

## ActionScript for Designers – Fall 2008

### Massachusetts College of Art

Instructor: Steve Hoey (steve@stevehoey.com)  
Course web site: <http://www.stevehoey.com/asd/>  
Course Code: DE342X-C1 (Continuing Ed) / DE342X-G1 (Graduate)  
Semester: Fall 2008  
Credits: This is a one and a half credit class.  
Classes Per Week: Two 4-hour meetings first week; one 4-hour meeting per week thereafter; five meetings total  
Schedule: Monday, November 17, then Wednesdays: November 19, December 3, 10 & 17 (NOTE: no class on November 26)

### *Course Description*

Take your understanding of ActionScript to a new level. We'll use ActionScript 3 to enhance the interactivity of your projects, to produce re-usable code, and to create dynamic content.

In this project-based class, we'll each build a dynamic portfolio (for ourselves or for someone else). The portfolio should include, as its key feature, the ability to browse a dynamic collection of works (for instance, your portfolio might let the user view thumbnails of your paintings, and selectively enlarge them, and read detailed information about each one). You may produce a project other than a portfolio, provided that includes the same functionality as a portfolio site.

We'll begin with a review of tweening and nested movie clips as a Flash "warm-up." Next we'll review the changes to ActionScript 3, and we'll learn the syntax and structure of ActionScript files. We'll learn how to control on-screen objects programmatically; how to detect button presses, mouse clicks, and other events; how to use loops, conditionals, and "if/then" logic; and we'll learn how to troubleshoot. Finally, we'll learn how to programmatically load and control images, text, animations, sounds and/or videos into Flash using ActionScript.

Throughout the course, you will be expected to show progress on your final project each week, beginning with presenting your sketches/storyboards at the second class meeting. You are encouraged to work on a project of your own devising, with the instructor's approval. Your project must incorporate the techniques presented in class: scripted responses to button clicks; scripted control of on-screen items; scripted control of loading, displaying, and controlling external assets.

## *Prerequisites*

This class requires a working knowledge of Flash animation, navigation, and basic concepts like MovieClips and Library items. You should be comfortable using Flash to create MovieClips and do simple animations. In class we'll be working with Flash CS3 Professional (Flash 9) and ActionScript 3, and all the example files will be provided to you in Flash CS3. You must submit your assignments as Flash CS3 files.

Note that you may download and use a fully-functional 30-day trial of Flash CS3 Professional from Adobe's web site. Student discounts are also available.

## *Expectations*

The purpose of this course is to help you learn how to write good, useful ActionScript code that will enhance the quality of your projects. If you've worked at all with ActionScript in the past, you've undoubtedly found lots of tutorials and code samples on the web, or in books. Every software developer in the world uses code samples and tutorials, especially when exploring a new language.

You are encouraged to review any tutorials and samples that you may encounter on the web (a number of these are linked from the course web site). However, you are urged to **avoid copying and pasting blocks of other people's code into your projects**. If it appears to the instructor that you have appropriated chunks of code, you will be asked to describe, in detail, exactly how and why the code is working, and to provide modified code that performs the same functions. If you cannot meet these two demands, the work submitted that contains the appropriated code will be considered incomplete.

Once you are beyond the classroom environment, you should feel free to use whatever code you can find, provided that the author has granted permission for you to do this (generally, unless you've reverse-engineered a compiled SWF file, you are seeing the code because the author has chosen to share it). Our goal in this class is to get you to the point that you can recognize quality code, and modify it to suit your purposes.

## *Attendance*

Two absences results in automatic failure. More than 60 minutes late = absence. Exceptions will be made for sickness or family emergencies, if notification by email is received prior to class starting.

## *Student Evaluations and Grading*

### **ActionScript Problem Sets: 40% of final grade**

An ActionScript Problem Set will be assigned each week for the first three class meetings, due by midnight on Sundays prior to the next class meeting. You will receive a Pass/Fail grade for the first two Problem Sets, and will receive a grade and feedback via email for the third Problem Set. For all three Problem Sets, you will receive files featuring solutions via email after the due date.

