



Gifted LearningLinks Program Course Syllabus

Instructor name: Alec Resnick
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Course Title: *Designing Games & Puzzles on iOS*

Session Date: Monthly Enrollment, 2011-2012 school year

Course Description:

Developing applications for mobile devices—especially in the Apple ecosystem (iOS)—is a tremendously exciting place to work right now. Unfortunately, diving in—especially if you don't have a background in programming—can be intimidating. This course is for anyone interested in getting their feet wet creating compelling applications for iOS.

The course will focus on three things:

- The Objective-C skills needed to create iOS applications
- The user interface and interaction design concerns that guide the creation of compelling iOS applications and finally,
- The mechanics underlying the creation of compelling puzzles.

This course will be project-driven—after covering a few of the formalities of getting acquainted with developing for iOS, we're going to immediately begin making projects of our own and deploying them online for people to try. We'll also do a fair amount of analysis and critique of other programs and games to understand what makes them tick (or not).

This course is appropriate for anyone interested—no background in programming or design will be assumed. If you do have a technical background, all the better—there's plenty to cover. Note that you will need an iDevice of some sort—iPhone, iPad, iPod Touch—and a Mac computer for this program.

Outcomes: Upon successful completion of this course, students will:

- a. Know the mathematics underlying several genres of puzzle design,
- b. Know the basic process for developing an iOS application
- c. Understand the necessary computer science concepts to implement those mathematical puzzles & patterns in computational form.
- d. Understand the principles of compelling puzzle design and software engineering
- e. Be able to design, develop, and deploy iOS applications on the iPhone/iPad

Resources and Materials:

- a. *iOS Programming: The Big Nerd Ranch Guide* (ISBN 0321773772)
- b. *Apple Developer Center* (<http://developer.apple.com/devcenter/ios/index.action>)

- c. *Personal Mac computer running Mac OS X Snow Leopard or Lion with XCode installed (will provide instructions)*

CTD Statement on Third-Party Web Sites

Instructors are required to thoroughly review any third-party web sites they intend to use in their courses for inappropriate content. However, because web content continuously changes, CTD disclaims any responsibility for any of the content contained on third-party web sites used in course materials. If you become aware of anything that may be inappropriate, please notify CTD staff immediately.

Schedule:

Note that this schedule is tentative and subject to change. In particular, one or two short articles or excerpts will be added to each week's readings as we explore and decide on mutually interesting topics within the scope of that week's focus.

SEMESTER ONE				
	Topic/Focus	Activities & Reading Assignments	What do I need to post to the Discussion Board?	What do I need to turn in?
Week 1	Getting set up // overview of the course	+ syllabus + course site + project 1 prompt + Ch. 1-3	+ survey answers + project ideas + puzzle review	+ screencast of compilation and execution of sample project
Week 2	What makes a good puzzle? // positional games	+ Ch. 4 + finish project 1 demo 1	+ spec for project 1 + reading reaction + puzzle brainstorm	+ screencast of code review
Week 3	What makes a good puzzle? // positional games	+ Ch. 8-9 + finish project 1 demo 2	+ reading reaction + puzzle review	+ screencast of code review
Week 4	What makes a good puzzle? // positional games	+ Ch. 10-12	+ ideas for project 2 + reading reaction + puzzle brainstorm	+ project 1 + screencast storyboard commercial for project 1
Week 5	What makes for a good interface? // graph theory	+ project 2 prompt + Ch. 13-16	+ draft of spec for project 2 + reading reaction + puzzle review	+ short feedback on projects + long feedback on project + screencast of code review
Week 6	What makes for a good interface? // graph theory	+ Ch. 17, 20, 21 + finish project 2 demo 1	+ finalized spec for project 2 + reading reaction + puzzle brainstorm	+ long feedback on project + screencast of code review

SEMESTER ONE

	Topic/Focus	Activities & Reading Assignments	What do I need to post to the Discussion Board?	What do I need to turn in?
Week 7	What makes for a good interface? // graph theory	+ Ch. 22 + finish project 2 demo 2	+ reading reaction + puzzle review	+ long feedback on project + screencast of code review
Week 8	What makes for a good interface? // game theory	+ Ch. 23	+ reading reaction + puzzle brainstorm	+ project 2 + screencast storyboard commercial for project 2
Week 9	// game theory	+ project 3 prompt + Ch. 24	+ reading reaction + puzzle review	+ short feedback on projects + long feedback on project + screencast of code review
Week 10	// game theory	+ Ch. 25 + finish project 3 demo 1	+ reading reaction + puzzle brainstorm	+ short feedback on projects + long feedback on project + screencast of code review
Week 11	// artificial intelligence	+ Ch. 26 + finish project 3 demo 2	+ reading reaction + puzzle review	+ short feedback on projects + long feedback on project + screencast of code review
Week 12	// artificial intelligence	+ Ch. 27	+ reading reaction + puzzle brainstorm	+ project 3 + screencast storyboard commercial for project 3
Week 13	// artificial intelligence	+ project 4 prompt + Ch. 30	+ reading reaction + puzzle review	+ short feedback on projects + long feedback on project + screencast of code review
Week 14	Gameplay mechanics	+ finish project 4 demo 1	+ reading reaction + puzzle brainstorm	+ short feedback on projects + long feedback on project + screencast of code review
Week 15	Gameplay mechanics	+ finish project 4 demo 2	+ reading reaction + puzzle review	+ short feedback on projects + long feedback on project

SEMESTER ONE				
	Topic/Focus	Activities & Reading Assignments	What do I need to post to the Discussion Board?	What do I need to turn in?
				+ screencast of code review
Week 16	User testing	+ finish project 4 demo 3	+ reading reaction + puzzle brainstorm	+ short feedback on projects + long feedback on project + screencast of code review
Week 17	User testing	+ document user testing of project 4	+ reading reaction + puzzle review	+ project 4 + screencast storyboard commercial for project 4
Week 18	Finishing up	+ design review of project 4	+ reading reaction + puzzle concept	+ feedback + review of project 4

Student Evaluation and Grading Policies for Credit Courses Only:

a. CTD Grading scale

A+ 97-100	B+ 87-89	C+ 77-79	D+ 67-69	F Below 60
A 93-96	B 83-86	C 73-76	D 63-66	
A- 90-92	B- 80-82	C- 70-72	D- 60-62	

b. Breakdown of final grade: 80% projects, 15% design reviews, 5% feedback/journaling

Instructor Biography:

Alec started and runs a science education research organization, sprout & co, in Somerville, MA. This is the first year he's joined the CTD team. Before working at sprout, he started an electromechanical design consultancy creating educational tools and toys after studying computational biology at MIT. Alec has been designing educational programs, software, and hardware for deployment in formal and informal environments for all ages for the past five years.

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