Accounting & MIS 3610

Foundations of Business Information Systems

The Ohio State University

Spring Semester 2016

Instructor: Jeff Gabriel

Email: gabriel.19@osu.edu

Office: Fisher Hall Room 052

Office Hours: Mondays - Immediately following class hours

Telephone: 614.206.8994

Class Meeting Times: Monday & Wednesday

4:10PM – 5:30PM

Texts – Pro ASP.NET MVC 5

By: Adam Freeman

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Software/Technologies Introduced:

Microsoft Visual Studio 2015

Microsoft ASP.Net MVC 4 & 5

Microsoft C# - .Net Framework version 4.5/6

JavaScript

JQuery/JQueryUI

Microsoft SQL Server
Expectations
This class will focus on solving real world business problems with web-based technologies such as Microsoft ASP.Net Web Forms and MVC along with JavaScript & CSS. Class participants will be expected to apply the technologies covered to lab assignments and to a semester project which will tie the class topics into a complete working application. Students will be evaluated on their ability to deliver working software in a manner which displays a proper grasp of the principles explained by the instructor.

User experience and design will be covered as concepts, but no emphasis will be placed on the student’s ability to create aesthetically pleasing applications.

Grading
The grading for this course will come from several components:

Semester Project – 35%
Mid-Term Exam – 25%
Labs – 25%
Quizzes & Exercises – 15%

The Semester project will be a small multi-page web application designed to meet a business need of the student’s own choosing. The instructor will help students to choose an appropriate subject and to guide students in maintaining a proper scope for the amount of time available. The application must be data-driven and use ASP.Net and JavaScript at least. The use of additional supporting technologies is at the student’s discretion. The driving factor in a quality grade will be the appropriate application of the technologies covered in class to the business need which the solution aims to solve. Finally, students are expected to present their applications and explain the choices they made in the development of the final solution.

The student should expect short quizzes (5-10 questions) to be given regularly which present topics from any subject presented or assigned up to that point in the course. Quizzes will always be ‘pop’ quizzes, given without warning.

Labs & enrichment exercises are assigned throughout the class and have been identified on the class outline. Each exercise will emphasize retention and understanding of the subject taught in the previous class. Students are expected to ask clarifying questions and work through the new material during days reserved for lab work, but should always present an independent final product. Grades for labs will based on completeness and mastery.

Academic Misconduct
All students are expected to maintain the highest standards of academic integrity. Academic misconduct includes plagiarism or cheating of any kind. Any suspected incidents of academic misconduct will be reported immediately to the Chair of the Department of Accounting and MIS and the Committee on Academic Misconduct.
Special Accommodations
Any student requiring special accommodations based on the impact of a disability should speak to the instructor privately to discuss specific needs. Please contact the Office of Disability Services at 614.292.3307 in room 150 Pomerene Hall to coordinate reasonable accommodations for students with documented disabilities.
Course Outline

Week 1 Section 1 – Jan 11th

Topics:
- Introduction to Class
- Basic overview of Web application delivery and HTML
- Overview of .Net Framework

Assignment:
- Read https://msdn.microsoft.com/en-us/library/zw4w595w(v=vs.110).aspx

Week 1 Section 2 – Jan 13th

Topics:
- The Visual Studio Development Environment
- Introduction to a .Net Language – C#
- Type System and the primitive .Net types
- Namespaces, Classes, & Assemblies
- Scope and Assembly References

Assignments:
- Read the First Chapter of the Language Specification provided in Content on Carmen
- Complete the programming exercise

Jan 18th – MLK Day – No Class

Week 2 Section 1 – Jan 20th

Topics:
- Logical Operators
- Control Structures
- Structured Error Handling
- Event Handlers

Assignments:
- Simple Exercise Number 2
- Intro to ASP.NET PluralSight Course (link on Carmen) – Section 1 – Introduction to ASP.NET

Week 3 Section 1 – Jan 25th

Topics:
- Understanding the ASP.Net Application Development Model
- How to Build a Basic Site Plan
- Explanation of Semester Project
Assignment:
- Intro to ASP.NET PluralSight Course (link on Carmen) – Section 2 – ASP.NET Web Forms Features
- Identify top 3 application ideas for semester project

Week 3 Section 2 – Jan 27th - Lab Exercise

Topics:
- Building a Basic Web Application

Assignments:
- Complete lab assignment if not completed in class

Week 4 Section 1 - Feb 1st

Topics:
- Web Forms & Post-backs
- Data Sources
- Introduction to state management

Assignment:
- Finish watching or reviewing PluralSight sections

Week 4 Section 2 – Feb 3rd - Lab Exercise

Topics:
- Multi-page web forms application

Assignment:
- Complete lab assignment if not completed in class

Week 5 Section 1 – Feb 8th

Topics:
- The HTML DOM
- Understanding CSS & the Box Model
- Cross-Browser Considerations

Assignment:
- Exercise – CSS only page layout

Week 5 Section 2 – Feb 10th

Topics:
- Introducing ASP.Net MVC
- Model View Controller Pattern
- RESTful web architecture
- MVC Project Structure
- Convention over Configuration
Assignment:
- Read Chapters 1 & 2 in the Freeman textbook

