Stanford | Continuing Studies

Course Title: An Introduction to iOS Development: Build Your First iPhone App
Course Code: CS 75 W
Instructor: Benyam Alemu

Course Summary:

**Please see course page for full description and additional details.*

Additional logistics -
In order to complete this course, you must have certain software installed. All of the course's required software is free to download.

In order to develop iOS applications, **you must have a Macintosh computer**. This is necessary to download Xcode - the software to build iOS apps.

This course will be facilitated through video lectures delivered by Zoom. Our lectures will be recorded and available for students to watch and review at any time that is most convenient for them. Attendance is not required, but is extremely recommended.

This course will use Figma as our recommended design software. We will use this tool to design our application's user experience and collaborate with our team.

You will need:

- A Mac computer
- Reliable Internet access
- Installations of Xcode, Zoom and Figma applications

Grade Options and Requirements:

- No Grade Requested (NGR)
  - This is the default option. No work will be required; no credit shall be received; no proof of attendance can be provided.
- Credit/No Credit (CR/NC)
  - Students must participate in at least 70% of weekly discussions and/or Zoom sessions. Students must also complete development of an iPhone or iPad project they have designed.
- Letter Grade (A, B, C, D, No Pass)
  - Students must participate in at least 70% of weekly discussions and/or Zoom sessions, and complete a piece of written work (to be discussed further in class). Students must complete programming assignments, development of an iPhone or iPad project they designed and submit a final report.

**Please Note: If you require proof that you completed a Continuing Studies course for any reason (for example, employer reimbursement), you must choose either the Letter Grade or Credit/No Credit option. Courses taken for NGR will not appear on official transcripts or grade reports.*

Tentative Zoom Schedule*:

Sessions are scheduled for **Thursday 8:00 - 9:00pm PDT, each week.** Sessions are focused on answering class questions and providing additional guidance and support to students.

**Please note that the Zoom schedule is subject to change. The live video sessions are recorded; student attendance is optional*

Tentative Weekly Outline:

Learning Objectives

Week	Topic	Learning Objectives
Week 1:	Introduction to Swift Programming Language	• Introduce Swift Playgrounds. • Explain the concept of variables. • Demonstrate the major data types used in Swift. • Introduce the concept of loops and iteration. • Introduce control flow. • Introduce functions.
Week 2:	Swift review and navigating Xcode	• Start a new Xcode Project. • Understand Main.storyboard, Object Library, Info.plist and project settings. • Run an application on the simulator. • Showcase Figma.
Week 3:	Our first application Project: Musical Instruments	• Introduce how to use buttons and establish IBActions. • Use the AVFoundation framework to play sounds. • Use Auto Layout to appropriately size elements on the screen.
Week 4:	MVC Design Pattern Project: Quiz Game	• Use the Model View Controller (MVC) design pattern. • Create our own custom data types to model our data. • Take deeper advantage of functional programming to make our applications more interactive.
Week 5:	Networking Project: Currency Convertor	• Explain the purpose of APIs. • Use base URLs and parameters to construct API calls. • Understand what is JSON and how it is used during networking.

		• Create networking models to fetch and store data. • Use our data to update our UI, asynchronously.
Week 6:	Table Views Project: Pokemon Guidebook	• Build and utilize Table Views. • Build multiple screens of our app. • Use segues to travel to different screens. • Use a tab bar to generate buttons of different screens. • Discuss one way to save application data.
Week 7:	Project support - Explain remaining assignments - Answering the 5 top questions the class asked - Live Q&A for any student teams present	• Learn how to use Git and version control. • Learn how to use Cocoapods to download external libraries.
Week 8:	Teamwork time - Students will use the week's time to work together - One-on-one check ins with student teams	• Flexible. The instructor will organize demos focused on what the students request.
Week 9:	Project support - Answering the 10 top questions the class asked	• Flexible. The instructor will organize demos focused on what the students request.
Week 10:	Group presentations - Each group has 15 minutes	• Demonstrate public speaking and communication skills

Course Assignments

Week	Assignment
Week 1:	Problem set 1 (7 problems)
Week 2:	Propose an app idea. - Describe the problem it solves. - Describe what the application must do.
Week 3:	Select teams of 3. - Decide which app idea your team will work on. - Why was the idea selected? - How is the app different from other existing solutions? - What does your team have to research?
Week 4:	Progress your app idea. - Describe each screen and what it does. - Sketch a design using Figma.
Week 5:	Start building your app. Find an API or data source for your application and build the networking model to success API call.
Week 6:	Implement a Table View to dynamically present data. This application must have multiple screens and a data model.
Week 7:	Finalize your app proposal. - Showcase your final design using Figma. - Scope out each feature and its implementation details. - Describe the data your app is storing and how data is received and stored. - Show the data models and data operations your app will use. - Who is responsible for each task?
Week 8:	Progress report. - What have you implemented this week? - What was easy to build? - What do you need help with?
Week 9:	Progress report. - What have you implemented this week? - What was easy to build? - What do you need help with?
Week 10:	Final report (6-8 pages) - Explanation of the problem addressed.

	- How the app solves the issue. - How is your project different from other existing solutions? - Explanation of data model, design patterns and any integrations used. - Screenshots. Link to the completed design. - Future plans.

*** Each assignment is due by Sunday 11:59 pm PDT of the respective week.**