Instructor: Dr. Oge Marques
Office: SE 420
Email: omarques@fau.edu
Office Hours: Tuesdays & Thursdays: 11:00-12:15 / Wednesdays: 9:00-12:30

Catalog description:

3 Credits Prerequisites: COP 3530 and COP 3813 (strictly enforced)
To develop hands-on knowledge of the latest web development tools, languages and models. Students will develop projects consisting of innovative Web-based solutions. Topics include: characteristics and foundations of Rich Internet Applications (RIAs), server-side technologies and languages, client-side technologies and languages, usability and human factors, and content sharing tools and technologies.

Course goals:

- To provide a solid conceptual understanding of the main technologies associated with the Web 2.0
- To enable a hands-on experience by developing web-based projects using the latest tools, languages, techniques, and best practices
- To study AJAX in depth and create AJAX-capable websites
- To examine the technical aspects associated with contemporary web-based actions such as: blogging, podcasting, RSS feeds, mashups, tagging and rating.

Textbook combo:

Course outline:

1. Motivation – the need for an improved Web development platform
   a. Do we need a Web 2.0?
   b. What is wrong with the Web 1.0 and how can we fix it?

2. A quick review of the main Web 1.0 technologies, languages, and standards
   a. XHTML and XHTML validation
   b. CSS and separation between presentation and content
   c. XML
   d. JavaScript
   e. DOM
   f. PHP
   g. MySQL

3. Web 2.0 and Rich Internet Applications (RIAs)
   a. Web 2.0: the facts behind the buzz
   b. Web 2.0: social layer, architectural layer, technical layer
   c. RIA characteristics and foundations
   d. DHTML and Flash
   e. The role of AJAX

4. AJAX fundamentals
   a. Motivation
   b. Basic principles, main concepts, first steps
   c. Patterns and refactoring
   d. The Model-View-Controller (MVC) pattern
   e. Core techniques
   f. The role of the server
   g. Request management
   h. XML, XPath, XForms and XSLT
   i. JSON

5. AJAX toolkits, editors, debugging tools, frameworks, and libraries

6. Professional AJAX – fundamentals, examples and best practices
   a. The user experience
   b. Security and performance aspects
   c. AJAX examples
   d. Handling events
   e. Form validation, usability, and submission
   f. Content navigation
   g. Dragging and dropping
   h. Stand-alone applications with AJAX
   i. AJAX and RSS
   j. Widgets
Syllabus

7. Mashing up with AJAX
   a. The mashup ecosystem
   b. Open web APIs and AJAX

8. Server-side languages, technologies and frameworks
   a. Ruby on Rails
   b. Ruby JavaScript (RJS)
   c. Google Web Toolkit (GWT)

9. Content sharing tools and technologies
   a. Tagging and rating
   b. Blogging
   c. Podcasting
   d. Video and image uploading and sharing

10. Case studies and success stories

Grading Policy: Grades will be determined primarily from the following:

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<thead>
<tr>
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<tr>
<td>Mini-projects (~5):</td>
<td>60 %</td>
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<tr>
<td>Fun activities:</td>
<td>10 %</td>
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<td>Final project:</td>
<td>30 %</td>
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Practical Projects:
This is a hands-on course. During the first 10 weeks of the semester, students will work on 5 (five) individual mini-projects (MPs) as follows:

- **MP 1**: a Web 1.0 site using XHTML and CSS
- **MP 2**: form validation and processing, Web 1.0 style (adding PHP, MySQL, and JavaScript to MP1)
- **MP 3**: first AJAX-based website (DOM, JavaScript, and XMLHttpRequest)
- **MP 4**: improved AJAX-based website (using a library/toolkit such as Mochikit, Dojo, Yahoo! UI, or Script.aculo.us)
- **MP 5**: a mashup (bringing pieces and bits of your favorite web services – e.g., Google Maps, Yahoo Traffic, Flickr, Digg, Amazon, etc. – together)

Additionally, students will be assigned one or more “fun activities” that refer to the social layer of Web 2.0. These may include: setting up a blog, creating an account on Flickr, exploring tagging and rating in sites such as del.icio.us, and/or setting up a podcast.

Towards the end of the term, students will work (in groups) to develop a complete web-based solution (a Rich Internet Application, RIA) which ideally should encapsulate the knowledge acquired in the course. This final project may (and ideally should) integrate pieces and bits developed for the mini-projects. It should consist of server-side functionality (databases, scripts, server configuration and security aspects), client-side functionality (web page design, form validation, usability aspects, multimedia), and business aspects (target audience, revenue sources, innovative aspects, competition, etc.). Students will be encouraged to develop a small-scale version of a web-based site inspired by a contemporary success story.

**Course Home Page:** A home page containing relevant information and useful links for the course is available at: [http://blackboard.fau.edu/](http://blackboard.fau.edu/).