Programming Fundamentals I: Apple Swift I

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COSC-1436

Credit Summer 2018
05/29/2018 - 07/31/2018

Course Information

Section 001
Lecture
MW 18:00 - 21:10
HLC4 1130.01
Manuel Duran

Office Hours

- T Th
  11:45 am - 12:45 pm
  Highland Campus - HLC4 1215.07
  Other times by Appointment. Email instructor to confirm appointment

COURSE DESCRIPTION AND RATIONALE

Course Description

Introduces the fundamental concepts of structured programming and provides a comprehensive introduction to programming for computer science and technology majors. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging. This course assumes computer literacy.

Skills: G Course Type: T.

Course Rationale

This is an entry level programming course designed to teach students the basic concepts of computer programming. The course will include designing, coding, debugging, testing, and documenting programs using a high level programming language. The course is intended to prepare students for a programming-oriented academic path. This course is included in the Field of Study Curriculum for Computer Science.

STUDENT LEARNING OUTCOMES/LEARNING OBJECTIVES

COURSE OBJECTIVES / LEARNING OUTCOMES:

1. Demonstrate an understanding of the fundamentals of Swift, building modern mobile apps, iOS, Xcode, and other tools in the Xcode development environment.

2. Demonstrate and understanding of how to handle and store data using clearly defined types.

3. Demonstrate problem solving skills by developing and implementing algorithms to solve problems using operators.

4. Write code that makes decisions about what lines of code should be executed.

5. Create a basic iOS app to get familiar using Xcode.

6. Test and debug apps in a Mac, using the Simulator from Xcode.

7. Create visual interfaces using the Interface Builder from Xcode.

8. Demonstrate an understanding of strings, functions, structures, collections, loops, and different ways to work with the information that makes up an app.

9. Design and implement simple classes.

10. Demonstrate an understanding of structure design by implementing programs with functions, including parameter passing and value returning.

11. Create multiple scenes, views, and controls to build simple workflows.

12. Demonstrate understanding using Interface Builder and storyboards to build the user interface for apps with multiple

views.

13. Create programs that contain clear and concise program documentation.

SCANS (Secretary's Commission on Achieving Necessary Skills):

Refer to http://www.austincc.edu/cit/courses/scans.pdf for a complete definition and explanation of SCANS. The following list summarizes the SCANS competencies addressed in this particular course:

RESOURCES 1.1 Manages Time	**INTERPERSONAL** 2.1 Participates as a member of a team 2.6 Works with Cultural Diversity	**INFORMATION** 3.1 Acquires and Evaluates Information 3.2 Organizes and Maintains Information 3.3 Uses Computers to Process Information	**SYSTEMS** 4.1 Understands Systems 4.2 Monitor and Corrects Performance 4.3 Improve and Designs Systems
TECHNOLOGY 5.1 Selects Technology 5.2 Applies Technology to Task 5.3 Maintains and Troubleshoots Technology	**BASIC SKILLS** 6.1 Reading 6.2 Writing 6.3 Arithmetic 6.4 Mathematics 6.5 Listening	**THINKING SKILLS** 7.2 Decision Making 7.3 Problem Solving 7.4 Mental Visualization 7.5 Knowing How to Learn 7.6 Reasoning	**PERSONAL SKILLS** 8.1 Responsibility 8.2 Self-Esteem 8.3 Sociability 8.4 Self-Management 8.5 Integrity/Honesty

READINGS

Everyone Can Code

App Development with Swift

Swift 4 Edition

Publisher: Apple

Free from iBooks

Software

This course will be focus on IOS development tools with Swift using Xcode.

To complete this course, you will need:

- A Mac running macOS Sierra or High Sierra
- Xcode 9. Download it from the Mac App Store, if you need it.
- Project files for the course.

