Cleveland State University  
Department of Electrical Engineering and Computer Science  

CIS 408 Internet Computing (3-0-3)  

**Prerequisites:** CIS 430 Preferred  
**Instructor:** Dr. Sunnie (Sun) Chung  
**Office Location:** FH222  
**Phone:** 216 687 4661  
**Email:** sschung.cis@gmail.com, s.chung@csuohio.edu  
**Webpage:** [http://eecs.csuohio.edu/~sschung](http://eecs.csuohio.edu/~sschung)  
**Office Time:** Tues, Thurs 4:00 PM – 6:00 PM (email me for an appointment)  

**Catalog Description:** World-Wide Web is now being used as a platform for sophisticated interactive applications, replacing the traditional mechanism of installable binaries. Web-based applications offer numerous advantages, such as instant access, automatic upgrades, and opportunities for collaboration on a massive scale. However, creating Web applications requires different approaches than traditional applications and involves the integration of numerous technologies. This class will introduce to the Web technologies and give students experience creating Web applications. In the process the students will learn about markup languages, scripting languages, network protocols, interactive graphics, event-driven programming, and interaction with database servers, and see how they all are integrated together to deliver web applications. Topics include HTML, CSS, JavaScript, PHP, Document Object Model (DOM) for Document structure, Extensible Markup Languages (XML), JavaScript Object Notation (JSON), separation of content & style, reuse, Model View Controller (MVC), Angular.js, Node.js, Hyper Text Transfer Protocol (HTTP), Asynchronous JavaScript and XML (AJAX), Representational State Transfer (REST) Web Service design, Cookies/Sessions, Open Database Connectivity (ODBC)/Java Database Connectivity (JDBC) with Relational DBMS and Semi-Structured DBMS - Schema, Objects, CRUD operations, and Security. The course will advance with Cloud Computing concepts and applications at the end.  

**Expected Outcome:** By the end of the class, the students will understand technologies and concepts of the modern web application architecture with web browsers, web servers/application servers, and DBMS. They should be able to integrate them together to build web applications using HTML, CSS, JavaScript, Extensible Markup languages (XML), separation of content & style, reuse, Document Object Model (DOM), Model View Controller (MVC), Node.js, Angular.js, HTTP, AJAX, REST API design, Cookies/Sessions, Relational DBMS, Semi-Structured DBMS - Schema, Objects, CRUD, and Security. The students will extend their skills to build Cloud based web applications.  

**List of Required Materials:** It will be instructed in detail in class and posted on the class webpage.  

- HTML5/XHTML/XML  
- JavaScript
PHP
DOM XML Parser, Microsoft XML DOM Parser or SAX XML Parser
Java Script Framework - JQuery and Bootstrap
Angular.js, Node.js
WAMP/LAMP Server with MySql/PostgreSQL
ASP.NET with MS SQL Server
HTTP
SOAP
REST API
MongoDB
Amazon RDS (Relational Database Service)
Amazon Elastic Cloud for Web Service
Microsoft Cloud Azure

Text:
1. Lecture Notes – Will be given in Class

   Available at:  

   Available at: 

Supplement Text:


Class Web Page: 
http://eecs.csuohio.edu/~sschung/CIS408/CIS408.html
This course will be run on the class webpage.
Lecture Notes and Lab Instructions will be posted on the class webpage.

Official Academic Calendar
For the final exam schedule, Please see the university schedule page at:
Grading: The course grade is based on a student's overall performance through the entire Semester. The final grade is distributed among the following components:

1. Exams 40%; Midterm (15%) and Final (Comprehensive) 25%
2. Computer Labs: 45% (5-6 lab assignments)
3. 1 Final Project (2 person group) with Presentation: 20%

I reserve the right to change the weighting and number of assignments. The following grading scale will be used to calculate final grades (subject to curving if class grades on exams are substantially below the expected):

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>94% +</td>
<td>A: Outstanding (student's performance is genuinely excellent)</td>
</tr>
<tr>
<td>A-</td>
<td>90% - 93%</td>
<td>A: Good (student's performance is clearly commendable but not necessarily outstanding)</td>
</tr>
<tr>
<td>B+</td>
<td>88% - 89%</td>
<td>B: Acceptable (student's performance meets every course requirement and is acceptable; not distinguished)</td>
</tr>
<tr>
<td>B</td>
<td>82% - 87%</td>
<td>C: Below Average (student's performance fails to meet course objectives and standards)</td>
</tr>
<tr>
<td>B-</td>
<td>80% - 82%</td>
<td>D: Failure (student's performance is unacceptable)</td>
</tr>
<tr>
<td>C</td>
<td>75% - 80%</td>
<td>F: Failure (student's performance is unacceptable)</td>
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</tbody>
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For exams, problems will be a combination of multiple choice, true/false, short answer as well as problem solving and descriptive problems.

