15-437 / 15-637: Web Application Development Fall 2015 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 primarily using Django/Python, and you will be able to generalize these concepts to other web application technologies and tools.

During the first part of the semester we will have a series of homework assignments in which you build an increasingly sophisticated web application. The second part of the course will focus on a larger project, in which you will design and implement a substantial dynamic web site 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. Our class meetings consist of lab-like sections where you will gain hands-on experience and have the opportunity to 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 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 typically due Thursdays at 11:59 p.m.
First homework due: 03 September 2015.
Final project presentations: 02 - 08 December 2015.
Final exam: TBD, could be as late as Sunday night, 20 December 2015.

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 21 December 2015.

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  - A bit outdated, mostly references Django 1.0.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.
- **Pro Git.** Chacon. Apress, 2009.
  - Free online at http://git-scm.com/book.

Grading

Your course grade will be determined approximately as follows:
- 30% Homework
- 40% Final project
- 20% Final exam
- 10% Participation and quizzes

Late work policy

We understand that normal life events -- including projects and exams in other courses -- can interfere with your ability to complete your work on time. This course has no explicit provision for late work (such as allowing late days on a fixed number of assignments), but you may request an extension of any homework deadlines on a case-by-case basis.

To be considered for an extension you must request the extension **before the homework deadline** from a course TA -- not the instructor -- either in person or in a private Piazza post. Your request must be early enough such that it is reasonable to expect a TA to consider and reply to your request before the deadline; 11 p.m. the night a homework is due is clearly not reasonable, and 9 or 10 p.m. is very late, too. It's reasonable to expect some TA to reply to a 5 p.m. private Piazza post on a day the homework is due.

Your request must include
1. an explanation of why you need the extension
2. a requested new due date

The TAs will reject any request that does not contain a reason and a specifically requested new due date. If one TA rejects your request, you may not ask another TA to consider the same (or similar) request.

The course instructor will not ordinarily consider requests for an extension; you must ask a TA. The instructor will only consider direct requests in unusual circumstances, such as if your request needs extreme privacy.

You may not request an extension for work turned in via a face-to-face meeting with course staff, such as your final project presentations.

Collaboration policy

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

For homework assignments, you are encouraged to talk with and share ideas with other students, including examining and critiquing others' solutions. You must independently create and turn in your own unique work. In particular, you may not copy another student's files or let another student copy your files. You may use external resources (books, internet sites, etc.) as references, but you may not copy files or substantial parts of files from external resources, and you must clearly cite any external resources you use.

You are encouraged to collaborate with your partner and with other students for your course project. All project deliverables, however, must be completed by you and your partner. You may not copy another project's documents or code for your project solution, or use substantial external code or documents obtained from any third party such as an internet site.

Here are some examples of behavior that are inappropriate:
- Copying files or parts of files (such as source code, written text, or unit tests) from another person or source.
- Copying (or retyping) files or parts of files with minor modifications such as style changes or minor logic modifications.
- Allowing someone else to copy your code or written assignment, either in draft or final form.
- Getting help that you do not fully understand, or from someone whom you do not acknowledge on your solution.
- Writing, using, or submitting a program that attempts to alter or erase grading information or otherwise compromise security of course resources.
- Copying someone else's files containing draft solutions, even if the file permissions are incorrectly set to allow it.
- Lying to course staff.
- Copying prose or programs directly.
- Giving copies of work to others.
- Making your work publicly available in a way that other students (current or future) can access your solutions, even if others' access is accidental or incidental to your goals.
- Coaching others step-by-step without them understanding your help.

There are of course some gray areas, such as receiving help you don't fully understand or copying generic, boilerplate UI designs or configurations from the internet. In general, you should ask the instructor if you have any questions or concerns about the policy, or if you are unsure about the appropriateness of your own past or potential future actions. ***When in doubt, ask the instructor.***

The minimum penalty for violating this policy will be a zero grade for the assignment in question, and **all** cases will be referred to the appropriate university disciplinary board. Be warned that the university disciplinary actions for cheating can be very harsh, especially in response to cheating by a graduate student. Even a first-time cheating offense can result in dismissal from the university without your degree. There is no statute of limitations for violations of the collaboration policy; penalties may be assessed (and referred to the university disciplinary board) after you have completed the course, and some requirements of the collaboration policy (such as restrictions on posting your solutions) extend beyond your completion of the course.

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.