Syllabus for CS235IM, Mobile Application Development: iOS
Winter 2017

Sections	CRN 32882 (on campus) & 32883 (online)	**Credits**	4
Classroom	Building 19, room 132 and online	**Day & Time**	M, W 12:00–1:50

Instructor	Brian Bird	**Office**	Building 19, room 152
Office Phone	541-463-3024	**Office Hours**	M,W, 2:00 - 3:00 TuTh, 12:00 - 1:00
E-mail	birdb@lanecc.edu		

Course Description

This course introduces students to applying object oriented programming to mobile application development and the iOS SDK (System Development Kit). Cross-Platform mobile app development will be done using the Mono, an Open Source version of the .NET framework, and Xamarin Studio.

Learning Outcome

Design the core logic for a mobile software application. Write, debug, and test the code for the core logic for an application. Design User Interfaces for both iPhone and iPad. Evaluate mobile app designs and architectures in terms of user experience, performance, and maintainability.

Course Content

Technologies

C#	Xamarin Studio	Mono (.NET) framework
iOS APIs	MVC Architecture	
iOS Emulator	iOS SDK	UI Controls

Concepts

Cross platform development	App lifecycle	Cross platform architecture
Mobile UI design	Separation of concerns	iOS application architecture
Using device resources		

Skills

Use Xamarin Studio to write, compile and run C# iOS applications.
Test and debug iOS applications using the iOS emulator and on iOS devices.
Design and create iOS UIs using the Xamarin Studio UI designer.

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Learning Resources

Text books

Beginning iPhone Development with Swift 3, Exploring the iOS SDK
by Molly Maskrey, David Mark, Kim Topley, Fredrik Olsson, and Jeff LaMarche
Apress 2016. ISBN for eBook: 978-1-4842-2223-2, for softcover: 978-1-4842-2222-5. More information and additional resources are available on the publisher's web site: apress.com/us/book/9781484222225 .

We will also be using resources provided on the Xamarin Web site:
developer.xamarin.com/guides/ios

Course Web Site

classes.lanecc.edu will host the web site for the course. The site is designed as a supplement to the in-class section of the course.

Computers and Tablets

iMac Computers with Xamarin Studio, Xcode, and iOS SDK are provided in the classroom. There are also iPad Mini tablets with iOS available for student use in the classroom. Students may also bring their own notebook computers and iPhones or iPads for use in class.

Apple iMacs with the software required for the lab work are also available in the CIT Computer Lab, lanecc.edu/cit/computer-lab, located in building 19, room 135. Alternatively, you may use a remote virtual Mac from a service like MacInCloud, macincloud.com. MacInCloud has academic pricing starting at $16 a month for 3 hours a day of virtual Mac use.

Software and licenses

Xamarin Studio will be used as the IDE (Integrated Development Environment) in class and in the CIT Main Lab. Xamarin Studio is available for OS-X (OS X 10.9.4, Mavericks, or above). Xamarin Studio is free and can be downloaded from: xamarin.com/platform .

You may alternatively use Visual Studio 2015 or later on a Windows machine. It is free and can be downloaded from visualstudio.com/en-us/products/visual-studio-community-vs.aspx. If you use Visual studio, you will still need to connect to a Mac via a local network or over the Internet in order to do builds and run an iOS simulator. You can use an actual Mac or a service like MacInCloud for this.

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Learning Activities

Lab Assignments

These are programing projects that you will do on your own- either using the computers and software in the CIT lab, or using your own computer and software. Students will submit both a *beta* version and a *release* version of the software solution for each lab assignment. The *beta* version should be essentially complete. "Complete" means having working code that fulfill all the core requirements for the assignment, but it does not need to be bug free. The *release* version should fulfill all requirements and be bug fee.

Code Reviews

Students will work in class, in groups of two or three, to review the *beta* version of each other's lab assignment solutions. The reviewers will evaluate coding practices as well as the functionality of each software solution. Students will use input from the code review to revise their code prior to submitting the *release* version of their software solution.

Quizzes

Weekly quizzes are given over the reading and exercises in the textbook as a way to focus students on the most important concepts in textbook chapters covered.

Term Project

The requirements for the term project will be presented during the first week of class.

Assessment and Grading

Specific grading criteria will be applied to each of the labs, quizzes, and exams you will be working on in this class.

The table below summarizes the percentage of your total grade given for each assessment task:

Learning & Assessment Activities	Number	Total Percentage
Labs (beta and release)	8	40%
Code Reviews	8	10%
Quizzes	8	10%
Term Project	1	40%

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Letter grades for the course will be determined by the following percentages:

	-		+
A	90 - 91	92 – 97	98 - 100
B	80 - 81	82 – 87	88 - 89
C	70 – 71	72 – 77	78 - 79
D	60 - 61	62 – 67	68 - 69
F	Below 60		

Late Work

- Lab drafts (beta versions) may not be submitted after the due date.
- Code reviews and lab release versions submitted after the due date will be reduced by 10%
- Quizzes and exams cannot be taken after the due date. Plan ahead! Exceptions will only be made for illness or emergency situations.

