COS318 - Web Programming

An Industry Perspective

Fall 2015

Prerequisite: COS216

Instructor: Steven Yackel Email: yacste@bethel.edu

T TH 2:25 – 3:40 AC337 Office Hours: Immediately following class time until 4:10

Books

- Professional ASP.NET MVC 5, Jon Galloway, Brad Willson, K. Scott Allen, David Matson, 2014
- (Optional) Cracking the Coding Interview: 150 Programming Questions and Solutions, Gayle Laakmann McDowell, 2011

Course Overview

This course covers the rapidly changing field of web programming. There will be a brief overview of client side technologies and languages. The large majority of the class will cover web programming from the server side, with REST standards, MVC 6, and common web service problem spaces. Other topics that are strongly related to web programming such as queues, dependency injection, and workers will also be covered. See a more complete list at the end of this syllabus.

Why this Course is in our Curriculum

While there are still many traditional software platforms and applications in development, more and more companies are moving their technologies to the web with services, web sites, and cloud deployments. It is important for students graduating with a computer science degree to be fluent in web development and the problems that arise when creating web services.

Class Format

Class time will be varying combinations of lecture, live coding, and class collaboration. Class participation is expected, which includes questions and answers during live coding as well as discussion in groups when appropriate. All live coding done during class as well as any code necessary for assignments will be available at **https://github.com/spazard1/Web-Programming-FA2015**.

Assignments

Assignments will be introduced on the Tuesday of each week and will be due a week after the following Thursday. This means each assignment must be completed in a maximum of nine days. All assignments will primarily be creating new code projects or adding additional code to existing projects.

Each assignment will have stretch levels for those students who wish to push themselves beyond the baseline level of the class. Often these stretch levels will include topics not covered in class and will require outside investigation and learning to complete. Students who succeed at these stretch levels will be given extra credit on that assignment.

Exams

There will be two mid-term exams and one cumulative final exam. The two mid-term exams will be a combination of short answer questions, small code block review, and small code block writing. The final exam will involve each student being given a print out of a fully functioning web service program. Each student will independently code review this program and will be graded on their ability to make good comments on necessary changes to the code based on the topics covered in this course.

To assist with the distribution of course points regarding participation, all exams will include a section where students must demonstrate a meaningful contribution made to class or group discussion by writing a short paragraph.

Institutional Policies

Bethel University's policies of integrity, attendance, accessibility, appeals, classroom behavior, and computer and network usage apply to this course. Many of the policies are available online at **http://cas.bethel.edu/catalog/acadinfo/**.

Grade Breakdown

Participation	10%
Assignments	50%
Exam 1	10%
Exam 2	10%
Cumulative Final Exam	20%

≥93 – 100 % A	≥80 – <83 % B-	≥60 – <65 % C-
≥90 – <93 % A-	≥76 – <80 % C+	≥57 – <60 % D+
≥87 – <90 % B+	≥65 – <76 % C	≥50 – <57 % D
≥83 – <87 % B		

Topics Overview

Introduction to Web Programming
CSS, HTML
Javascript, JSON, XML
HTTP (Headers, Verbs, Parameters, Status Codes)
MVC/WebApi (REST, Controllers/Routes, Filters/Middleware, CORS)
Dependency Injection, Unit Testing/Mocks
Transient Fault Handling
Async/Sync (async/await, Promises)
Cloud Deployment, Logging, Monitoring, Load Balancing
Workers, Queues
Optimistic Concurrency Control
JWT
Service Configuration
API Versioning
Introduction to Node.js and Express