15-437 / 15-637: Web Application Development Spring 2014 Syllabus

This course will introduce concepts in programming web application servers. At the conclusion of this course you will understand the fundamental concepts of software engineering and how they apply to web application design and programming, will know the modern tools used to program web application servers, and will be able to produce substantial web applications as part of a team. This course will introduce web application concepts using both Django/Python and J2EE-based technologies, and you will be able to generalize these concepts to other web application technologies and tools.

During the first half of the semester we will have a series of homework assignments, in which you build an increasingly sophisticated web application. The second half of the course will focus on a larger project, in which you will design and implement a substantial dynamic web site of your choice as part of a project team. At the conclusion of your project you will demonstrate your web site to the course staff. There will be a single test: a final exam.

This course has a non-traditional format in which you will first encounter new technical content outside the classroom. You will deepen your understanding and gain hands-on experience of the content in the classroom, where you can work with your peers and receive immediate feedback from the course staff. Your participation both inside and outside of class will be critical for your success in the course.

Course topics

Web data protocols. HTML, CSS, and Bootstrap. JavaScript. jQuery. Ajax. Web frameworks and design patterns. Cookies. Sessions. Many Django and J2EE applied concepts. Databases and transaction management. ORM tools. Web security. Concurrency. View templating. Web scalability and performance. Cloud services. Principles of UI design.

Important dates

Homeworks are expect to be due Mondays at 11:59 p.m.
Final project presentations are expect to the week of April 21, 2014
Final exam date is to be determined by the registrar, but could be as late as Monday night, May 12, 2014.

You must be present for the final exam. If you must schedule travel plans to return home before the exam schedule is published, do not plan to leave before May 12, 2014.

Textbooks

This course has no required textbooks, but you might find the following useful as references:

- The Definitive Guide to Django: Web Development Done Right, 2nd edition. Holovaty and Kaplan-Moss. Apress, 2009. A bit outdated, mostly references Django 1.0. Good if you want an offline reference for basic concepts, but not as good as the online documentation for newer versions of Django.
- Head First Servlets and JSP, 2nd edition. Basham et al. O'Reilly, 2008. An easy read for basic J2EE concepts.
- Pro Git. Chacon. Apress, 2009. Free online at http://git-scm.com/book.

Grading

Your course grade will be determined approximately as follows:
- 0% to 5% Quizzes
- 30% to 40% Homework
- 30% to 40% Final project
- 20% to 30% Final exam

Late Policy

Please refer to the course Blackboard for the course late policy.

Collaboration policy

You should read and abide by the University Policy on Academic Integrity, http://www.cmu.edu/policies/documents/Academic%20Integrity.htm.

Additional information about collaboration (and cheating) will be discussed in the first course meeting and reiterated on the Blackboard (under Course Policies => Collaboration Policy).

Accommodations

If you wish to request an accommodation due to a documented disability, please inform the instructor as soon as possible and contact Disability Resources at 412.268.2013 or lpowell@andrew.cmu.edu.