Mobile Development

COURSES INCLUDE:

- Java for Android
- Engineering Maintainable Android Apps
- Capstone: Android App Development
- Foundations of Objective-C App Development
- Networking and Security in iOS Applications
- Best Practices for iOS User Interface Design
- Games, Sensors and Media
- iOS Project: Transreality Game
- Developing Android Apps with App Inventor

Who this is for

Experienced developers, or anyone with some coding experience.
Java for Android

**DESCRIPTION**

This course teaches you how to program core features and classes from the Java programming language that are used in Android, which is the dominant platform for developing and deploying mobile device apps. In particular, this course covers key Java programming language features that control the flow of execution through an app.

**SKILLS ACQUIRED**

- Java Programming
- Object-Oriented Programming
- Android Studio
- Logic Programming
- Interfaces

**TOPICS**

- ★ Course Overview
- ★ Introduction to Android Studio
- ★ Writing a Simple Android App Using Basic Java Features
- ★ Control Flow

**PRACTICE**

- 10 Quizzes
- 1 Peer-Reviewed Assignments
- 6 Programming Assignments

**TIME**

- ~31.1 hours total
- 7.8 hours per week
- ~8.6 hours of video
- ~22.5 assignment hours

**SPECIALIZATION**

- Android App Development

**RATING**

- 4.5 out of 5 stars

**TAUGHT BY**

- **Julie Johnson**
  - Assistant Professor of the Practice

- **Douglas C. Schmidt**
  - Professor of Computer Science
Engineering Maintainable Android Apps

DESCRIPTION

Engineering Maintainable Android Apps, which is a 4 week MOOC that shows by example various methods for engineering maintainable Android apps, including test-driven development methods and how to develop/run unit tests using JUnit and Robotium (or equivalent automated testing frameworks for Android), as well as how to successfully apply common Java/Android software patterns.

SKILLS ACQUIRED

- Software Testing
- Unit Testing
- JUnit
- Android Software Development
- Android (Robot)

TOPICS

- MOOC Overview
- Software Engineering & Testing I
- Software Engineering & Testing II
- Security & Sustainability I

PRACTICE

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<tbody>
<tr>
<td>4</td>
<td>Quizzes</td>
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<tr>
<td>0</td>
<td>Peer-Reviewed Assignments</td>
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<td>Programming Assignments</td>
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TIME

- ~13.8 hours total
- ~5.2 hours per week
- ~8.6 assignment hours

SPECIALIZATION

Android App Development

RATING

4.4 out of 5 stars

TAUGHT BY

- Douglas C. Schmidt
  Professor of Computer Science
- Michael Walker
  Graduate Research Assistant

Peer-Reviewed Assignments

Programming Assignments
Capstone: Android App Development

DESCRIPTION
The Capstone project integrates material from throughout the Android App Development Specialization to exercise and assess the ability of learners to create an interesting Android app. Learners will apply knowledge and skills learned in previous courses in this Specialization, including Java programming features, Android activity, broadcast receiver, service, and content provider.

SKILLS ACQUIRED
- Cloud Computing
- Software Testing
- User Interface
- Android (Robot)
- Sqlite

TOPICS
★ Capstone Overview
★ Week 2 Milestone
★ Week 3 Milestone
★ Capstone Final Submission

PRACTICE
0 Quizzes
4 Peer-Reviewed Assignments
0 Programming Assignments

SPECIALIZATION
Android App Development

RATING
4.1 out of 5 stars

TIME
~5.7 hours total
1.4 hours per week
~0.3 hours of video
~2.6 assignment hours

TAUGHT BY
Douglas C. Schmidt
Professor of Computer Science
Michael Walker
Graduate Research Assistant
SKILLS ACQUIRED

- Objective-C
- iOS App Development
- Xcode
- User Interface
- Programming Constructs

DESCRIPTION

An introduction to the Objective-C programming language. This will prepare you for more extensive iOS app development and build a foundation for advanced iOS development topics. Objective-C programming requires a Mac laptop or desktop computer. An iOS device is optional if the learner is willing to work exclusively with the simulator.

TOPICS

★ Get Ready. Get Set. Go!
★ Functions, Scopes and Encapsulation - oh my!
★ Object Lesson
★ System Libraries to the Rescue

PRACTICE

- 1 Quizzes
- 4 Peer-Reviewed Assignments
- 0 Programming Assignments

SPECIALIZATION

iOS Development for Creative Entrepreneurs

RATING

4.7 out of 5 stars ★★★★★

TIME

- ~17.3 hours total
- 4.3 hours per week
- ~9.6 hours of video
- ~7.7 assignment hours

TAUGHT BY

Donald Patterson
Professor of Informatics and Computer Science

Link to course
Networking and Security in iOS Applications

DESCRIPTION
You will learn to extend your knowledge of making iOS apps so that they can securely interact with web services and receive push notifications. You’ll learn how to store data securely on a device using Core Data. You’ll also learn to securely deploy apps to the App Store and beta users over-the-air. The format of the course is through a series of code tutorials.

