Crafting iOS Apps
Lesson Plan Overview

What To Expect From Each Lesson

Each project is divided into multiple lessons that focus on completing a specific app feature. This overview describes the content found in each lesson plan, and provides a framework for using the lesson plans to prepare your actual classes. An Xcode project and Keynote visual aids, where appropriate, accompany each lesson plan.

Each lesson plan includes the following components:

Description. A short, one-line summary of what takes place within the lesson.

Screenshot. An image of the app after completing the lesson.

Learning Outcomes. Specific learning outcomes for your students.

Vocabulary. Specific terms that students may not be familiar with, that you may need to define during the lesson.

Materials. The specific Xcode project that serves as the "starting point" for the lesson, and specific visual aides to help support the concepts students will encounter within the lesson.

Opening. A "warm-up," or question to initiate the goal of the lesson.

Agenda. A step-by-step plan that guides you through the implementation of an app feature. A framework for creating your own class notes and preparing for the actual class meeting. Using the provided Xcode project, you follow the agenda to reach the end goal. While carrying out the agenda, you inject the presentation of technical topics, discuss problems and design decisions, experiment and demonstrate. You will notice key words such as present, demonstrate, experiment, and discuss:

- *Explain.* An approachable description of how something works, or the effects of a particular line of code.
- *Present.* A specific "lecture" on a technical topic, typically supported with a provided visual aid.
- *Demonstrate.* An action, typically within Xcode, that is better demonstrated than presented.

- *Experiment.* A modification to code to see how it reacts, which deviates momentarily from the main path of the agenda.
- *Discuss.* A question or topic in which students should be actively participating in.

Closing. More "food for thought," things for students to reflect upon, or a "cliff-hanger" that leads into the next lesson.

Modifications and Extensions. Opportunities to go deeper with a lesson, especially for advanced students.

Resources. Documentation relevant to the lesson's technical topics, which can also act as assigned reading.

Lesson Preparation

First, you should have some experience with Swift and building simple iOS apps with the Apple toolset. If you have gone through a beginner's iOS book and built a few apps, you're in great shape to teach the course with these materials.

Next, familiarize yourself with all of the apps, by taking a look at the Level Overviews. Each Level Overview provides a summary of the apps, what they look like, and the technical concepts involved in building each app.

To prepare your lessons, choose a specific app such as Clock, and then:

- Run the ClockEnd project to observe the completed, working app. Be sure to interact with the app in the simulator.
- Review the code and storyboard for the ClockEnd project.
- Open Clock Lesson 1 and the Clock01 project. Run Clock01 to see the starting point for the lesson.
- Read the Lesson 1 description and, to see the result of the lesson, open and run the Clock02 project. Review the code and storyboard for the Clock02 project to help grasp the work accomplished in Lesson 1.
- Review Lesson 1's Learning Outcomes, Vocabulary and Materials.
- Follow the steps in the Agenda, making incremental changes to the Clock01 project. While carrying out the Agenda, think of how each step provides a platform to teach relevant topics, spark discussion, define the Vocabulary, and drive the Learning Outcomes.

> **Note:** Pay attention to key words, such as "present." Every occurrence of the word "present" corresponds with a visual aid listed in the Materials section.

Summary of preparation steps:

1. Review and run the "End" version of the app to see where the lesson plans will take you.
2. Run and review the next lesson's Xcode project to see where a specific lesson is headed.
3. Work through the lesson agenda to plan how you will guide students in the classroom.

Before starting the first lesson of any project, be sure to demonstrate the "End" working app to your students, so they understand what it is they will be building. In addition, you may want to use the "End" app as a platform for discussing requirements, user interaction, and feature analysis.