You must submit a .zip archive of your Flash CS3 solution files via email to [steve@stevehoey.com](mailto:steve@stevehoey.com). Files will not be accepted after the due date.

### **Final Project: 40% of final grade**

You will bring your storyboards and sketches for Class 1, an interface design and prototype for Class 2, review your work-in-progress for Class 3, and present your project for class critique for Class 4. You will receive comments and suggestions for improvement via email and in class. Your final project is due via email a week after Class 4 (see schedule below). The grade for your Final Project will be based 30% on design, aesthetics and usability and 70% on technical skill and ActionScripting. A higher standard of excellence will be expected of graduate students – in concept, aesthetics and technical expertise. Late projects drop one full letter grade per day.

### **Class Participation & Effort: 20% of final grade**

You are expected to attend class each week, to complete all the assignments, to participate in the exercises during class, and to ask lots of questions!

## *Grading Scale*

H – all assignments on-time, and a Final Project that exceeds the requirements of the course in concept, aesthetics, graphic design, and technical elegance;

A – all assignments on-time, and demonstration of excellence in both design and technical expertise, originality in design;

B – demonstration of high quality work, in both design and technical expertise, or excellence only in design or technical expertise (not both);

C – satisfactory demonstration of design and technical skill, or high quality work only in design or technical expertise (not both), or failed to deliver either the Problem Sets or the Final Project;

F – unacceptably low demonstration of design and technical skill, or failed to attend at least 4 classes, or failed to deliver the Problem Sets and the Final Project.

## *Final Project & Intermediate Assignments*

This class will be based on the creation of your Final Project. The first part of the class will consist of lectures covering the Flash techniques you'll need to create your project. For the last part of the class, you'll have time to ask for individual help with Flash technique or design issues. Bring your work-in-progress in (Flash CS3 / 9) with you to every class on a CD or USB flash memory device. You are welcome to either work with the suggested project or write up your own idea and discuss it with the instructor before you begin.

### *Purposes of the Project*

1. Choose an interesting and engaging concept to work with.
2. Employ the techniques reviewed in the class.
3. Keep your focus on learning Flash skills, and minimize time spent on other skills such as illustration & photo retouching.
4. Integrate programming with design.
5. Produce a portfolio piece that you're proud to show, by the end of the class.

### *Suggested Project: Artist's Portfolio*

Use ActionScript to create a portfolio site that is flexible (easy to modify and maintain), usable, and elegant.

This project will give you experience with creating preload animation and programming, and using ActionScript to dynamically load images, sounds and/or movies into your portfolio site. You'll demonstrate knowledge of Mouse and Keyboard events, use of the Loader class, and programmatic control of visual assets like MovieClips. You should expect to spend 8 to 10 hours per week outside of class to work on your projects. There will also be some time to work on your projects in class.

Work with examples of your own work (or a willing friend's): illustrations, designs, songs, animations, or movies. Choose about 10 pieces that you'd like your site to feature. Include other sections such as: an intro animation (pre-loader), an artist's statement, a bio of the artist, a page of links to other work, or a list of associates you work with and links to their sites. Design an interface that incorporates all your sections, and features user-friendly navigation.

You may also propose an alternative final project during the storyboarding/sketching process – the only requirement is that your project must demonstrate mastery of the concepts and techniques taught in class. Build the portfolio using arrays and custom functions to dynamically load and display content (for example, a slideshow of images, or a collection of movies or audio files).

Your final project should include a high-quality, easy to use GUI design, and must include, at a minimum, the ability to

- navigate between the different “sections” or “views” of the portfolio site;
- display appropriate preloaders, as necessary;
- create and use an array of media assets to be loaded dynamically;
- navigate through the various media assets;
- load/unload and show/hide the loaded media assets;
- populate dynamic text fields with content relevant to the loaded assets.

### *Intermediate Assignments*

#### **Three Brief Problem Sets – due via email November 19, November 30, December 7**

These Problem Sets are designed to ensure that you have learned and can apply the concepts covered in each week’s class. The problems will be very close to the examples presented in class. The first two are pass/fail; the last is for a grade.

