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College of Engineering & Computer Science

Fall 2012

CS 4900/6900-01: iOS Programming

Erik Marlow Buck

Wright State University - Main Campus, erik.buck@wright.edu

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CS 4900/6900 01 - IOS PROGRAMMING FALL 2012
SYLLABUS

ERIK BUCK

Learning Objectives

Competency developing software for iOS devices including any of iPhone, iPod Touch, or iPad

Understanding of the C and Objective-C programming languages

Understanding of typical embedded software constraints including resource management

Understanding of iOS development tools and software development life cycles

Developing 3D Graphics for iOS devices

Understanding iOS support for multi-threaded programming

Understanding robust network communication

Understanding sensors with tradeoffs for accuracy, speed, and user privacy

Schedule and Contact

Fall 2012

12:30 to 1:50 TR in Dunbar Library 058

Office Hours: 2:00 to 3:00 TR in Dunbar Library 058 (or by appointment)

erik.buck@wright.edu

Home phone: 937-431-1667

Evaluation and Policy

60% Project Assignments (6)

30% Homework Assignments (15) (Start homework assignments with Internet search: most questions can be answered with one sentence and a URL)

10% Final examination

A/90%, B/80%, C/70%, D/60%, F/50% (70% average on the programming projects to pass the class)

All Assignments must be submitted via Pilot drop box.

Extra Challenge & Credit

Up to 60% Challenge Assignments (2)

Complete these more advanced projects as alternatives to the 6 small projects if you are up for the challenge. Project proposals must be approved by instructor to receive credit.

Up to 30% Impress me (On any assignment, provide relevant information or references that instructor hasn't seen and/or make instructor laugh)

Importance of "Why"

Learning software development means learning "how" to accomplish tasks.

- “How” can almost always be answered via google search.
- This course provides a tour through iOS technology to arm you with the right terms for searches. Don’t hesitate to ask “how” questions. I’ll at least guide your search. Knowing “why” tasks are accomplished one way and not another makes you a professional.
- It’s difficult to answer “why” via search
- This course focuses on answering “why” and comparing alternatives.

Course Outline

Module 1: Native iOS Application Components

Module 2: Cocoa Touch Application Architecture

Module 3: ANSI C and Objective-C

Module 4: Loose Coupling & Alternatives to Inheritance

Module 5: Reference Counting Resource Management

Module 6: Objective-C Blocks

Module 7: iOS User Interface Survey

Module 8: Event Driven Programming

Module 9: Custom Drawing & Animation

Module 10: Multi-touch Input & Gestures

Module 11: Introduction to 3D graphics with iOS

Module 12: Animation and sound

Module 13: Introduction to multi-threaded programming; Concepts of thread safety

Module 14: Tool, framework, language, and system support for multi-threading; Best practices and guidelines

Module 15: Network programming and "cloud" based data storage

Module 16: Apple’s Game Kit; Template for other forms of networked collaboration

Module 17: Available hardware sensors (capabilities, limitations, restrictions user privacy)

Module 18: iOS support for image processing

Module 19: Augmented reality