COURSE REQUIREMENTS

Grade Policy

The final course grade will be assigned based both on concepts and practical application. Exams, assignments, quizzes, and final project will be a part of the grade. ***In order to get a passing grade, you must submit at least 80% of the labs/assignments (21 labs/assignments).*** An overall grade will be assigned on the following grading scale:

90% - 100%	**A**
80% - 89%	**B**
70% - 79%	**C**
60% - 69%	**D**
0% - 59%	**F**

Orientation Exam (5%)

1. **Orientation Exam is available on the first day of the course.**
2. You may take the orientation exam as many times as necessary until you get **100**.
3. After you get 100, you will be able to start working in you class.

Labs/Assignments (30%)

1. All the labs/assignments must be submitted in Blackboard by the due date at 11:59 PM according to the schedule of the class.

2. If the labs/assignment has more than one (1) file, put all of them in one (1) folder with the assignment name and compress the folder (in Windows File Manager | R-click | Send to | Compressed (.zipped) folder), then upload that .zip file to Blackboard.

3. **From your textbook:**

a. Your labs/assignments from your textbook will be to follow and complete every step from every lesson. Using the files provided in the link at the end of page 5 in your textbook. This will guaranty that you are getting familiar and understand the concepts taught in class.

4. It is recommended that you review the Related Resources at the beginning of every lesson. This will complement and help you to understand better the content for every lesson.

5. Note: **Assignment links are automatically/programmatically removed from Blackboard at 11:59 PM of the due date. Therefore, assignments cannot be submitted after the due date. Make sure that you submit with enough time from the due**

time.

6. ***Again, assignments cannot be submitted after the due date since the submission links are automatically/programmatically removed from Blackboard.***

7. **To receive credit, assignments must completely meet requirements exactly as specified.**

8. Partial credit is not awarded for assignments that do not meet requirements.

9. To receive credit for the labs/assignments you must be present in class.

Guided Projects (15%)

1. You will complete three (3) projects during the semester.

2. All the project must be submitted in Blackboard by the due date at 11:59 PM according to the schedule of the class.

3. If the project has more than one (1) file, put all of them in one (1) folder with the assignment name and compress the folder (in Windows File Manager | R-click | Send to | Compressed (.zipped) folder), then upload that .zip file to Blackboard.

4. **From your textbook:**

   a. Your guided projects from your textbook will be to follow and complete every step. Using the files provided in the link at the end of page 5 in your textbook.

5. Each guided project includes a description of user-centered features, a project plan, and step-by-step instructions that lead to fully functioning app.

6. Through these guided projects you will be able to customize features according to your interests and you will be performing the kind of work you can expect in an app development workplace.

7. The first project is Light, a simple flashlight app. You will learn the basics of data, operators, and control flow in the Swift programming language. You will also learn about Xcode. Interface Builder, building and running an app, debugging, and documentation.

8. The second project is Apple Pie, a word-guessing game. You will learn about Swift strings, functions, structures, collections, and loops. You will also learn about UIKit, the system views and controls that make up a user interface, and how to display data using Auto Layout and stack views.

9. The third project is Personality Quiz, a personalized survey that reveals a fun response to the user. You will learn how to build simple workflows and navigation hierarchies using navigation controllers, tab bar controllers, and segues. You will also learn about optionals and enumerations, two powerful tools in Swift.

10. After you build the guided projects you will have part of the tools to design, prototype, and architect an app of your own.

11. To receive credit for the guided projects you must be present in class.

Quizzes

1. Quizzes are **at the end of every lesson, you should take them in order to get prepare for your Exam at the end of every Unit.**

Exams (45%)

1. All exams are administered in class and will have a 75 minutes' time frame.
2. **Exams are electronically administered via Blackboard. Paper versions are *no* supplied.**
3. **Links to the Exams appear in the *Assessments* section in Blackboard. Orientation Exam is available on the first day of the course.**
4. **Exam procedures must be followed step-by-step to access the exams.**
5. **The student CANNOT use notes, papers, or other helps during the exams.**

6. ***Exams will present one question at a time and Prohibit Backtracking. It will prevent changing the answer to a question that has already been submitted.***

Attendance and Participation (5%)

1. Regular and punctual class and laboratory attendance is expected of all students.
2. If you are present in the class you will have 100% of that day.
3. If you are late to class you will have a 90% of that day.
4. If you are more than 30 minutes late, you will be count absence for that day.

