Programming: The Big Nerd Ranch Guide*, 2nd edition

Book Author(s): Phillips

Course Description: The history of mobile apps and their implication on computing in general. Survey of the various platforms and approaches used for mobile apps. Examine the differences between "conventional" programs and mobile apps. Learn tools and techniques to develop mobile apps and demonstrate proficiency through development assignments.

Course Prerequisites: CS 2133 (Computer Science II) or CS 2433 (C/C++ Programming).

Course Goals: By the end of the course, students should have learned the following:

- The primary differences between traditional computer programs and mobile apps, and how to address those differences when writing an app.
- Sources of current and upcoming news and trends related to mobile computing and evaluating your own design and development practices in terms of what you discover there.
- The use of the Xcode IDE (Interactive Development Environment) to develop, test, and debug apps for devices that run the Apple iOS operating system.
- The syntax and semantics of the Swift programming language, as well as several fundamental iOS APIs (Application Program Interfaces) necessary to develop apps.
- Use of Java and Android Studio to develop Android apps.
- Several fundamental Android APIs necessary to develop apps.
- Working as part of an interdisciplinary team to develop apps more effectively and efficiently.

Student Outcomes:

Student Outcome	Course Outcome
2	<ul style="list-style-type: none">• The students will be able to write mobile applications in SWIFT programming language.• The students will be able to use Java and Android Studio to develop Android applications.

Course Topics:

- History and foundations of mobile computing
- The Xcode IDE
- Syntax of the Swift programming language
- The use of GIT repositories
- The iOS Core Graphics API Protocols and delegates
- Single- and Multi-touch gestures Segues
- Table views
- Closures
- Multi-threaded programming
- UI layouts for multiple devices and orientations
- Relational databases and SQL
- The iOS Core Data API
- XML and JSON
- RESTful Web services
- The iOS file system and user defaults
- The Android Studio IDE
- Android counterparts to the iOS APIs and constructs discussed earlier