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Spring 2012

### CS 399: iPhone Programming II

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## I. Unit

College/School : College of Engineering & Computer Science

Department : Computer Science

## II. Course Information

Course Title: iPhone Programming II

Course Abbreviation and Number: CS 399

Course Credit Hours: 4

Course Cross Listing(s) Abbreviation/Number:

Check (“x”) all applicable:

General Education Course \_\_\_\_\_

Writing Intensive  
Course \_\_\_\_\_

Service Learning  
Course \_\_\_\_\_

Laboratory Course \_\_\_\_\_

Ohio TAG (Transfer Assurance Guide) Course \_\_\_\_\_

Ohio Transfer Module  
Course \_\_\_\_\_

Others (specify) \_\_\_\_\_

## III. Course Registration

Prerequisites: CS 399 « iOS Programming I »

Corequisites: None

Restrictions: None

Other: or by permission of instructor

## IV. Student Learning Outcomes

Students will develop:

- Description:
- – additional competency developing software for iOS devices including any of iPhone, iPod Touch, or iPad
- – understanding of framework, language, and operating system support for multi-threaded programming
- – understanding of robust network communication approaches
- – understanding of sensors and location technologies with tradeoffs for accuracy, speed, and user privacy
- – competency integrating sensors, image processing, and networking to implement augmented reality applications.

## V. Suggested Course Materials (required and recommended)

Recommended: an iOS device (iPhone, iPod Touch, or iPad). (Software development and test using a simulator is available for students without access to an iOS device.)

Recommended: Conway, Joe and Hillegass, Aaron (2011). "iPhone Programming: The Big Nerd Ranch Guide (2nd Edition) (Big Nerd Ranch Guides)", Addison Wesley Professional, ISBN-13 978-0321773777 ISBN-10: 0321773772.

Recommended: Buck, Erik M. and Yacktman, Donald A. (2009). "Cocoa Design Patterns". Addison Wesley Professional, ISBN-10 0321535022 ISBN-13 978-0321535023

Recommended: (For students who wish to publish applications via the Apple iTunes App-store) "iOS Developer Program" subscription  
<http://developer.apple.com/programs/>

## VI. Suggested Method of Instruction

Lecture.

## VII. Suggested Evaluation and Policy

50% Course Projects (4)

30% Midterm examinations (0) / Quizzes (0) / Homework(10)

20% Final examination

## VIII. Suggested Grading Policy

Grades will be assigned on a standard A/90%, B/80%, C/70%, D/60%, F/60%- scale. Students must demonstrate competency (70% total average) on the programming projects in order to pass the class.

## IX. Suggested Assignments and Course Outline

Projects: Projects demonstrate multi-threaded programming, networking, "cloud" based data storage, advanced sensors including gyroscope, Apple's Game Kit, image processing, and augmented reality.

<b>Modules</b>	<b>Topic</b>
01	Review of iOS application architecture
02	Introduction to multi-threaded programming (how does it work; what can go wrong); Concepts of thread safety
03	Tool, framework, language, and system support for multi-threading; Best practices and guidelines
04-05	Network programming and "cloud" based data storage
06-07	Available hardware sensors (capabilities, limitations, restrictions); Implications for user privacy; Location based services
08	Apple's Game Kit for networked games; Template for other forms of networked collaboration between users
09-10	iOS support for image processing; Related signal processing
11	iOS support for 2D graphics, custom user interfaces, animation
12	iOS support for 3D graphics, 3D sound, and animation
13-14	Augmented reality

## X. Other Information

N/A