



Gifted LearningLinks Program Course Syllabus Template

Instructor name:

E-mail address: xxx@xxx.xxx

Course Title

Scratching Technology I: Introduction to Computer Programming

Session Date: Winter 2011

Course Description

Create your own digital stories, animations, games, music and art! Share your creations on the Web with *Scratch*, a new programming language designed to help young people produce rich interactive media while developing meaningful 21st century skills. Scratching Technology is intended for students interested in learning to use computer programs to solve problems and create simple animated games in a structured environment. Students explore fundamental concepts in programming including graphics and sound as they learn to write basic interactive programs. This course challenges students with an interest and ability in math and science as well as a desire to think creatively and imaginatively solve problems, and prepares students for computer gaming and future computer programming courses.

Outcomes

Upon successful completion of this course, students will:

- Have a basic understanding of the structure of computer programs.
- Have established an understanding of the concepts, logic, and problem-solving skills that will carry over into more complex computer programming environments (e.g. scripts, loops, variables).
- Be able to read, write, debug programs using the Scratch programming language.
- Be comfortable discussing with the class the process by which they designed and executed their plan
- Understand the role that creativity can play in technology and, more specifically, computer programming.

Evaluation Process

Students are evaluated on their ability to complete weekly projects, on their analytic and creative approach to design problems, and their ability to express to others what they have learned.

Weekly reading assignments and design projects will be posted, with details either specified by the instructor or designed by the students themselves. A large portion of the evaluation will depend on the student's participation in the online class forum.

Required resources:

Scratch web site: <http://scratch.mit.edu>

Students will be required to create a Scratch account to create and maintain an online portfolio of projects. Every effort will be taken to maintain privacy of the students.

Scratch resource folder / Course pack

You will accumulate a number of handouts and project templates during our nine week course. It will be useful to collect these in a folder or binder for easy access.

Recommended additional resources:

Ford, Jerry Lee, Jr. *Scratch Programming for Teens*. (2008) ISBN: 1598635360

Learn Scratch web site: <http://learnscratch.org>

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.

Instructor Biography:

Brian Myers has a BS from Northwestern University and an MLIS from the University of Illinois, Champaign-Urbana. He currently works as a teen librarian and webmaster at the Wilmette Public Library (IL) where he also sponsors the Teen Advisory Board and Game Design Club. He has taught teen-oriented media, programming and game design classes at various institutions around Chicago's North Shore, and has taught programming and game design classes for the Center for Talent Development for two years. A member of the Association for Computing Machinery (Computer Science Education SIG), 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.

Contact Information:

Home: xxx-xxx-xxxx

Email: xxx@xxx.xxx

Schedule

Date(s)	Topic(s)	Activities	Assignments and/or Assessment	Instructional Strategies
Week 1	Orientation to Online Learning	Phone conference with instructor to discuss class structure and access to online resources.	Explore Scratch website and establish personal account Complete Pre-assessment mini-project	Following initial orientation, instructional strategies will provide for differentiation through open-ended lab activities and broad variability in the content and product domains.
Week 2	Programming Basics Introduction to Scratch Lab 1.1 & 1.2: Geometric Drawings Simple Game (Fish)	Turtle Graphics project Hands-on turtle graphics exploration	First post to online portfolio	Students will be encouraged to customize and enhance classroom examples in a way that is both challenging and personally meaningful.
Week 3	Algorithms: Problem solving and the design process Fish Game (cont'd)	“What makes a game?” Fish game debugging	Design process assignment Complete Fish game	
Week 4	2-Dimensional Positioning, Motion and Vectors (pt 1)	“Follow the Leader” project “Tank” project	Following handouts, create customized projects based upon our “Follow the Leader” and “Tank” exercises.	
Week 5	2-Dimensional Positioning, Motion and Vectors (pt 2) Importing and composing sound files	Sound importing and recording exercises utilizing Scratch and other composition and editing software.	Create original scrolling game utilizing number, sensing and broadcast blocks.	

Date(s)	Topic(s)	Activities	Assignments and/or Assessment	Instructional Strategies
Week 6	Digital Storytelling/Animation	Story boards “Dance Battle” project: coordinating motion, sound and dialogue	Complete scrolling game Complete and customize Dance Battle project	
Week 7	Advanced Topics: Gravity & Jumping, Levels Animation; Discuss Downloading Online Resources	Hands-on lab: platform mechanics Gravity Collision detection	Final Project Proposal Jumping and gravity exercise	
Week 8	Advanced Topics: Gravity & Jumping, Levels Mario Platform Game	Hands-on lab (cont'd): platform mechanics Inventory management and level design Individual work on final project	Complete and customize platform game Discussion of the students’ ideas, planning process, problems, and solutions	
Week 9	Complete Final Projects	Student designed games & final presentations of projects: “Designers gallery”	Discussion of the students’ ideas, planning process, problems, and solutions Self-assessment (turn in before end of class)	