# Syllabus

version 1.1

## Instructor

David J. Malan
dmalan@harvard.edu
http://www.cs.harvard.edu/malan/
+1-617-523-0925

## Description

Today's websites are increasingly dynamic. Pages are no longer static HTML files but instead generated by scripts and database calls. User interfaces are more seamless, with technologies like Ajax replacing traditional page reloads. This course teaches students how to build dynamic websites with Ajax and with Linux, Apache, MySQL, and PHP (LAMP), one of today's most popular frameworks. Students learn how to set up domain names with DNS, how to structure pages with XHTML and CSS, how to program in JavaScript and PHP, how to configure Apache and MySQL, how to design and query databases with SQL, how to use Ajax with both XML and JSON, and how to build mashups. The course explores issues of security, scalability, and cross-browser support and also discusses enterprise-level deployments of websites, including third-party hosting, virtualization, colocation in data centers, firewalling, and load-balancing.

## Prerequisites

Prior programming experience (in any language) and familiarity with HTML are assumed.

## Expectations

You are expected to attend or watch all lectures, to implement four projects, and to design and implement a final project.

## Grades

Your final grade will be based on your performance on the course's projects, each of which will bear equal weight. Projects will be evaluated along the axes of correctness, design, and style. Remarkable effort and improvement will not go unnoticed.

**Website**

The address of this course's website is:

http://www.cs75.net/

**Staff**

To contact the staff, email:

help@cs75.net

**Lectures**

Lectures will take place in Harvard Hall 104 on Mondays from 5:30pm ET until 7:30pm ET.

Each lecture will be filmed and made available within 72 hours via the course's website in streaming and downloadable formats. Once posted, these recordings will remain available until semester's end. Although the recordings are intended to be used by students taking the course via the Internet, students taking the course on campus are welcome to watch or listen to the recordings in the event that their attendance at one or more lectures is not possible. All students are welcome to watch or listen to the recordings for the purpose of reviewing the content of particular lectures.

A schedule of lectures, subject to change, appears below.

**Lecture 0: HTTP**
Monday, 30 August 2010

**Lecture 1: PHP**
Monday, 13 September 2010

**Lecture 2: PHP, Continued**
Monday, 20 September 2010

**Lecture 3: XML**
Monday, 27 September 2010

**Lecture 4: SQL**
Monday, 4 October 2010

**Lecture 5: SQL, Continued**
Monday, 18 October 2010

**Lecture 6: JavaScript**
Monday, 25 October 2010

**Lecture 7: Ajax**
Monday, 1 November 2010

**Lecture 8: User Interfaces**
Monday, 8 November 2010

**Lecture 9: Security**
Monday, 15 November 2010

**Lecture 10: Scalability**
Monday, 29 November 2010


**Sections**

Sections offer opportunities to review recent lectures' material in a more intimate environment with only a teaching fellow and a handful of classmates present.  Sections also provide guidance on projects.

A schedule of sections appears on the course's website.


**Projects**

A schedule of projects, subject to change, appears below.

**Project 0: Setup**

**Released:** Monday, 13 September 2010
**Due:** Monday, 27 September 2010, noon ET

**Project 1: PizzaML**

**Released:** Monday, 27 September 2010
**Due:** Monday, 18 October 2010, noon ET

**Project 2: C$75 Finance**

**Released:** Monday, 18 October 2010
**Due:** Monday, 8 November 2010, noon ET

**Project 3: BART**

      **Released:** Monday, 8 November 2010
      **Due:** Monday, 29 November 2010, noon ET

**Final Project**

      **Released:** Monday, 1 November 2010
      **Proposal Due:** Monday, 15 November 2010, noon ET
      **Implementation Due:** Monday, 13 December 2010, noon ET
      **Computer Science Fair:** Tuesday, 14 December 2010, 5:30pm ET – 7:30pm ET

Extensions on these projects will not be granted, except in cases of emergency. Technical difficulties will not constitute emergencies. Late submissions will be penalized 1% per minute late up to 100%. Lateness will be determined by submissions' timestamps.

