

**UNIVERSITY OF NEBRASKA AT OMAHA  
COURSE SYLLABUS**

Department and Course Number	CSCI 2XXX ( <i>indicate if graduate cross-listed</i> )
Course Title	Video Game Design
Course Coordinator	Patrick Cavanaugh
Total Credits	3.0
Repeat for Credit?	No
Date of Last Revision	8/30/11

1.0 Course Description Information

1.1 Catalog description:

The course will cover game design and theory techniques used by the gaming industry. This course is designed for students who have gone through the introductory programming course and have an interest in what it takes to design current games.

1.2 Prerequisites of the course:

CIST 1400

1.3 Overview of content and purpose of the course:

The purpose of the course would be to introduce students to the process that is used for game development through practice. This will be accomplished by learning to program in a specific language (Flash's ActionScript) that is widely used today, yet easy enough to learn for novice game programmers due to ActionScript(AS) being very similar to the Java and javascript programming languages.

1.4 Unusual circumstances of the course.

2.0 Course Justification Information

2.1 Anticipated audience / demand:

This course is intended for students interested in game design, whether it be a career interest or a more leisurely interest.

This course is needed for the newly created video game concentration that is part of the computer science bachelor's degree.

2.2 Indicate how often this course will be offered and the anticipated enrollment:

This course will be offered every other semester. There will be between 15 and 20 students taking this course when it is offered. This estimate was derived from the expected number of students enrolled in the game programming concentration. The estimate is also a reflection of the number of students that enrolled in the course when it was offered as a special topic.

2.3 If it is a significant change to an existing course, please explain why it is needed:

- 3.0 List of performance objectives stated in learning outcomes in a student's perspective:
- 3.1 Students will learn the techniques necessary to program in AS, and demonstrate their knowledge through coding assignments.
  - 3.2 Students will demonstrate basic software development techniques.
  - 3.3 Students will demonstrate basic graphical user interface techniques.
  - 3.4 Students will be able to create a working user interface.
  - 3.5 Students will gain a better understanding, and an ability to use in a practical environment, the concept of object oriented programming.
  - 3.6 Students will gain a working knowledge of the Flash Integrated Development Environment.

#### 4.0 Content and Organization Information

- 4.1 List the major topics central to this course:
- 4.1.1 Elements of Gameplay (3.3 hours lecture, 1.6 hours discussion)
  - 4.1.2 Overview of Flash environment(2.5 hours lecture)
  - 4.1.3 Game Analysis (1.25 hours lecture, 1.25 hours discussion)
  - 4.1.4 Differences between AS and Java(5 hours lecture)
  - 4.1.5 Documentation for Games(2.5 hours lecture)
  - 4.1.6 MovieClips and Buttons(2.5 hours lecture)
  - 4.1.7 Level Design (5 hours lecture)
  - 4.1.8 Artificial Intelligence (5 hours lecture)
  - 4.1.9 Adding Sound (5 hours lecture)
  - 4.1.10 Final Project Touch-ups and Demonstrations (5 hours discussion)

#### 5.0 Teaching Methodology Information

##### 5.1 Methods:

The material is taught through lectures, readings, presentations, projects, and in class examples.

##### 5.2 Student role:

Students will be expected to; complete all programming assignments, complete reading assignments, complete a semester project, and create and deliver presentations.

#### 6.0 Evaluation Information

##### 6.1 Describe the typical types of student projects that will be the basis for evaluating student performance:

Evaluation will be based primarily on student work. Students will be required to create small examples of material learned, such as small AS programming assignments to ensure understanding of Flash and AS. Students will complete a semester long project that will entail using all concepts learned in the class to create a full two-dimensional

game. There will be three written documents which will be the documentation for the game. The AS programming assignments will be geared towards giving them the tools needed to make a 2D game. There will also be several quizzes throughout the semester that cover the required reading material.