COURSE SUBJECTS

App Development with Swift textbook

Unit 1 – Getting Started with App Development

1.1 Introduction to Swift and Playgrounds

1.2 Constants, Variables, and Data Types

1.3 Operators

1.4 Control Flow

1.5 Excode

1.6 Building, Running, Debugging and App

1.7 Documentation

1.8 Interface Builder Basics

Guided Project – Light

Unit 2 – Introduction to UIKit

2.1 Strings

2.2 Functions

2.3 Structures

2.4 Classes, Inheritance

2.5 Collections

2.6 Loops

2.7 Introduction to UIKit

2.8 Display Data

2.9 Controls in Action

2.10 Auto Layout and Stack Views

Guided Project – Apple Pie

Unit 3 – Navigation and Workflow

3.1 Optionals

3.2 Types Casting and Inspection

3.3 Guard

3.4 Constant and Variables Scope

3.5 Enumerations

3.6 Segues and Navigation Controllers

3.7 Tab Bar Controllers

3.8 View Controllers Life Cycle

3.9 Building Simple Workflow

Guided Project – Personality Quiz

COURSE SCHEDULE - 9 WEEKS (MAY 29 - JUL 31)

COURSE SCHEDULE – COSC 1436 9 Weeks in Classroom Section

The weeks starts on Mondays at 12:00 AM until Sundays at 11:59 PM

Week	Date	Material (from Texts)	Lab (#)/Assignments (#) Units	Due Dates @ 11:59 PM
1	5/29	Unit 1 Lesson 1.1 – 1.2	**Orientation Exam** Lab 1.1 – Introduction Lab 1.2 – Constants & Variables	Jun 3, 2018
2	6/4	Unit 1 Lesson 1.3 – 1.4	Lab 1.3 – Operators Lab 1.4 – Control Flow	Jun 10, 2018
		Unit 1 Lesson 1.5 – 1.6	Lab 1.6 – Debug your First App	
3	6/11	Unit 1 Lesson 1.7 – 1.8	Lab 1.7 – Use Documentation Lab 1.8 – Use Interface Builder	Jun 17, 2018
		Unit 1	Guided Project - Light **Exam 1**	
4	6/18	Unit 2 Lesson 2.1 – 2.2	Lab 2.1 – Strings Lab 2.2 – Functions	Jun 24, 2018

		Unit 2 Lesson 2.3 – 2.4	Lab 2.3 – Structures Lab 2.4 – Classes	
5	6/25	Unit 2 Lesson 2.5 – 2.6	Lab 2.5 – Collections Lab 2.6 – Loops	Jul 1, 2018
		Unit 2 Lesson 2.7 – 2.8	Lab 2.7 – UIKit Survey Lab 2.8 – Tutorial Screen	
6	7/2	Unit 2 Lesson 2.9 – 2.10	Lab 2.9 – Basic Interactions Lab 2.10 – Calculator	Jul 8, 2018
		Unit 2	Guided Project – Apple Pie **Exam 2**	
7	7/9	Unit 3 Lesson 3.1 – 3.2	Lab 3.1 – Optionals Lab 3.2 – Type Casting	Jul 15, 2018
		Unit 3 Lesson 3.3 – 3.4	Lab 3.3 – Guard Lab 3.4 – Scope	
8	7/16	Unit 3 Lesson 3.5 – 3.6	Lab 3.5 – Enumerations Lab 3.6 – Login	Jul 22, 2018
		Unit 3 Lesson 3.7 – 3.9	Lab 3.7 – About Me Lab 3.8 – Order of Events Lab 3.9 – Pizza Delivery	
9	7/23	**Unit 3**	Guided Project – Personality Quiz **Exam 3**	Jul 31, 2018

(*) This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. However, the professor reserves the right to modify, supplement and make changes as the course needs arise.

