

**Center for Talent Development
Northwestern University
Course Syllabus**

Fall 2010 - Gifted Learning Links
Instructor: Brian Myers

Course Title: Computer Gaming Academy I

Course Description:

How often have you played a computer game, feeling that you could have created a better one? Now is your chance. During this experience, students are given the tools they need to design and develop their own characters, rules and strategies for a game that they build and publish. Learn the programming and design skills needed to become the next great game designer.

Essential Questions:

- a) What is a computer programming language and how does it talk to the computer?
- b) Do computer games tell stories? What can we learn from computer games?
- c) How do the various game genres differ, and what (if anything) do they share?
- d) Describe the difference between classes and objects; define inheritance.
- e) Demonstrate an understanding of algorithms, variables, randomness, conditional statements and other fundamental programming concepts within the game design context.

Outcomes:

Upon successful completion of this course, students will:

- a) *Know how to use logic to build a program utilizing drag and drop tools*
- b) *Understand the different types of video games and the important key concepts that make others want to play a game*
- c) *Develop characters for games and program them to function as designed*
- d) *Learn key elements of computer programming through logical processes*
- e) *Be able to write a technical document with instructions how to play the game they designed and developed*

Resources and Materials:

Overmars, Mark and Habgood, Jacob. [The Game Maker's Apprentice: Game Development for Beginners.](#)

Coursepack to be provided by the instructor.

Students will download Game Maker 7.0 (for Mac) or Game Maker 8.0 (PC). The PC software can be downloaded for free, but there is a \$20 fee for the Mac version. There is also a registered PC version that can be purchased for \$20. (the registered version has a few added features).

Schedule:

Date(s)	Topic(s)	Activities	Assignments and/or Assessment
Week 1	Introduction to classmates	Post to discussion board Pre-assessment phone conference with instructor.	Download and install Game Maker Application. Read Chapter 1: "Welcome to Game Maker"
Week 2	Getting familiar with Game Maker	Evil Clutches. Technical writing demo.	Read Chapter 2: "Your First Game". Complete Evil Clutches game.
Week 3	Objects and sprites.	Battlestar Galactica	Read handouts provided by instructor.

	Physics of motion.	project (part 1) Optional project: Galactic Mail (Chapter 3)	Create intro screen, scrolling background, player character and enemy character(s)
Week 4	Using variables to manage scoring, health and lives Randomness Algorithms and conditional expressions Sound effects Basic animation	Battlestar Galactica (part 2). Optional project: Galactic Mail (Chapter 3)	Read handouts provided by instructor. Add shooting, explosions, scoring and winner/loser screens. Technical writing project.
Week 5	Global and local variables Sequencing (time lines)	Wingman Sam	Read Chapter 9: "Cooperative Games." Read additional handouts.
Week 6	Maze mechanics Inventory management (pickups) Inheritance Views	Tank War Discussion: final project proposals.	Read Chapter 10: "Playing Fair with Tanks."
Week 7	Platform mechanics: Animation, Gravity Sprite sheets Tile sheets	Begin platform project (animation and gravity) Free and open source media editing tools.	Read instructor's handouts. Create original animated character or select from Pokemon, Mario, Sonic, Simpsons, Metroid (or other characters with instructor's approval). Final project proposal due.
Week 8	Autonomous agents (AI) Level design	Continue platform project: texturing, level design, enemies, bosses.	Read instructor's handouts. Read Chapter 8: "Game Design: Levels and Features."
Week 9	Final projects	Work on final projects.	Post final projects w/documentation to class web page.

Instructor Biography:

Brian Myers has a BS from Northwestern University and an MLIS from the University of Illinois, Champaign-Urbana. He directs Game Maker Academy, an out-of-school educational nonprofit program for youth and teens, and has taught teen-oriented media and game design classes at various institutions around Chicago's North Shore. He has taught at CTD for four years, offering classes in digital media and game development, dynamic web design and Java programming. He speaks and writes frequently about the importance of promoting digital design activities as a strategy for nurturing essential 21st century literacy skills. His Game Maker Academy program was the recipient of a 2008 American Library Association Presidential Citation.

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