SYLLABUS – CPSC-411 MOBILE PROGRAMMING (iOS) SPRING 2020

This course is an introduction to developing Apps for the Apple store. In this course, you will learn to create Apps for the app store, using SwiftUI and Swift. **You will create two apps, submit to Apple for approval, and have accepted onto the App store. To do so, you must use Xcode to develop the apps, and will need a MacBook Pro computer** (Xcode only runs on the macOS), **a subscription to the Apple Developer program** (or you can't submit your app – and can't be paid for it!), **and an iPhone**.

the good news. The SGC (student genius center) loans out MacBook Pros to students needing them for a course, or you can hack the macOS on some PCs (not very easily though), or you can convince your parents you really need one (true). While you're at it, convince them you need an iPhone and a $99/yr subscription to be an Apple Developer (also true). Sell your app on the App store, and all these costs are tax deductible! If your parents don't want to permanently spend this money, you can resell your MacBook Pro at the end of the semester, and get almost what you paid for it ($1600 → $1300), only $200 for the semester, OR trade with your mom so you use her MacBook and she uses your PC for the semester. While you're at it, trade your Android phone with her iPhone for the semester. Game stop does sell used iPhones at quite low prices, and there's a booming market in used iPhones now, since iPhone 11's are so popular.)

and now, the bad news. The SGC will loan you a free MacBook Pro, but it will not be very fast. A hacked macOS on a PC will be faster, and it does work on some PCs, but it's not easy to get working. You can rent space on a Mac server, but it's not free. Apple Developer licenses are not free, and neither are iPhones. Also, if you want to deduct those purchases, you must make money on your app – *hint*: in-app purchases, with free downloads are the way to go. Non-free apps have a very low initial download rate (up to 500,000 times slower).

Class Meetings EC-122 M: 1900-2145

Final Exam on M: 13 May, 1900-2050

Prerequisites: CPSC-131. Students not having this prerequisite may be dropped from the course.

Instructor
William McCarthy, wmccarthy@fullerton.edu 657-278-3700.
Office: CS 401, Office hours: 1000-1100, 1300-1400, 1800-1845, or by appointment. No office hours during finals.

BOOKS (all available through the Safari portal or on the Internet)

iOS Programming, The Big Nerd Ranch Guide, 6th Ed., by Christian Keur and Aaron Hillegass.

***Swift Programming**, the Big Nerd Ranch Guide, 2nd Ed.*, by Matthias & Gallagher, Big Nerd Ranch, 2016, ISBN: 978-0134610610.

***100 days of SwiftUI:* https://www.hackingwithswift.com/100/swiftui,** by Paul Hudson. "ContentView iOS".

***Hacking with SwiftUI:* *https://www.youtube.com/playlist?list=PLuoeXyslFTuZRi4q4VT6lZKxYbr7so1Mr*,** Paul Hudson

***iOS and Swift for Beginners Learning Path**:* https://www.raywenderlich.com/ios/learn,

COURSE OBJECTIVES:

- Develop and publish two apps to the App store, and add them to your Github portfolio
- Learn the Swift UIKit (storyboard) and SwiftUI approach to building Apps
- Learn the Swift (v5) language, and become familiar with Objective-C
- Model, implement, & debug an application for a mobile device (iPhone/iPad running iOS 13.1)
- Understand and apply the Model-View-Controller design pattern, and the proper use of View controllers/Views
- Learn how to use delegation and archiving in the apps you develop
- Use NavigationControllers to handle drill-down interfaces (study the phone app to see its pages/navigation)
- Use tab bar controllers to move between pages
- Use touch trackers and handlers for responding to complex gestures
- Using Locale to add support for multiple languages/regions
- Use VoiceOver to add accessibility support
- Create game apps that impress your friends (and potential employers)

COURSE SCHEDULE (subject to change)