Course policy

1. Class participation and preparation
   1. Class participation and regular attendance are expected. If a student misses a class, the student is responsible for bringing herself/himself up-to-date on class material and assignments.
   2. All students are expected to read the assigned chapters prior to coming to class.
   3. All cell phones and pagers must be turned off during class.
   4. Notebook computers may be used only for taking notes and for no other purpose. Abuse of this privilege will cause all students to lose the privilege.
   5. Chatting is not allowed during class periods. If you have a question about material being presented in class, please ask the instructor.

2. Exams
   1. Exams will be based on the combination of: material covered in lectures, the assigned reading from the textbooks, material covered in the notes, and lab practice.
   2. All exams are closed books and closed notes.
   3. No makeup exams will be given!
   4. Examination Policy: Students are allowed to bring to the Final a summary page (standard letter size) with their own notes. During the exams: (1) the use of books, cell phones, calculators, or any electronic devices is prohibited, and (2) students must not share any materials.

3. Homework assignments
   1. All homework assignments are due at the beginning of class on the specified date. An assignment turned in one day late will get a 10% penalty, two days late will get a 20% penalty.
penalty, etc. Assignments turned in after the beginning of class on the due date will be
counted as one day late and will receive a 10% penalty.
2. All homework assignments will be accepted with a 25% grade penalty for up to a week and
then not accepted at all. All laboratory assignments must be completed. Failure to do so will
lower your course grade one additional letter grade.
3. All assignments must be individually and independently completed. Should two or more
students turn in substantially the same solution or program, in the judgment of the instructor,
the solution will be considered a group effort. All involved in a group effort homework will
receive a zero grade for that assignment. A student turning in a group effort assignment more
than once will automatically receive an “F” grade for the course.
4. No late assignment will be accepted after the assignment is graded and returned.
5. See the CSU student conduct code for further information.
(4) Class cancellation:
6. If I need to cancel class for any reason, I will try to put an announcement on the blackboard or
the course web page as early as possible.
(5) Grading mistakes
7. All grading mistakes must be corrected within 2 days of the return of the assignment or
exams. No exceptions.
8. It is your responsibility to verify that your exams/assignments have been graded correctly.

**Student Conduct:** Students are expected to do their own work. Academic misconduct,
student misconduct, cheating and plagiarism will not be tolerated. Violations will be
subject to disciplinary action as specified in the CSU Student Conduct Code. A copy can
be obtained on the web page at:
http://www.csuohio.edu/studentlife/StudentCodeOfConduct.pdf or by contacting Valerie
Hinton Hannah, Judicial Affairs Officer in the Department of Student Life (MC 106
e-mail v.hintonhannah@csuohio.edu ). For more information consult the following web
page CSU Judicial Affairs available at http://www.csuohio.edu/studentlife/judicial-affairs

**Tentative Course Schedule:** The schedule of topics to be covered is given below. Please
see the class webpage for the detailed subjects to be covered. The schedule and topics
covered are tentative. They may vary depending upon the progress made.

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Topics</th>
<th>Chapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 3</td>
<td>Introduction to WWW; HTML, HTML5, XHTML CSS URLs Java Script Basics Java Script Programming</td>
<td>Chapter 1 – 3 Lecture Notes</td>
</tr>
<tr>
<td>3 – 6</td>
<td>DOM XML JSON JQUERY, Bootstrap AJAX PHP/Perl/Python Event</td>
<td>Chapter 4 – 6 Lecture Notes</td>
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<tr>
<td>Week</td>
<td>Topics</td>
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| 6 – 9 | Front End Programming - Model-View-Controller (MVC)  
Processing with Databases Server:  
JDBC and JAVA  
ODBC and PHP  
ODBC and C# ASP .NET  
RDBMS Review  
Semi-Structured Database: Mongo DB:  
Schema, Objects, CRUDE operations |
| Chapter 7 – 9 Lecture Notes |
| 10 – 11 | Client - Server Programming  
Hyper Text Transfer Protocol (HTTP),  
Representational State Transfer (REST) Web Service design,  
Cookies/Sessions  
Web Application Security |
| Chapter 10 – 11 Lecture Notes |
| 12 – 15 | Responsive Web Design  
Single Page Applications  
Angular JS  
Node JS  
Application with Angular JS and MongoDB  
Cloud Computing:  
Amazon RDS  
Amazon Elastic Cloud Computing  
Microsoft Azure |
| Lecture Notes |
| 16 | Group Project Presentation  
Project Specification will be posted after Midterm. |

**NOTE:** The instructor reserves the right to retain, for pedagogical reasons, either the original or a copy of your work submitted either individually or as a group project for this class. Students' names will be deleted from any retained items.