COURSE/CLASS POLICIES

Attendance/Class Participation

Regular and punctual class and laboratory attendance is expected of all students. If attendance or compliance with other course policies is unsatisfactory, the instructor may withdraw students from the class.

Computer Time

Scheduling of computer time outside of regular lab time is the student's responsibility. Availability of computers is NOT an excuse for being late with a lab project assignment.

Withdrawal Policy

It is the responsibility of each student to ensure that his or her name is removed from the roll should he or she decides to withdraw from the class. The instructor does, however, reserve the right to drop a student should he or she feel it is necessary. If a student decides to withdraw, he or she should also verify that the withdrawal is submitted before the Final Withdrawal Date. The last date to withdraw for this semester is **July 17th, 2018**. The student is also strongly encouraged to retain their copy of the withdrawal form for their records.

If the withdrawal is not completed by **5 PM** on the last day to withdrawal, the student will receive a performance grade (A, B, C, D, or F) that they have earned. It is not the responsibility of the instructor to withdraw the students from their class even though the instructor has the prerogative to do so under the above listed circumstances.

Students who enroll for the third or subsequent time in a course taken since Fall, 2002, may be charged a higher tuition rate, for that course. State law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. With certain exceptions, all course withdrawals automatically count towards this limit. Details regarding this policy can be found in the ACC college catalog.

Incompletes

A student may receive a temporary grade of "I" (Incomplete) at the end of the semester only if ALL of the following conditions are satisfied:

1. The student is unable to complete the course during the semester due to circumstances beyond their control.
2. The student must have earned at least half of the grade points needed for a "C" by the end of the semester.
3. The request for the grade must be made in person at the instructor's office and necessary documents completed.
4. To remove an "I", the student must complete the course by two weeks before the end of the following semester. Failure to do so will result in the grade automatically reverting to an "F".

Statement on Scholastic Dishonesty

A student attending ACC assumes responsibility for conduct compatible with the mission of the college as an educational institution. Students have the responsibility to submit coursework that is the result of their own thought, research, or self-expression. Students must follow all instructions given by faculty or designated college representatives when taking examinations, placement assessments, tests, quizzes, and evaluations. Actions constituting scholastic dishonesty include, but are not limited to, plagiarism, cheating, fabrication, collusion, and falsifying documents. Penalties for scholastic dishonesty will depend upon the nature of the violation and may range from lowering a grade on one assignment to an "F" in the course and/or expulsion from the college.

See the Student Standards of Conduct and Disciplinary Process.

For this course, the penalty for scholastic dishonesty is a grade of 'F' for the course.

Student Rights and Responsibilities

Students at the college have the rights accorded by the U.S. Constitution to freedom of speech, peaceful assembly, petition, and association. These rights carry with them the responsibility to accord the same rights to others in the college community and not to interfere with or disrupt the educational process. Opportunity for students to examine and question pertinent data and assumptions of a given discipline, guided by the evidence of scholarly research, is appropriate in a learning environment. This concept is accompanied by an equally demanding concept of responsibility on the part of the student. As willing partners in learning, students must comply with college rules and procedures.

Statement on Students with Disabilities

Each ACC campus offers support services for students with documented disabilities. Students with disabilities who need classroom, academic or other accommodations must request them through the office of Student Accessibility Services (SAS). Students are encouraged to request accommodations when they register for courses or at least three weeks before the start of the semester, otherwise the provision of accommodations may be delayed. Students who have received approval for accommodations from SAS for this course must provide the instructor with the 'Notice of Approved Accommodations' from SAS before accommodations will be provided. Arrangements for academic accommodations can only be made after the instructor receives the 'Notice of Approved Accommodations' from the student. Students with approved accommodations are encouraged to submit the 'Notice of Approved Accommodations' to the instructor at the beginning of the semester because a reasonable amount of time may be needed to prepare and arrange for the accommodations.

Safety Statement

Austin Community College is committed to providing a safe and healthy environment for study and work. You are expected to learn and comply with ACC environmental, health and safety procedures and agree to follow ACC safety policies. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the Emergency Procedures poster and Campus Safety Plan map in each classroom.