Academic Honesty

While students are encouraged to discuss labs and to use each other as resources, each student is responsible for his/her own work. In other words you can help each other, but you can't copy any part of someone else's work. The end product must be each student's own individual work.

Attendance

Since this is a hybrid on-campus/online class, attendance is optional, but to succeed, you must engage in the lectures and participate in class activities either online or in the classroom.

Weekly Schedule (after the first week)

Monday *(except 1/15 and 2/22 which are holidays)*

Complete a review of last week's lab work for your lab partner

Tuesday *(except weeks with a holiday on Monday)*

Finish this week's reading and take the reading quiz

Wednesday

Submit the production (final) version of your lab work from last week and the completed review form for your lab work

Saturday

Post the beta (draft)version of your lab work for this week

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Tentative Schedule

Week	Topic	Reading	Assignment	Due Date
1 1/8 1/10	Intro to the iOS mobile platform Intro to iOS application development.	Maskrey et al: Ch. 1 and skim Ch. 2 Xamarin: Setup & Installation Xamarin: Hello iOS	Reading quiz 1 Lab 1: Group A: Roman Numeral Converter Group B: MPG Calculator Lab 1 beta version	Fri, 1/11 Sat, 1/14
2 1/15 1/17	*MLK Day holiday, no class on Monday* MVC architecture	Maskrey et al: Ch. 3	Lab 1 code review Lab 2: Group A –Tic-Tac-Toe Group B – 4 Func Calculator	Wed, 1/18
3 1/23 1/25	MVC architecture (continued)	Maskrey et al: Ch.3 Continued	Reading quiz 2 Lab 1 release version Lab 2 beta version	Tue, 1/24 Wed, 1/25 Sat, 1/28
4 1/30 2/1	Basic user interaction	Maskrey et al: Ch. 4	Lab 2 code review Reading quiz 3 Lab 2 release version Lab 3 beta version	Mon, 1/30 Tue, 1/31 Wed, 2/1 Sat, 2/4
5 2/6 2/8	Adapting to rotation and screen size	Maskrey et al: Ch. 5	Lab 3 code review Reading quiz 4 Lab 3 release version Lab 4 beta version	Mon, 2/6 Tue, 2/7 Wed, 2/8 Sat, 2/11

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Week	Topic	Reading	Assignment	Due Date
6 2/13 2/15	Multi-view applications	Maskrey et al: Ch. 6	Lab 4 code review Reading quiz 5 Lab 4 release version Lab 5 beta version	Mon, 2/13 Tue, 2/14 Wed, 2/15 Sat, 2/18
7 2/20 2/22	*President's Day holiday, no class on Monday* Tab bars and pickers	Maskrey et al: Ch. 7	Lab 5 code review Reading quiz 6 Lab 5 release version Lab 6 beta version	Wed, 2/22 Thu, 2/23 Fri, 2/24 ~~Sat, 2/25~~ Mon, 2/27
8 2/27 3/1	Table views	Maskrey et al: Ch. 8 & 9	Lab 6 code review Reading quiz 7 Lab 6 release version Lab 7 beta version	~~Mon, 2/27~~ Wed, 3/1 Tue, 2/28 ~~Wed, 3/1~~ Fri, 3/3 Sat, 3/4
9 3/6 3/8	Split views and pop-overs	Maskrey et al: Ch. 11	Lab 7 code review Reading quiz 8 Lab 7 release version Lab 8 beta version	Mon, 3/6 Tue, 3/7 Wed, 3/8 Sat, 3/15
10 3/13 3/15	Application settings	Maskrey et al: Ch. 12	Lab 8 Code Review Lab 8 release version	Mon, 3/13 Wed, 3/15
11 3/20	Final Project Presentations			Mon, 3/20

Table 1: Tentative Schedule

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Academic Calendar for Winter Term 2017

First day of class	1/9/17
Last day to receive refund	1/15/17, 11:59 pm
Martin Luther King Jr. holiday	1/16/17
Presidents Day holiday	2/20/17
Last day for schedule changes	3/3/17
Finals week	3/20/16–3/25/17
Term ends	3/25/17

Disability Services
If you need support or assistance because of a disability, you may be eligible for academic accommodations through Disability Services. For more information, contact Disability Services at 463-5150 (voice) or 463-3079 (TTY), or stop by building 1, room 218.