In this seminar we explore how to program Apple iDevices. While mobile apps are a hot development area, the “serious intellectual motivation” for our work is that mobile platforms present special challenges such as limited power, memory, and screen space. They also offer some special hardware features such as touch-screen, accelerometer, location awareness, camera, sound, etc., and of course extreme portability, that make possible some innovative applications. Learning ObjectiveC and the Cocoa Touch API is, like learning any new language, a good exercise to develop mental flexibility and new perspectives on how languages and OO libraries can be designed.

We will be using iOS 7, even though iOS 8 is due out during the semester. Many of the concepts will carry over to iOS 8, since the basic APIs will largely remain the same. At this point, there are no good books out yet and starting with beta software then making a transition in mid-semester is a recipe for a major speed-bump in our work. Because this is a seminar, there is flexibility to explore different aspects of the APIs, and because the library is huge, we can’t hope to cover it all. I’m open to having people present on iOS 8 later in the semester, and will probably give an overview of Swift at some point.

The class will be run as a seminar in which students prepare and give presentations. Initially, I’ll do a few lectures to lay some groundwork and provide time for you to prepare. At least a week before your presentation, you should schedule a time with me to plan what you will do with your time. You have an hour or more, and I expect you to use it. Your presentations can begin with walking the class through examples from the book, but part of the grading of them will be in how much you take us beyond the book.

If you have a laptop that can run XCode and the iPhone simulator, you should always bring it to class, because we’ll be actively going through examples, testing out ideas, sharing what we discover, and sometimes helping each other with solving problems.

Later in the semester, we’ll switch into project mode. You’ll be developing a project proposal for an app, including a simple business plan, schedule, and so on. Projects can be done individually or in a team. During that phase, some class time will be devoted to project reviews and demos, working as a group to come up with solutions to problems, etc. Projects will be proposed and get under way while we are still in the first phase of the course.
Grading will be based on:

Quality of preparation and delivery of presentations
App Project Proposal
App Project Implementation
   (Better to have a simple, polished app than an ambitious design that doesn’t work)
Occasional homework, especially early on
No exams

Course Schedule (mostly follows order of topics in the iOS 7 book)

9/2  Tue  Introductions. What makes a good app?
9/4  Thu  Chs. 1+2  XCode and Objective C basics
9/9  Tue  Kochan  Objective C and memory management
9/11 Thu  Ch. 3  Exploring Interface Builder and UI design
9/16 Tue  Ch. 4  MVC Paradigm and basic UI controls
9/18 Thu  Ch. 4  More UI elements
9/23 Tue  Ch. 5  Autorotation and Sizing
9/25 Thu  Ch. 6  Managing multiple views via controls
9/30 Tue  Ch. 7  Tab bars and pickers
10/2 Thu  Ch. 8  Table views part 1 Writing a project proposal
10/7 Tue  Ch. 8  Table views part 2.
10/9 Thu  Project plan presentations
10/14 Tue  Monday schedule -- no class
10/16 Thu  Ch. 9  Navigation controllers part 1
10/21 Tue  Ch. 9  Navigation controllers part 2
10/23 Thu  Ch. 10  Collection View
10/28 Tue  Ch. 11  iPad and multiplatform considerations
10/30 Thu  Ch. 12  Application settings and defaults
11/4  Tue  First round of demos
11/6  Thu  Ch. 13, 14  Data persistence, iCloud
11/11 Tue  Veteran’s Day Holiday
11/12 Wed  Ch. 15  Background multitasking, **Tuesday Schedule**
11/13 Thu  Ch. 18  Taps, touches, gestures
11/18 Tue  Second round of demos
11/20 Thu  Ch. 19  Core location
11/25 Tue  Ch. 20  Motion
11/27 Thu  **Thanksgiving Holiday**
12/2  Tue  Final app project demos
12/4  Thu  Final app project demos

Note that the chapters following the first round of demos are dependent on what people choose to present. The book also covers Core Graphics, Sprite Kit, Camera, and Localization, and there are many other APIs to choose from.