The climax of this course is the final project. The final project will be your opportunity to design and implement a dynamic website of your very own. So long as your final project draws upon this course's lessons, the nature of your website will be entirely up to you, albeit subject to the staff's approval.

This semester will conclude with its annual "Computer Science Fair" on Tuesday, 14 December 2010, from 5:30pm ET until 7:30pm ET, in Maxwell Dworkin 119 at 33 Oxford Street in Cambridge. A course-wide exhibition of final projects held jointly with CSCI E-7: Exposing Digital Photography, the Fair is an opportunity to mingle with classmates, see each other's work, and eat cake. Distant students are encouraged to travel to campus for this event. Family and friends are welcome to join you.

Inasmuch as software development is rarely a one-person effort, you will be allowed an opportunity to collaborate with one or two fellow student for this final project. Needless to say, it is expected that both students in any such group will contribute equally to the design and implementation of that group's project. Moreover, it is expected that the scope of a two-person group's project will be twice that of a typical one-person project. A one-person project, mind you, should entail time and effort equivalent to that required by one of this course's assigned projects. Collaboration is not allowed on the four assigned projects.

**Exams**

This course has neither a midterm nor a final exam.

**Books**

No books are required for this course.  However, we recommend either of the sets below.  Each of these books is available for purchase at sites like Amazon.com.  Each has also been placed on reserve at Grossman Library.  Realize that links to free, if not superior, alternatives to these books can be found on the course's website.

**For Those Less Comfortable**

*HTML, XHTML, and CSS: Your visual blueprint for designing effective Web pages*
Rob Huddleston
Wiley Publishing, Inc., 2008
ISBN-13 978-0-470-27436-1

*JavaScript: Your visual blueprint for building dynamic Web pages*, 2nd Edition[*]
Eric Pascarello
Wiley Publishing, Inc., 2004
ISBN-10 0-7645-7497-3

*PHP & MySQL: Your visual blueprint for creating dynamic, database-driven Web sites*
Janet Valade
Wiley Publishing, Inc., 2006
ISBN-10 0-4700-4839-5

**For Those More Comfortable**

*Apache Phrasebook*
Daniel Lopez
Sams Publishing, 2006
ISBN-10 0-672-32836-4

*JavaScript Phrasebook*
Christian Wenz
Sams Publishing, 2007
ISBN-10 0-672-32880-1

*Linux Phrasebook*
Scott Granneman
Sams Publishing, 2006
ISBN-10 0-672-32838-0

---

[*] Out of print but available from third parties on Amazon.com.

*MySQL Phrasebook*
Zak Greant, Chris Newman
Sams Publishing, 2006
ISBN-10 0-672-32839-9

*PHP Phrasebook*
Christian Wenz
Sams Publishing, 2006
ISBN-10 0-672-32817-8


**Software**

It is not necessary to purchase any software for this course. All software required by the course's projects will be available for download via the course's website for Linux, Mac OS, and Windows alike.


**Academic Honesty**

All work that you do toward fulfillment of this course's expectations must be your own unless collaboration is explicitly allowed by some project. Viewing or copying another individual's work (even if left by a printer, stored in an executable directory, or accidentally shared in the course's virtual terminal room) or lifting material from a book, magazine, website, or other source—even in part—and presenting it as your own constitutes academic dishonesty, as does showing or giving your work, even in part, to another student.

Similarly is dual submission academic dishonesty: you may not submit the same or similar work to this course that you have submitted or will submit to another. Nor may you provide or make available your or other students' solutions to Project 0, Project 1, Project 2, or Project 3 to individuals who take or may take this course (or CSCI S-75) in the future.

You are welcome to discuss the course's material with others in order to better understand it. You may even discuss problem sets with classmates, but you may not share code. You may also turn to the Web for instruction beyond the course's lectures and sections, for references, and for solutions to technical difficulties, but not for outright solutions to problems on projects. However, failure to cite (as with comments) the origin of any code or technique that you do discover outside of the course's lectures and sections (even while respecting these constraints) and then integrate into your own work may be considered academic dishonesty.

If in doubt as to the appropriateness of some discussion or action, contact the staff.

All forms of academic dishonesty are dealt with harshly.