

## Course Description

Being able to build and maintain a website has been an increasingly interdisciplinary skill. This course will introduce the fundamental languages of the web today - including HTML5, CSS3, PHP5, and powerful JavaScript libraries. Students will learn the semantics of a web page and how to abstract information in a universal form on the web with HTML5. They will learn how to make things "pretty" and presentable using CSS3. And finally - interactivity and user-personalization will be added using JavaScript and PHP. By the end of the course, students will understand: the fundamental cross-browser issues that inhibit the progress of web technology as we know it, the ideas behind a well-designed interactive website for the Google Chrome and Mozilla Firefox browsers, and the tools needed to continue learning.

## Homework and Projects

To pass the course, the students will need to complete several short assignments to demonstrate their ability to think critically about designing websites. There will be a few short projects in the first half of the term focusing on major topics such as AJAX, working with jQuery, and making "pretty" layouts [using awesome CSS tricks]. The second half of the term will be focused on a student's own idea for a project that demonstrates the use of modern web technology. Each assignment will have a challenge question requiring analytic thought and the final project should display a greater understanding of the concepts covered in the class.

## Grading

Each student will be responsible for attending all lectures, completing all homework assignments, and demonstrating significant improvement since the beginning of the term. Each student will need to have a laptop for class as well as knowledge of how to SSH. The first class will be an organizational meeting which will determine when the class will be offered for the rest of the term, providing students access to a UGCS account, accessing a list of software that will be useful for the last few weeks of class, and getting a basic introduction to HTML4. All information for the class will be provided on the instructor's website: <http://www.ugcs.caltech.edu/~kratsg>.

## **Instructor**

Giordon Stark would be the instructor for the class and would be ultimately responsible for the formulation of the assignments and lessons, as well as teaching the class. Giordon is self-taught in web programming, with more than 8 years of experience, and can program in HTML, CSS, JavaScript, PHP, SQL, XHTML, XML and has experience with concepts in AJAX and DHTML. He has worked on several projects (such as Neopets), dealing with frameworks, security, and database management and optimization, and has won the CS/EE 144 Rankmaniac 2011 web competition. He is a Health and Safety Instructor (instructing for over 9000 hours) with the American Red Cross in teaching classes such as: CPR/First Aid/AED, Basic Aid Training, HIV/AIDS Peer Education, and Basic Instructor Training.

## **Teaching Assistant**

There will be a TA handpicked by Giordon who has taken the class prior and demonstrated excellent ability and would be responsible for monitoring each student's progress in the course, notifying the sponsor of the course's status, collaborating with Giordon to make improvements on the class lectures and in-class problem sets, and otherwise aiding Giordon as a teaching assistant.

## **Lectures**

The class will take about 3 hours each week. For the first half of the term: 1.5 hours devoted to lectures on fundamental ideas behind the web design process; 1.5 hours devoted to homework applying the lecture. The second half of the term will have no more than 45 minutes - 1 hour of lecturing to allow more time for students to work on their projects and receive assistance.

## **Previous Experience**

This class was successfully taught before successfully in the 2009-2010 school year in Spring Term under Pa070c, Section 6. There were 10 students enrolled in the class [the class wasn't publicized by email so enrollment rate was lower than expected]. All the comments from this class have been applied to improve and strengthen the lectures in specific areas of interest. The major point was the introduction of JavaScript libraries and techniques in this class as requested by the students. Finally, the overall goal has shifted from merely learning how to build efficient, pretty websites - to learning the abstract coding languages so one can look up more specific examples and know how to tweak them to fit their purpose - don't reinvent the wheel, just make it better.

## Tentative Topics by Week

OM HTML: Learning the (tabled) Layout

1. CSS: Styles and Syntax
2. Advanced CSS: (layered) Display and Presentation
3. jQuery and the Document Object Model
4. PHP: Eloping with `http://www.php.net/`
5. More PHP: Cool Tidbits
6. Even More PHP: Becoming Synchronized using AJAX
7. Begin Project Design
8. Project Development
9. Project Development
10. Project Development

**Class Proposer** Giordon Stark (email: *kratsg*)

**Class Sponsor** Adam Wierman (email: *adamw*)