SKILLS ACQUIRED
- iOS App Development
- Core Data
- Objective-C
- Web Service
- Web Api

TOPICS
- Welcome!
- Using Secure Web APIs: an Instagram Case Study
- Don't be so pushy!
- Storing Data

PRACTICE
- 1 Quizzes
- 4 Peer-Reviewed Assignments
- 0 Programming Assignments

SPECIALIZATION
iOS Development for Creative Entrepreneurs

RATING 4.6 out of 5 stars ★ ★ ★ ★ ★

TIME
- ~19.9 hours total
- ~8.1 hours per week
- ~7 assignment hours

TAUGHT BY
Donald Patterson
Professor of Informatics and Computer Science

Link to course
Best Practices for iOS User Interface Design

Description
You will learn to develop sophisticated user interfaces for iOS, with a focus on user interface design best practices, UI animations, and responsive design. You will learn about the key UI widgets, mapping interfaces and view restoration.

Skills Acquired
- User Interface
- User Interface Design
- iOS App Development
- Memoization
- Interfaces

Topics
- Getting to know iOS Design Concepts
- The Design Solutions that come with iOS
- View Controllers and Map Interfaces
- Table Views, Core Data and User Interface Integration

Practice
- Quizzes: 1
- Peer-Reviewed Assignments: 3
- Programming Assignments: 0

Specialization
iOS Development for Creative Entrepreneurs

Rating
4.6 out of 5 stars

Time
- ~19.6 hours total
- ~11.7 hours of video
- ~5.5 assignment hours

Taught By
Donald Patterson
Professor of Informatics and Computer Science
University of California, Irvine

**SKILLS ACQUIRED**
- iOS App Development
- C++
- Software Development
- Computer Graphics
- Graphics

**DESCRIPTION**
You will learn to make fluid digital interactive experiences that are suitable for gaming and use the advanced sensor hardware built into the iPhone and iPad. This includes drawing 2D graphics, playing sounds and music, integrating with Game Center, the iOS physics engine and detecting device orientation and location.

**TOPICS**
- ★ Location, Locomotion and Motion
- ★ Lights and Sounds
- ★ Touch, Collision, Reaction
- ★ Where the Action Is

**PRACTICE**
- 1 Quizzes
- 4 Peer-Reviewed Assignments
- 0 Programming Assignments

**TIME**
- ~19.9 hours total
- ~11.9 hours of video
- ~6.5 assignment hours

**SPECIALIZATION**
- iOS Development for Creative Entrepreneurs

**RATING**
- 4.6 out of 5 stars

**TAUGHT BY**
Donald Patterson
Professor of Informatics and Computer Science
University of California, Irvine

**SKILLS ACQUIRED**
- Ios App Development
- Software Development
- Gameplay
- C++
- Interaction Technique

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**DESCRIPTION**

Students will produce a networked game that will leverage sensors on the phone to create a unique gaming experience. The focus of the game will be to make it physical through real-world gestures, motion and knowledge of other players real-world location. To do this students will need to integrate knowledge of graphics, networking, sensors, and user interface design.

**TOPICS**

- The Project and the Plan
- Basic Scaffold Implementation
- Gameplay View
- Level Up

**PRACTICE**

- 0 Quizzes
- 7 Peer-Reviewed Assignments
- 0 Programming Assignments

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**SPECIALIZATION**

iOS Development for Creative Entrepreneurs

**RATING** 4.9 out of 5 stars ★★★★★

**TIME**

- ~14.2 hours total
- 1.8 hours per week
- ~2.8 hours of video
- ~4.5 assignment hours

**TAUGHT BY**

Donald Patterson
Professor of Informatics and Computer Science
Developing Android Apps with App Inventor

DESCRIPTION
The course will give students hands-on experience in developing interesting Android applications. No previous experience in programming is needed, and the course is suitable for students with any level of computing experience. MIT App Inventor will be used in the course. It is a blocks-based programming tool that allows everyone to start programming.

SKILLS ACQUIRED
- App Inventor For Android
- Android Software Development
- Android (Robot)
- Mobile Application Development

TOPICS
★ Introduction of MIT App Inventor
★ Application Coding
★ Programming Basics & Dialog
★ More Programming Basics

PRACTICE
- 23 Quizzes
- 1 Peer-Reviewed Assignments
- 0 Programming Assignments

TIME
- ~35.7 hours total
- 5.1 hours per week
- ~1.2 hours of video
- ~34.5 assignment hours

RATING
4.4 out of 5 stars

TAUGHT BY
Kenneth Leung
Computer Science and Engineering

Learn more at Link to course