

## COURSE DESCRIPTION

Dept., Number	<b>CSC 123</b>	Course Title	<b>Web Application Development</b>
Semester hours	<b>3</b>	Course Coordinator	<b>Jinsong Ouyang</b>
		URL (if any):	<b><a href="http://gaia.ecs.csus.edu/~ouyangj/">http://gaia.ecs.csus.edu/~ouyangj/</a></b>

### Catalog Description

Developing multi-tiered enterprise-level Web applications. The open standards of Web services and other current Web technologies, including XML, AJAX, and server-side programming such as Java EE, .NET, or PHP. Development of Web applications such as those used for e-commerce, e-business, and content management. Prerequisites for non-majors: At least a C-grade in CSC 22, CSC 121, and CSC 122, or equivalent experience. Prerequisites for majors: At least a C- grade in both CSC 60 and CSC 134.

### Textbook

Stephen Walther, ASP.NET Unleashed, Sams Publishing, 2006.

### References

Official and community websites for technologies taught in class.

### Course Goals

After completing this course, students will be able to:

1. Program using a server-side programming language.
2. Create web applications using the component-based development.
3. Develop, publish, discover, and integrate Web services.
4. Develop and deploy multi-tiered Web applications.

### Prerequisites by Topic

*Thorough understanding of:*

- XHTML.
- FTP Process using an FTP program or Web browser.
- Javascript.

*Basic understanding of:*

- Foundations of a web programming language.
- Object-oriented programming as it applies in Web application development.
- Web-based databases.
- SQL.

## Major Topics Covered in the Course

1. Processing HTTP Request and Generating HTTP Response (3 hours).
2. Creating back-end code separate from code for visual presentation (4 hours).
3. Programming with Web controls or tag libraries (5 hours).
4. Configuring, building, packaging, and installing components (2 hours).
5. Developing, publishing, discovering, and integrating Web services (6 hours).
6. Data sharing and concurrency control (3 hours).
7. Session management and session tracking (2 hours).
8. Developing Web applications with AJAX (4 hours).
9. Working with advanced database API, e.g. Java Persistence, API (5 hours).
10. Developing mobile Web applications (4 hours).
11. Configuring, deploying, and optimizing Web applications (3 hours).
12. Web application security (2 hours).
13. Transaction support in Web applications (2 hours).

## Outcomes

### *Thorough understanding of:*

- Server-side programming concepts.
- Using cookies, session variables, and application variables.
- Using server-side web applications to store and retrieve data.
- Techniques for developing quality enterprise Web applications.

### *Basic understanding of:*

- Writing code for delivery to mobile devices.
- Creating custom objects.
- XML, SOAP, and Web services.

## Laboratory Projects

### Web projects:

1. Cookies, session variables, Web context variables, and application variables.
2. Using reusable components to generate Web applications or Web services.
3. Creating custom Web controls or tag libraries.
4. Data exchange with XML.
5. Writing AJAX modules.
6. SOAP messaging and invocation of Web services.
7. Group Project (such as small-scale auction, portal, or e-commerce site).

**Estimated Curriculum Category Content (Semester hours)**

<i>Area</i>	<i>Core</i>	<i>Advanced</i>	<i>Area</i>	<i>Core</i>	<i>Advanced</i>
Algorithms			Data Structures		
Software Design			Prog. Languages		
Comp. Arch.					

**Oral and Written Communications**

1. Students complete a group project with emphasis on effective delegation and communication.
2. Students present this group website to the class.

**Social and Ethical Issues**

1. Appropriate use of cookies and tracking technologies.
2. Issues facing web projects: conflicts of time, scope, quality, resources, and budget.
3. Web accessibility and usability.
4. Research, use of existing code, and plagiarism.
5. Copyright and Trademark.
6. Use of open-source technologies vs. commercial technologies.

**Theoretical Content**

No significant component. Content in this class is primarily designed for enterprise Web application creation.

**Problem Analysis**

Projects require students to analyze existing and proposed site designs to make technical and usability choices.

**Solution Design**

Projects require students to analyze existing and proposed site designs to make technical and usability choices.