Course Description and Prerequisites

**Description:** Hands-on introduction to some 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), client-side technologies and languages, usability and human factors, and content sharing tools and technologies.

**Prerequisites:** Honors students 10th grade or higher

Course Objectives

*(what we will do in this class)*

- Provide a solid conceptual understanding of some of the main languages and technologies associated with the Web, particularly HMTL5, CSS, JavaScript, and PHP
- Obtain hands-on Web design and programming experience by developing Web-based projects using the latest tools, languages, techniques, and best practices
- Examine the social and technical aspects of contemporary Web-based solutions such as: social networking, (micro) blogging, twitter and mobile web-based applications

Course Outcomes

*(what we expect you to learn)*

1. Learn about the latest tools, technologies, standards, and best practices in Web design and development
2. Understand the main principles behind the design of successful contemporary Web solutions
3. Acquire hands-on experience in designing Rich Internet Applications (RIAs) using the latest languages, tools, technologies, standards, and best practices
4. Understand the implications of social and human factors in the technical design of Web-based solutions and Rich Internet Applications (RIAs)

Course Structure

The class will meet for a 3-hr session in the morning followed by 1-hr lunch break and another 3-hr session in the afternoon.

Textbook **(recommended, not required)**

*Learning PHP, MySQL, JavaScript & CSS 4th Ed.*, by Robin Nixon

(O'Reilly 2014, ISBN 978-1491918661)  
[http://lpmj.net/](http://lpmj.net/)
Florida Atlantic University  
Dept. of Computer & Electrical Engineering and Computer Science  
EGN 1935: Discoveries in Engineering: New-generation Web Technologies  
Summer 2015

Lecture notes  
Lecture notes and handouts will be posted on Blackboard (http://bb.fau.edu)

Evaluation Methods  
The course grade is based on the following components:

- Project 1 – A basic HTML page 10%
- Project 2 – Improved HTML page using the Bootstrap Framework 10%
- Project 3 – Adding JavaScript interactivity to the client 20%
- Project 4 – Connection to the Database via PHP 20%
- Final Project – An image-sharing app using HTML5, CSS, MySQL, and PHP 30%  
  (deliverables – 15%, presentation – 5%, and report – 10%)
- Participation 10%

Notes:
- Projects 1 and 2 will be individual work
- Projects 3, 4 and Final Project will be developed in groups of 3 students

Grading Scale:
- 92-100 = A
- 88-91 = A–
- 84-87 = B+
- 80-83 = B
- 77-79 = B–
- 73-76 = C+
- 70-72 = C
- 66-69 = C–
- 61-65 = D+
- 56-60 = D
- 50-55 = D–
- 0-49 = F
### Florida Atlantic University

*Dept. of Computer & Electrical Engineering and Computer Science*

*EGN 1935: Discoveries in Engineering: New-generation Web Technologies*

*Summer 2015*

<table>
<thead>
<tr>
<th>Dates</th>
<th>Lecture Topics, Projects, and Assignments (Tentative</th>
<th>Subject to Change)</th>
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</thead>
</table>
| Day 1   | **Welcome and Orientation; Course Administration and Policies; Schedule**  
**MODULE 1: Web design and development today**  
Introduction and overview; History of the Web, How the Web works, Web authoring & publishing  
**MODULE 2: Tools**  
Browsers, editors, authoring & publishing tools  
**MODULE 3: Basic Web Design – HTML**  
HTML5  
**Project 1: A Basic HTML page**  
Students will design a basic HTML page (with minimal CSS). |
| Mon 6/8 |                                                     |                     |
| Day 2   | **MODULE 4: Basic Web Design – CSS**  
CSS; W3C validation, separation between presentation and content; templates; good and bad design  
**MODULE 5: Bootstrap CSS framework**  
Tutorial on using Bootstrap framework  
**Project 1 due**  
**Project 2: Implementation of the UI Using the Bootstrap Framework**  
Implement the page you created in the previous assignment using Bootstrap. |
| Wed 6/10|                                                     |                     |
| Day 3   | **MODULE 6: JavaScript**  
Control statements, functions, arrays, objects.  
**Project 3: Basic image filtering using JavaScript**  
Implement an app for image upload and filtering using JavaScript  
**Project 2 due** |
| Fri 6/12|                                                     |                     |
| Day 4   | **MODULE 6: JavaScript (continued)**  
Document Object Model (DOM), events  
**MODULE 7: MySQL and PHP**  
Relational databases, examples of database query, connect to database server, PHP overview  
**Project 3: due**  
**Project 4: Connect to database via PHP**  
Write PHP code for user authentication (log in / sign up) and connection to the MySQL database |
| Mon 6/15|                                                     |                     |
| Day 5   | **MODULE 7: MySQL and PHP (continued)**  
Additional topics in PHP  
**Project 4: due**  
**Final Project: Final Project – An image sharing app using HTML5, CSS, MySQL, and PHP** |
<p>| Wed 6/17|                                                     |                     |
| Day 6   |                                                     |                     |
| Fri 6/19|                                                     |                     |</p>
<table>
<thead>
<tr>
<th>Day 7</th>
<th><strong>MODULE 7: MySQL and PHP (continued)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>Additional topics in PHP</td>
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<tr>
<td>6/22</td>
<td>Students will finish working on their final project.</td>
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<tr>
<th>Day 8</th>
<th><strong>MODULE 8: Latest developments in HTML 5</strong></th>
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<tbody>
<tr>
<td>Wed</td>
<td>Highlights of HTML5</td>
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<tr>
<td>6/24</td>
<td><strong>Student evaluation</strong></td>
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<tr>
<th>Day 9</th>
<th><strong>MODULE 9: Review, Discussions, Reflection / Meta-cognition</strong></th>
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<tbody>
<tr>
<td>Fri</td>
<td><strong>Final Project due</strong></td>
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<tr>
<td>6/26</td>
<td><strong>Presentation of Final Projects</strong></td>
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<td></td>
<td><strong>Group photos</strong></td>
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