

15-437 / 15-637: Web Application Development

Spring 2015 Syllabus

January 13, 2015

(Updated January 27, 2015 -- Changes marked in red.)

(Updated March 30, 2015 -- Filled in TBD lecture topics.)

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 also some J2EE-based technologies, 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 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.

Course Meeting Times

This course will have lectures on Tuesdays and Thursdays at 1:30pm in Wean Hall Room 7500. Professor Eppinger will usually remain after class to for one-on-one conversations with students. If another lecture is about to start, the conversations will move to the seating area behind the elevators.

Final project presentations will be scheduled outside of normal lecture times, during the week of April 20th.

Important Dates

Homework assignments will typically be due on Mondays at 11:59 p.m.

First homework is due on January 19th (at 11:59pm).

Final project presentations will be the week of April 20th.

Final exam: TBD. Note: It could be as late as Monday night, May 11th!

You must be present for the final exam. If you must schedule travel plans before the registrar announced the final exam schedule, do not leave campus before May 12th.

Course Staff

Instructor:

Jeffrey Eppinger (eppinger@cmu.edu), Office: WEH 5124

Teaching Assistants:

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Course Topics

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

The expected lecture schedule, subject to change, is as follows:

Date	Lecture Topic	Date	Lecture Topic
1/13	Intro	3/10	Spring Break
1/15	HTML & CSS	3/12	Spring Break
1/20	JavaScript	3/17	Performance
1/22	Bootstrap	3/19	Scalability
1/27	HTTP & Django	3/24	Sprint #1 Presentations
1/29	Django Models	3/26	Sprint #1 Presentations
2/3	Cookies & Sessions	3/31	Design and Usability
2/5	Transactions	4/2	Internationalization
2/10	Django Templates	4/7	Sprint #2 Presentations
2/12	Images	4/9	Sprint #2 Presentations
2/17	AJAX	4/14	node.js
2/19	jQuery	4/16	Spring Carnival (no lecture)
2/24	Databases	4/21	Demo Week (no lecture)
2/26	Cloud Deployment	4/23	Demo Week (no lecture)
3/3	SSL	4/28	Best Project Awards
3/5	Project Proposal Q&A	4/30	Review for Final

Textbooks

This course has no required textbooks as information about the topics covered in this course is readily available on the internet, but you might find the following texts to be useful 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
- 30% Final exam

These percentages may be adjusted, with notice, if quizzes or other class participation components are added to the computation of your grade.

Late Homework 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. Therefore, you may submit your homework up to **two days late without penalty**. However, we will track the number of late days you use. Students who have used fewer late days will be able to sign up sooner for project demo slots.

Students may submit homework more than two days late, with penalty. *You may submit homework three days late without notifying the course staff in any way. If you need to submit homework more than three days late, you must discuss this with the professor after any course lecture. (Updated January 27, 2015)*

Late penalties will be assessed at the end of the semester when your final course grade is computed. If you have a small number of excess late days (more than two on homework assignments) and you are close to the borderline between two grades, you will receive the lower course grade. In essence, you give up your right to complain about being the person with the highest average getting that grade. If you have a large number of excess late days, we will lower your course grade even if you are not on the borderline. If you have an extreme number of excess late days, we may lower your course grade several notches.

Late Project Policy

If you are unable to demonstrate your course project at the scheduled final presentation time, you may discuss with the professor the possibility of demonstrating your project the following week with a reduction in your project grade.

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, and 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. Note: 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.