Week	Topic	
1	Holiday – MLK	20 (MLK holiday)
2	Introduction, beginning of class details, Need to have MacBook Pro and an iPhone, and be an Apple Developer CHAPTER 1: A SIMPLE iOS PROJECT *UNDERSTANDING THE BASIC STRUCTURE OF A SWIFTUI APP – WESPLIT*	27 Jan Chapter 2: Swift (reading) *100 Days of SwiftUI begins*
3	CHAPTER 3: VIEWS AND THE VIEW HIERARCHY CHAPTER 4: TEXT INPUT AND DELEGATION *USING STACKS TO ARRANGE VIEWS – GUESS THE FLAG SWIFTUI*	3 Feb *7th day of 100 days...*
4	CHAPTER 5: VIEW CONTROLLERS CHAPTER 6: PROGRAMMATIC VIEWS *WHY DOES SWIFTUI USE STRUCTS FOR VIEWS? VIEWS AND MODIFIERS*	10 Feb *14th day of 100 days...*
5	CHAPTER 7: LOCALIZATION CHAPTER 8: CONTROLLING ANIMATIONS *SELECTING DATES AND TIMES WITH DATEPICKER – BETTER REST SWIFTUI*	17 Feb *21st day of 100 days...*
6	CHAPTER 8: CONTROLLING ANIMATIONS *INTRODUCING LIST, YOUR BEST FRIEND – WORD SCRAMBLE SWIFTUI* *CREATING IMPLICIT ANIMATIONS – ANIMATION SWIFTUI*	24 Feb *28th day of 100 days...*
7	CHAPTER 10: UITABLEVIEW AND UITABLEVIEWCONTROLLER CHAPTER 11: EDITING UITABLEVIEW CHAPTER 12: SUBCLASSING UITABLEVIEWCELL *WHY @STATE ONLY WORKS WITH STRUCTS – IEXPENSE SWIFTUI*	2 Mar *35th day of 100 days...*
8	CHAPTER 13: STACK VIEWS CHAPTER 14: UINAVIGATIONCONTROLLER CHAPTER 15: CAMERA *RESIZING IMAGES TO FIT THE SCREEN USING GEOMETRY READER – MOONSHOT SWIFTUI*	9 Mar *42nd day of 100 days...*
9	**MIDTERM EXAM** *Creating custom paths with SwiftUI – Drawing SwiftUI* *Cupcake Corner SwiftUI*	**16 Mar** *49th day of 100 days...*
10	**Presentation of Project 1** *Creating a custom component with @Binding – Bookworm SwiftUI*	23 Mar *56th day of 100 days...*
11	**SPRING RECESS**	**week of 30 Mar** *63rd day of 100 days...*
12	CHAPTER 16: SAVING, LOADING, AND APPLICATION STATES CHAPTER 18: TOUCH EVENTS AND UIRESPONDER CHAPTER 19: UIGESTURERECOGNIZER AND UIMENUCONTROLLER	6, 8 Apr *70th day of 100 days...*

13	CHAPTER 20: WEB SERVICES CHAPTER 21: COLLECTION VIEWS	13 Apr *77th day of 100 days...*
14	CHAPTER 22: CORE DATA CHAPTER 23: CORE DATA RELATIONSHIP *FILTERING @FETCHREQUEST USING NSPREDICATE – COREDATA SWIFTUI*	20 Apr *84th day of 100 days...*
15	CHAPTER 24: ACCESSIBILITY *USING CORE DATA WITH SWIFTUI - AN INTRODUCTION*	27 Apr *91st day of 100 days...*
16	Presentations on Project 2	4 May *98th day of 100 days...*
17	**FINAL EXAM**	**11 May @ 1900** *100th day of 100 days...*

Course Grades: The Course grade are curved over an entire class. Course grades shall be **strictly** assigned as follows:

A+: >= 96%	A: >= 92%	A-: >= 90%
B+: >= 88%	B: >= 82%	B-: >= 80%
C+: >= 78%	C: >= 72%	C-: >= 70%
D+: >= 68%	D: >= 62%	D-: >= 60%
F: < 60%		

Course weighting		
Homework (lowest hw assignment dropped)	0.3	20 %
App Store Project 1 (submitted to App Store)		25%
App Store Project 2 (submitted to App Store)		25 %
In-class/take-home quizzes (lowest quiz dropped)		5 %
Midterm exam		15 %
Final exam	0.2	15 %

Assignments: All assignments shall be posted on Titanium. Programming assignments shall be done individually. App store projects grades cannot be dropped.