#### **Storyboard / Sketches / Specification – due in class November 19**

Create thumbnail sketches for your project. Your sketches should show your proposed screen layouts and major navigation sections. (Thumbnails can either be done on paper & scanned, or can be drawn directly in Flash, which ever you prefer.)

#### **Revised Storyboard / Specification & Interface Prototype – due in class December 3**

Your interface design should be built in Flash, should contain all the elements shown in your storyboard, and should be minimally functional (e.g., navigating to different “sections” should work, but the content and slideshow may be placeholders).

#### **Final Project Work-In-Progress – due in class December 10**

Bring your work-in-progress to class. We will set aside time in class to review projects individually and answer questions.

#### **Final Project Presentation & Critique – due in class Dec. 17; final via email Dec. 24**

Present your project to the class. Discuss creative process, techniques and problems. Self-critique your project by presenting its strengths first, and then talk about what you’d like to improve. Discuss concept in terms of unifying theme, composition, color scheme, mood and motion. How well does the concept support the purpose of your site? How well do the graphics and animation hold the viewer’s attention? Will the site download in a reasonable way for a user with a 56k dial-up modem? What would you do if you had more time to spend on this project? What did you learn about designing an easy-to-update site in Flash?

## Course Schedule

<b>Mon., Nov. 17</b> 6-10 pm  Class #0	<ul style="list-style-type: none"><li>• Review of Flash CS3 – shape &amp; motion tweens, and creating MovieClips</li><li>• Working with MovieClips &amp; their properties</li><li>• Simple interactivity – detecting &amp; responding to clicks</li><li>• Simple frame-label-based navigation</li><li>• Overview of new CS3 / AS3 features: the Display List and the Sprite class</li><li>• Introduction to drawing with ActionScript: the Graphics class</li><li>• How to use the trace function to troubleshoot your code</li></ul>
<b>Wed., Nov. 19</b>	<b>Problem Set #1 due by noon via email (pass/fail)</b>
<b>Wed., Nov. 19</b> 6-10 pm  Class #1	<b>Due in class: Storyboard/Sketches/Specification</b> <ul style="list-style-type: none"><li>• Introduction to Events – knowing when things happen &amp; responding</li><li>• More on controlling MovieClips and Sprites with ActionScript</li><li>• Working with Text – Static, Dynamic, and Input Text Fields</li><li>• Using conditionals and Boolean logic: testing &amp; responding</li><li>• Building a pre-loader</li></ul>
<b>Wed., Nov. 26</b>	<b>NO CLASS – THANKSGIVING HOLIDAY</b>
<b>Sun., Nov. 30</b>	<b>Problem Set #2 due by midnight via email (pass/fail)</b>
<b>Wed., Dec. 3</b> 6-10 pm  Class #2	<b>Due in class: Storyboard; Interface Design/Prototype</b> <ul style="list-style-type: none"><li>• Loading &amp; displaying external assets (SWF/JPG/PNG)</li><li>• Working with Sounds in the library</li><li>• Working with dynamically loaded MP3 files</li><li>• Understanding and working with Arrays</li></ul>
<b>Sun., Dec. 7</b>	<b>Problem Set #3 due by midnight via email (for a grade)</b>
<b>Wed., Dec 10</b> 6-10 pm  Class #3	<b>Due in class: Final project work-in-progress</b> <ul style="list-style-type: none"><li>• Review of material from Classes 1 – 3</li><li>• Exploring advanced topics: Loading &amp; using XML and other data; using filters, bitmaps, transformations, and more (if time permits)</li></ul>
<b>Wed., Dec 17</b> 6-10 pm  Class #4	<b>Due in class: Final project presentation and critique</b> <ul style="list-style-type: none"><li>• Each student will present her/his work to the class</li><li>• Students and instructor will respectfully critique &amp; offer suggestions</li><li>• Students and instructor are welcome to bring <b>refreshments!</b></li><li>• Q &amp; A and review of additional topics (if time permits)</li></ul>
<b>Wed., Dec 24</b>	<b>Completed Final Project due by midnight via email</b>

## *Recommended Books*

*Essential ActionScript 3.0*, by Colin Moock, published by O'Reilly.