- 6.2 Describe the typical basis for determining the final grade (e.g. weighting of various student projects):

Homework programming assignments: 30%

In-class programming Assignments: 20%

Quizzes: 10%

Final project: 40%

- 6.3 Grading type:

<b>Grade</b>	<b>Percent</b>	<b>Grade</b>	<b>Percent</b>
A+	98% - 100%	C+	76% - 79%
A	94% - 97%	C	73% - 75%
A-	90% - 93%	C-	70% - 72%
B+	87% - 89%	D+	66% - 69%
B	83% - 86%	D	63% - 65%
B-	80% - 82%	D-	60% - 62%
		F	0% - 59%

## 7.0 Resource Material Information

- 7.1 Textbooks and/or other required readings used in course:

Text: Rouse, Richard (2004) *Game Design: Theory and Practice*. Sudbury, MA: Jones & Bartlett Publishers

- 7.2 Other student suggested reading materials:

- 7.3 Current bibliography and other resources:

Cartoon Smart (n.d.) Retrieved from: <http://www.cartoonsmart.com/>

Colayco, Bob (n.d.) So You Wanna Be A: Game Designer. Retrieved from: <http://www.gamespot.com/features/6129276/so-you-wanna-be-a-game-designer/index.html>

Crawford, Chris (1982) *The Art of Computer Game Design*. Online version. Retrieved from <http://library.vancouver.wsu.edu/sites/library.vancouver.wsu.edu/files/ACGD.pdf>

A Digital Dreamer (2011) Retrieved from: <http://www.adigitaldreamer.com/articles/becomeavideogamedesigner.htm>

Fulton, Jeff & Fulton, Steve (2010) *Flash Games: Building Interactive Entertainment with ActionScript 3.0*. New York, NY: Springer-Verlag.

Fulton, Jeff & Fulton, Steve (2011) 8bitrocket.com.

Game Career Guide (2011) Retrieved from: <http://www.gamecareerguide.com/index.php>

Jackson, Philip C. Jr. (1985) *Introduction to Artificial Intelligence*. Mineola, NY: Dover.

Rosenzweig, Gary (2008) *ActionScript 3.0 Game Programming University*. Indianapolis, IN: Que.

Schell, Jesse (2008) *The Art of Game Design: A Book of Lenses*. Burlington, MA: Morgan Kaufmann

## 8.0 Other Information:

8.1 Accommodations statement:

8.2 Other:

8.3 Author(s):

Jayson McCune

## 9.0 Computer Science Accreditation Board (CSAB) Category Content (class time in hours):

<i>CSAB Category</i>	<i>Core</i>	<i>Advanced</i>
Data structures	2.5	0
Computer organization and architecture	0	0
Algorithms and software design	15	5.5
Concepts of programming languages	5	5

## 10.0 Oral and Written Communications:

Every student is required to submit at least 3 written reports (not including exams, tests, quizzes, or commented programs) to typically 10 pages and to make 1 oral presentations of typically 15 minutes duration. Include only material that is graded for grammar, spelling, style, and so forth, as well as for technical content, completeness, and accuracy.

## 11.0 Social and Ethical Issues:

When discussing game creation, acceptable content will be discussed. As well as, proper citation of non-student code.

## 12.0 Theoretical content:

Please list the types of theoretical material covered, and estimate the time devoted to such coverage.

Most of the lectures will cover the theoretical ideas behind game creation. There will also be a brief covering of theoretical material with the artificial intelligence section.

12.1 Elements of Gameplay – 1.25 hours

12.2 Game Analysis – 2.5 hours

12.3 Documentation for Games – 2.5 hours

- 12.4 Level Design – 5 hours
- 12.5 Artificial Intelligence – 5 hours

13.0 Problem analysis:

Please describe the analysis experiences common to all course sections.

Any kind of coding requires problem analysis. What tools to use to best solve a problem and how to make it efficient. There will also be problem analysis involved in how to implement the ideas that they come up with for their games.

14.0 Solution design:

Please describe the design experiences common to all course sections.

Besides the given assignments with well defined tasks, students will also be required to design and create their own game, on their own.

- 14.1 Making a user interface
- 14.2 Object oriented building of a game
- 14.3 Game documentation – specifically the design document
- 14.4 Level design
- 14.5 Creating realistic artificial intelligence
- 14.6 Going from design to finished, working, product

**CHANGE HISTORY**

<i>Date</i>	<i>Change</i>	<i>By whom</i>	<i>Comments</i>
08/30/2011	Moved need for course sentence from 1.3 to 2.1.	Jayson McCune	
08/30/2011	Changed estimate of number of students from 19 to a range between 15-20.	Jayson McCune	
08/30/2011	Added three more reference sources.	Jayson McCune	
08/30/2011	Changed the course coordinator to Patrick Cavanaugh.	Jayson McCune	
08/30/2011	Changed repeat for credit to No.	Jayson McCune	
08/30/2011	Changed the weight of student project grading and added quizzes to the evaluation section.	Jayson McCune	

