

Database-Backed Web Programming
CSE 491 s1, Spring '13
Syllabus 1/17/13 (v2)

Lecture/lab: Tu/Th 2:40-4pm, McDonel Hall 2

Instructor: C. Titus Brown, ctb@msu.edu, BPS 2228(c)

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Office hours: 6-8 pm on Tuesdays, in 2228 BPS; or by appointment.

Objectives:

In this course, you will learn how the Web works by writing a Web server and some Web applications. More generally, we will discuss concepts in client-server and peer-to-peer architectures and how all of this technology works “under the hood” on today’s Internet. We’ll also discuss issues and approaches to developing software with an eye to maintainability, and learn about the practical separation of concerns in Web application stacks, from browser through server.

Background: Everything will be done in Python (v2.7) on Linux, and you should have general familiarity with programming, including object-oriented programming and functions.. There are no specific prerequisite bits of info.

Materials: There are no required books or materials, and everything I use will be freely available online.

Attendance: Attendance is expected, and there will be a lot of in-class discussions and work, so come unless you have a good reason otherwise. Class will probably not meet on Feb 26, Feb 28, Mar 14, and Apr 4; I will announce this at the previous class and also via the mailing list and Web site.

Tests, homeworks, and grading: There will be no tests; I hate ‘em, and you hate ‘em. Homeworks will generally be assigned every other Thursday and due the following Wednesday, one week after I assign them. Extensions will be available by request until I grade the homeworks, usually by the following Monday; if you don’t hand one in on time or by the extension (when granted), you will get a 0. I may give you an extension to fix problems in HWs under certain conditions. Course grades will be evenly divided across the homeworks, and I’ll grade on a right-skewed curve so that you can still get a 4.0 if you do well on all but one homework.

Group work: All work can be done in groups, with one exception that I’ll explain next Tuesday. You’re completely responsible for what you hand in.

Extra credit: Participation on the mailing list and via the Web site (comments, etc.) is strongly encouraged and will be used to assign extra credit; this includes asking questions, not just answering them. Posting relevant resources is also encouraged.

Commercialization (my notes) and intellectual property (your code): My notes will be licensed under a Creative Commons license, attribution required (<http://creativecommons.org/licenses/by/2.5/>). This means you can do whatever you want with them as long as you properly attribute their origin to me. Copyright to your code will be retained by you, but in order to take the course you must give me and all other students in the course a license to share and adapt your work for non-commercial purposes (Creative Commons, Attribution-Noncommercial-Share Alike; <http://creativecommons.org/licenses/by-nc-sa/3.0/>). Please see me privately before drop day if you want to discuss this.

Course scope: The course will include the following: advanced abstractions in Python; automated testing and code coverage analysis; network programming; HTTP protocol implementation; JavaScript and JQuery; HTML templating with Jinja2; Django programming (Python); Amazon Web Services and cloud computing; exceptions; and software installs and systems administration on Linux.

Course outline:

The course will be broken up roughly seven modules:

1. Introducing Python, git, and other basic technology (Jan 8 – Jan 22)
2. HTML, static sites, and templating; serving static files (Jan 24, Jan 29, Jan 31)
3. What lurks beneath: networking, HTTP, and WSGI (Feb 5-19)
4. Information exchange: cookies, authentication, etc. (Feb 21, 26, and 28)
5. Remote procedure calls, databases, and mashups (Mar 12-26)
6. JavaScript, JQuery, and other exciting technology (Mar 28-April 16)
7. Django and “real” Web site development (April 18-April 25)