Please note, you are expected to conduct yourself professionally with respect and courtesy to all. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be immediately dismissed from the day's activity, may be withdrawn from the class, and/or barred from attending future activities.

Testing Center Policy [Online Sections Only]

http://www.austincc.edu/testctr/

Freedom of Expression Policy

It is expected that faculty and students will respect the views of others when expressed in classroom discussions.

Tutoring

Free tutoring is provided for this course both on line and face-to-face. For online schedules and details please refer to http:://www.austincc.edu/cit.

Student Files – Privacy

Their instructor for educational and academic reasons may view the information that a student stores in his/her student volume in the Computer Studies Labs.

Concealed Handgun Policy

ACC faculty may notify students in their classes or learning environment about the Texas Campus Carry law taking effect at Austin Community College (and other Texas community colleges) on August 1, 2017. The following is recommended syllabus language, approved by legal counsel and the college. For courses including ACC-sponsored field activities, language is still being drafted.

The Austin Community College District concealed handgun policy ensures compliance with Section 411.2031 of the Texas Government Code (also known as the Campus Carry Law), while maintaining ACC's commitment to provide a safe environment for its students, faculty, staff, and visitors.

Beginning August 1, 2017, individuals who are licensed to carry (LTC) may do so on campus premises except in locations and at activities prohibited by state or federal law, or the college's concealed handgun policy.

It is the responsibility of license holders to conceal their handguns at all times. Persons who see a handgun on campus are asked to contact the ACC Police Department by dialing 222 from a campus phone or 512-223-7999.

1. Statement for standard classroom courses (non-exclusion zone)

Refer to the concealed handgun policy online.

2. Statement for classroom courses with physical activity (non-exclusion zone)

IMPORTANT: *(Class name) classes may involve considerable physical activity. Bending, stretching, lifting, and other rigorous activities associated with (class name) occur regularly in class. Such activities may expose concealed weapons and place the license holder in violation of state law. Therefore, it is recommended that concealed weapons be stored in a secure place as defined by college policy prior to entering the classroom, studio, or learning space.*

Refer to the concealed handgun policy online.

3. Statement for classroom courses in exclusion zones

IMPORTANT: *(class name) classes are held in an area designated as an exclusion zone as defined by state law or the college's concealed handgun policy. Concealed carry is prohibited in exclusion zones. Concealed weapons must be stored in a secure place as defined by college policy prior to entering the classroom, studio, or learning space.*

Refer to the concealed handgun policy online.

4. Facts

· All public Texas colleges and universities must abide by the law.

· Private institutions may opt out of implementing the law.

· The concealed campus carry law does not allow open carry on campus.

· A person must have a License to Carry a Handgun (LTC).

· A person must be at least 21 to obtain a LTC, unless he/she is active duty military or a police officer.

· Faculty and staff do not have authority to ban handguns from classrooms.

· Campus carry laws exist in eight states (Texas, Colorado, Utah, Idaho, Mississippi, Kansas, Oregon, and Wisconsin).

· Licensed gun owners have been allowed to carry concealed handguns on public campuses (but not in buildings) for 20 years.

· While Texas is currently in a legislative session, there are no indications lawmakers will change the law.

Use of ACC E-mail

All College e-mail communication to students will be sent solely to the student's ACCmail account, with the expectation that such communications will be read in a timely fashion. ACC will send important information and will notify you of any college related emergencies using this account. Students should only expect to receive email communication from their instructor using this account. Likewise, students should use their ACCmail account when communicating with instructors and staff. Instructions for activating an ACCmail account.

Student and Instructional Services

ACC strives to provide exemplary support to its students and offers a broad variety of opportunities and services. Information on these services and support systems is available here. Links to many student services and other information can be found at Current Students. ACC Learning Labs provide free tutoring services to all ACC students currently enrolled in the course to be tutored. The tutor schedule for each Learning Lab may be found here. For help setting up your ACCeID, ACC Gmail, or ACC Blackboard, see a Learning Lab Technician at any ACC Learning Lab.