

Mobile App Development Course Outline

Powered by Agoura Engineering Circle

Duration: 9 Sessions | **Level:** Beginner-Intermediate | **Format:** Project-Based, Instructor-Led



Course Overview

In this exciting, hands-on course, students will learn how to design and build mobile applications using **React Native**—the same technology used by apps like **Instagram**, **Facebook**, and **Discord**. By the end of the course, students will create their own fully functional mobile app, connect it to a live SQL database, and present it to a live audience.

Whether you're a future software engineer, a creative thinker, or a budding entrepreneur, this course is your gateway to building real-world technology.



Learning Outcomes

By completing this course, students will:

- Design, build, and test mobile apps using **React Native** and **Expo**
- Create dynamic user interfaces with **JavaScript** and component-based design
- Store and manage user data with **SQL** and remote databases
- Integrate **REST APIs** for real-time data (weather, news, etc.)
- Plan, develop, and present a full app project
- Gain experience in team collaboration and product demos

Prerequisites

Students should have:

- Basic knowledge of **HTML**, **CSS**, and **JavaScript**
- A personal computer with
 - **Mac:** MacOS 15 (needs to be able to update to MacOS 26 when released), 20GB+ available space (for Xcode + iOS simulator and other tools)
 - **Windows:** Windows 11 (64-bit), 16GB RAM, 20GB+ available space (for Android emulator and other tools)
- Software installed:
 - **Visual Studio Code**, **Node.js**, **Expo CLI**
 - Android or iOS simulator (installation support provided)

Session-by-Session Breakdown

Session 1: Anatomy of a Mobile App – Getting Started

Objective: Understand the core building blocks of mobile applications

- What are mobile apps made of? (Views, Text, Buttons, Images)
- Building your first screen with static content
- Development environment setup and troubleshooting
- Introduction to React Native project structure
- ✨**Activity:** Create your first layout using components

Session 2: First App with React Native + Expo

Objective: Build and preview your first working mobile app

- Introduction to **Expo** (mobile app preview framework)
- JSX syntax and component rendering in React Native
- Live preview on your phone (via Expo Go) or simulator

- ✨ **Activity:** Build a basic profile or welcome screen app

Session 3: Add Logic with JavaScript

Objective: Make apps interactive and responsive

- Using JavaScript to add functionality (event handling, conditionals)
- Intro to **React Hooks**: useState for state management
- Connecting UI to logic: What happens when a button is pressed?
- ✨ **Activity:** Build an interactive quiz or calculator app

Session 4: Designing with Style

Objective: Apply professional visual design to your apps

- Styling with React Native's **StyleSheet**
- Layout using **Flexbox** (columns, rows, spacing)
- Colors, fonts, shadows, buttons, and responsive sizing
- ✨ **Activity:** Create a styled login page or news feed screen

Session 5: Databases with SQL – Store and Retrieve Data

Objective: Learn how to connect apps to a real SQL database

- What is a **database** and why apps use them
- Intro to **SQL (Structured Query Language)**: SELECT, INSERT, UPDATE, DELETE
- Connect to a cloud SQL platform (e.g., Supabase or PostgreSQL)
- Display data in your app: lists, tables, and input forms
- ✨ **Activity:** Build a user list, contact manager, or task tracker

Session 6: Using REST APIs – Connecting to the Web

Objective: Fetch real-world data from external services

- What is an **API** and how it works (GET, POST, headers, JSON)
- Using `fetch()` to get real-time data (e.g., weather, movies)
- Displaying external data in your app in real-time

- ✨**Activity:** Build a weather forecast or live news app using public APIs

Session 7: Capstone Project Kickoff + Publishing Overview

Objective: Start planning and building your final project

- Choose your project idea: game, productivity tool, or creative app
- Plan app features and user experience
- Learn the basics of publishing to **App Store / Google Play**
- ✨**Activity:** Design wireframes, user flows, and feature roadmap

Session 8: Capstone Development & Feedback

Objective: Continue building the final app with instructor support

- Implement key features of your app (forms, data storage, API calls)
- Instructor 1-on-1 troubleshooting and debugging
- Peer reviews and improvement feedback
- ✨**Activity:** Complete core functionality and design polish

Session 9: Capstone Demos + Awards

Objective: Present your finished app to a live audience

- Live app demos in front of instructors, peers, and guests
- Showcase your app's features, design, and purpose
- Reflect on lessons learned and next steps in app development
- 🏆**Awards:** Best Design, Most Creative, Most Useful App