The most thorough, comprehensive guide to writing proper, object-oriented, ActionScript 3 code. An excellent reference for any Flash developer!

*Sams Teach Yourself Adobe Flash CS3 Professional in 24 Hours*, by Phillip Kerman, published by Sams.

Phillip is a great teacher who produces clear, simple examples that help you do lots of practical things, from the basic to the fairly complex.

*Learning ActionScript 3.0: A Beginner's Guide*, by Rich Shupe and Zevan Rosser, published by O'Reilly.

This book wins a lot of praise from reviewers for being accessible to beginners, yet still being thorough. It's received some criticism for being poorly proofread and for being uneven in its assumptions about what the reader already knows.

*Foundation ActionScript 3.0 Animation: Making Things Move!*, by Keith Peters, published by Friends of ED.

Keith's book walks you through everything you need to know to create stunning animations using ActionScript. As he keeps reminding you, "It's not that hard!" Keith is located in the Boston area and is one of the founders of the Boston Flash Platform Users' Group (<http://www.bfpug.com>).

*ActionScript 3.0 Cookbook: Solutions for Flash Platform and Flex Application Developers*, by Joey Lott, Darron Schall, and Keith Peters, published by O'Reilly.

This book is a standard O'Reilly cookbook format: problem, solution, discussion. It covers lots of common techniques, and is a great way to learn good solutions for lots of typical needs.

*ActionScript 3.0 Design Patterns*, by William Sanders and Chandima Cumaranatunge, published by O'Reilly.

This book is for those who want to delve more deeply into Object-Oriented Programming using ActionScript 3. It explores common "design patterns" which developers have created over time to categorize solutions to common problems.

## Adobe Flash Player Version Penetration

### Worldwide Ubiquity of Adobe Flash Player by Version – September 2008

	Flash Player 7	Flash Player 8	Flash Player 9	FP 9.0.115
Mature Markets	98.6%	98.3%	97.7%	<b>89.4%</b>
US/Canada	98.7%	98.3%	98.1%	<b>90.0%</b>
Europe	99.1%	98.8%	98.0%	<b>88.6%</b>
Japan	97.5%	97.3%	96.3%	<b>88.3%</b>
Emerging Markets	Not surveyed in this wave			

### Worldwide Ubiquity of Adobe Flash Player by Version – June 2008

	Flash Player 7	Flash Player 8	Flash Player 9	FP 9.0.115
Mature Markets	99.0%	98.7%	97.7%	<b>81.7%</b>
US/Canada	99.1%	98.9%	97.8%	<b>83.3%</b>
Europe	98.5%	97.9%	96.5%	<b>78.6%</b>
Japan	99.3%	99.3%	98.8%	<b>81.3%</b>
Emerging Markets	97.3%	97.1%	96.2%	<b>82.4%</b>

### Worldwide Ubiquity of Adobe Flash Player by Version – March 2008

	Flash Player 7	Flash Player 8	Flash Player 9	FP 9.0.115
Mature Markets	98.8%	98.5%	97.2%	<b>61.8%</b>
US/Canada	98.7%	98.5%	97.3%	<b>62.1%</b>
Europe	98.5%	98.1%	96.5%	<b>61.9%</b>
Japan	99.8%	99.5%	98.0%	<b>61.0%</b>
Emerging Markets	Not surveyed in this wave			

### Worldwide Ubiquity of Adobe Flash Player by Version – December 2007

	Flash Player 6	Flash Player 7	Flash Player 8	Flash Player 9
Mature Markets	98.8%	98.8%	98.3%	<b>95.7%</b>
US/Canada	99.0%	99.0%	98.5%	<b>96.8%</b>
Europe	98.1%	98.1%	97.6%	<b>94.3%</b>
Japan	99.5%	99.5%	99.3%	<b>95.3%</b>
Emerging Markets	97.4%	97.3%	95.5%	<b>93.3%</b>

Source: [http://www.adobe.com/products/player\\_census/flashplayer/version\\_penetration.html](http://www.adobe.com/products/player_census/flashplayer/version_penetration.html)