Use SwiftUI, Swift (or Objective-C) unless otherwise specified. Late assignments shall be penalized 10%. No assignment shall be accepted more than 24 hours after the deadline. All assignments shall be submitted via Titanium.

Quizzes: There are in-class quizzes to test your understanding of the material presented in class, and of the reading material. *Missed quizzes shall get a grade of 0 (unless you can provide written evidence of a legitimate excuse, such as a doctor's note).* The lowest quiz score shall be dropped.

Attendance and Participation: Attendance is strongly encouraged, due to the once-a-week nature of the course. After the first class, attendance is not taken, and students who miss class must find out from their classmates the material they missed.. All students are encouraged to ask questions and participate in class discussions.

Exams: All exams are *closed book and cumulative*. Missed exams shall be dealt with according to the University's policies on incomplete assignments and withdrawals. The *tentative* schedule for the examinations is given below (please also check with the Final exam schedule posted online):

Extra credit: No extra credit shall be granted. If you want to do well in this class, work hard, complete all assignments on time, and prepare for all exams and quizzes.

CLASS CANCELLATION POLICY: All class cancelations shall be announced by email. If the instructor does not arrive in the first 15 minutes of the class, you may assume the class is canceled.

ACADEMIC HONESTY: All forms of cheating shall be treated with the utmost seriousness. You may discuss the problems with other students, however, you must write your **own code and solutions**. Discussions solutions to the problems is **not** acceptable. Copying an assignment from another student, or allowing another student to copy your work **may lead to an automatic F for this course**. Moss shall be used to detect plagiarism in programming assignments. If you have any questions about whether an act of collaboration may be trated as academic dishonesty, please consult the instructor before you collaborate. Details are posted at: http//www.fullerton.edu/senate/documents/PDF/300/UPS300-021.pdf.

EMERGENCY POLICY: Please familiarize yourself with the actions to take in case of an emergency. This information may be found at http://prepare.fullerton.edu.

DISABLED STUDENT SERVICES: Information for students with disabilities can be found at: http>//www.fullerton.edu/DSS. Any student who, because of a disability, mac require special arrangements in order to meet course requirements must register with the Offce of Disability Support Services within the first week of classes.

Student Resources Any student who wishes to discuss any concern may contact the assistant deans of the college. Assistant Deans are student advocates who will help you navigate the University's policies and procedures and assist with resolving any conflicts. Assistant Dean for Student Affairs Carlos Santana CS-206A (657) 278-4407 «csantana@fullerton.edu» Assistant Dean International Programs and Global Engagement Lillcbeth Sasis CS-206A (657) 278-4881 «lsasis@fullerton.edu»

EmergencyProcedures For your own safety and the safety of others, each student is expected to read and understand the guidelines, published at «http://prepare.fullerton.edu/campuspreparedness/». Should an emergency occur, follow the instructions given to you by faculty, staff, and public safety officials. An emergency information recording is available by calling the Campus Operation and Emergency Closure line at 657-278-4444.

Instructional Continuity Due to an event such as an epidemic or a natural disaster that disrupts normal campus operations, students must monitor the course Titanium site and their campus email address for anc instructions and assignments that the instructor announces.

Recording & Transcription of Class Content Recording class content is governed bc UPS 330.230, «http://www.fullerton.edu/senate/publications_policies_resolutions/ups/UPS%20300/UPS %20330.230.pdf». Each instructor must permit class content to be recorded or transcribed bc students when mandated to do so by the Americans with Disabilities Act or bc other federal or state laws. Any recording of class content is for private use and study and shall not be made publicly accessible without the written consent of the instructor and students in the class.

Course Rules & Classroom Management Unless an agreement or accommodation is reached between the student and the instructor, these rules must be followed. Attendance at all regularly scheduled lecture and discussion section is mandatory.

- Do not eat during lecture.
- If it makes noise, silence it.
- Computer use is not allowed in lecture except for taking notes.
- The student is responsible to be aware of any course announcements including changes to due dates and requirements.
- Homework, programming assignments, etc. may not be submitted late.
- Third party work (code, artwork, etc.) mac not be used in student work without prior instructor consent.