CSCI 446: Web Applications
Winter/Spring 2012, **online**

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Office hours are Mon, Wed & Fri from 12PM – 2PM and by appointment.

Course Web home: http://mines.humanoriented.com/446/

Prerequisite: CSCI 445 Web Programming

Text: Agile Web Development with Rails, **4th ed.** Ruby, Thomas, Hannsson. Pragmatic Bookshelf. 2011

Course Objectives

The goal of this course is to provide the senior-level student with the skills, experience and perspective necessary for building Web applications using effective, postmodern tools and architectures. In addition, the student is challenged to think about Web application architecture, which has been rapidly changing since the turn of the century. Topics include:

- UI design & programming with XHTML, HTML5, CSS, JavaScript and the DOM
- Model-View-Controller and other design patterns
- Application development with the Rails framework
- Test-driven development, collaborative development
- Bug tracking and project management
- Database management with SQLite (and other RDBMSes)
- RESTful Web services design, implementation and integration
- Client-side AJAX with JavaScript, Scriptaculous and jQuery
- RIA applications with Adobe FLEX
- Basic best practices in software engineering, deployment, and administration
- Web application architectures (history, present, future)
- Ruby!

Grading

- Participation 10%
- Projects 60%
- Midterm 15%
- Final Paper 15%

Attendance/Participation

As this is an online class, your participation is even more important than a traditional "meatspace" lecture. (If you don't know what *meatspace* is, you should read Neuromancer by William Gibson.) It boils down to one simple idea: **interact frequently on Piazza**.

Projects

The best way to gain experience building Web applications is to, that's right, *build Web applications.* We are going to build as many applications as possible this semester, approximately one every two weeks. Each project assignment is designed to illustrate a specific lesson regarding postmodern best practices in Web development. You will be allotted approximately two weeks for each project.

Late Work Policy

Late work is accepted in this class. Submissions that are within twenty-four hours of the deadline will receive a 10% deduction. Work submitted between two and seven days of the deadline will receive a 25% deduction. No work is accepted more than seven days past the due date.

Exams

One take-home midterm exam will be conducted the week of March 5, 2012.

A take-home final exam will be conducted during the week of May 7, 2012.

A makeup examination can be arranged only when a student has an emergency (eg, medical emergency or urgent family matter). The student may be asked to provide the instructor with an appropriate document, such as a doctor's note.

Accommodation

If you need certain accommodation based on disability, talk to the instructor in person so that appropriate arrangements can be made.

Course Schedule

This schedule is an estimate and is subject to change according to the actual progress of the course.

Week	**Topic**	**Reading***
1	Introduction, History, Ruby, Markup	_why's Poignant Guide, Rails 1
2	HTTP, Frameworks, Intro to Rails	Intro to Ruby
3	MVC	Rails 1 – 4, Zombies
4	Rails	Rails 5 – 13, Railscasts
5	Interface Patterns, Libraries, File Uploads ActiveRecord associations	Rails 14 – 15, Railscasts
6	More MVC	Rails 16 – 17, Railscasts
7	Authentication, Authorization, ActiveSupport	Rails 18 – 19, Railscasts
8	Gems	Rails 20 – 21, Railscasts
9	**Midterm**	Rails 22 & 24, Railscasts
10	(Spring Break)	
11	Deployment, Staging, Production	Online, Railscasts
12	Workflow, Collaboration, Git	Rails 25, Railscasts
13	Application Patterns	Rails 23, Railscasts
14	DHTML, jQuery, AJAX	Online, Railscasts
15	Integration	Online
16	Integration, Cloud-Based Deployment	Online
17	REST, Web Services, SOA	Online
18	**Final Exam**	

* Chapters noted are from textbooks and provided pdfs and are provided here merely as a guide.

On Collaboration & Academic Integrity

Students are encouraged to discuss and collaborate as much as possible. However, it is obviously not acceptable to copy another student's solution. Your work must be your own. In addition, simply copying solutions found online is not acceptable. Be aware that homework assignments, project and midterm will not just focus on producing correct code, but explaining how things work.

Please see the Student Handbook for details on academic dishonesty. No exceptions will be made for students found simply giving away or taking another's solutions.

Examples of Academic Misconduct

To clarify what constitutes illegitimate collaboration, please note the following examples of what is considered inappropriate.

- Viewing another student's quiz, test, paper, or code while working on your own.
- Providing another student a copy, electronic or otherwise, of your work.
- Accepting a copy, electronic or otherwise, of another student's work.
- Copying and pasting *any* component of another student's work into your own.
- Copying solutions found online or otherwise, pasting it into your own work without proper citation.

These scenarios will be considered as academic misconduct except when involving an assigned project partner.

Academic Integrity Pledge

Being enrolled in this class means that you pledge to uphold the high standards of academic ethics and integrity expressed by the Colorado School of Mines Student Honor Code by which you are bound. In particular, you will not misrepresent the work of others as my own, nor will you give or receive unauthorized assistance in the performance of academic coursework. You should understand that my instructor will report any infraction of academic integrity to the Department Head and that any such matter will be investigated and prosecuted fully.