**Week 6 Section 1 – Feb 15th**

Topics:
- URL Routing
- Partial Views
- Models and Views

Assignment:
- Read Chapter 3 in the Freeman textbook pages 51-55 only
- Read Chapter 15 in the Freeman textbook

**Week 6 Section 2 – Feb 17th – Lab Exercise**

Topics:
- Simple ASP.Net MVC Website

Assignment:
- Complete lab assignment if not completed in class

**Week 7 Section 1 – Feb 22nd**

Topics:
- Controllers & Actions
- ActionResult and its children
- Filters

Assignment:
- Read chapter 17 in the Freeman textbook

**Week 7 Section 2 – Feb 24th**

Topics:
- Advanced Syntax & Some Compiler Tricks
- Extension Methods
- Anonymous Methods & the Lambda Syntax
- Type Inference
- Function Delegates

Assignment:
- Read chapter 4 in the Freeman textbook pages 67-85 only

**Week 8 Section 1 – Feb 29th**

Topics: Introducing Linq
- Function syntax
• SQL-like syntax
• Under the covers

Assignment:
• Read Chapter 4 in the Freeman textbook pages 86-94 only
• Linq Programming Exercise

**Week 8 Section 2 – Mar 2\textsuperscript{nd} – Lab Exercise**

Topics:
• Extensions and Object queries

Assignment:
• Complete the lab if not completed in class

**Week 9 Section 1 – Mar 7\textsuperscript{th}**

Topics: Exam.

Assignment: None

**Week 9 Section 2 – Mar 9\textsuperscript{th}**

Topics:
• Very Simple TSQL and SQL Server Use
• Data Access Introduction

Assignment:
• Read Chapter 7 pages 273-298 in Posey textbook
• Read Chapter 8 pages 317-334 in Posey textbook

**Spring Break – No Classes**

**Week 10 Section 1 – Mar 21\textsuperscript{st}**

Topics: Data Access with Entity Framework
• ORM Basics
• Creating a DbContext
• Database first or code first?

Assignment:
• Read Chapter 7 in the Freeman textbook pages 171-177 only
• Prepare Semester Project Site Plan

**Week 10 Section 2 – Mar 23\textsuperscript{rd}**

Topics: Data Driven with Linq to SQL
• Entities & Data Contexts
• Projections
• Managing Concurrency

Assignment:
• Exercise: Create & Connect to Linq to SQL Data Context

Week 11 Section 1 – Mar 28th - Lab Exercise

Topics:
• Data Driven Website with L2SQL ORM

Assignment:
• Complete lab assignment if not completed in class

Week 11 Section 2 – March 30th

Topics:
• Return To MVC – Razor
  • Working with Models

Assignment:
• Read chapter 5 in the Freeman textbook
  • Finalize Site Plan

Week 12 Section 1 – Apr 4th - Lab Exercise

Topics:
• MVC Site – Bringing it all together

Assignment:
• Complete the lab assignment if not completed in class

Week 12 Section 2 – Apr 6th

Topics: Security Part 1 Web Application Security
• Securing a website with ASP.Net Forms Authentication

Assignment:
• Watch Module 3 of ASP.NET MVC 5 Fundamentals sections 1-4 (through identity database intro “The Database”)
  • http://pluralsight.com/training/Player?author=scott-allen&name=aspdotnet-mvc5-fundamentals-m3-identity&mode=live&clip=0&course=aspdotnet-mvc5-fundamentals

Week 13 Section 1 – Apr 11th

Topics: Security Part 2 – Hacking: Writing & Spoiling Web Application Exploits
• Proper Server Configuration – Minimal Configuration/ Least Privilege/Limiting Attack Surface Area
  • SQL Injection
  • Cross-Site Scripting
• Concepts of Defense in Depth

Assignment:
• Semester project development

Week 13 Section 2 – Apr 13th - Lab Exercise

Topics:
• Secure an insecure website

Assignment:
• Complete lab assignment if not completed in class
• Semester project development

Week 14 Section 1 – Apr 18th

Topics: The Rich Internet App - Resurgent JavaScript
• Understanding JavaScript – Crockford Style

Working Session – Semester Projects

Assignment:
• Semester Project development

Week 14 Section 2 – Apr 20th

Topics:
• Semester Presentations

Assignment:
• Finalize Semester Project

Week 15 Section 1 – Apr 25th

Topics:
• Semester Presentations

Assignment: None

No Final Exam
Suggested Reading & Resources

Books - Extra Reading

Books - Every Serious Software Professional Should Read These:

Blog Roll
Dino Espositio (ASP.Net) - http://weblogs.asp.net/despos/
Bertrand LeRoy (ASP.Net) - http://weblogs.asp.net/blroy/
Scott Guthrie (Microsoft .Net) - http://weblogs.asp.net/scottgu/
Martin Fowler (general development) http://martinfowler.com/bliki/
Eric Lippert (CLR) - http://ericlippert.com/
Jeffrey Richter (C#/CLR) - http://www.wintellect.com/cs/blogs/jeffreyr/
Phil Haack (general development) http://haacked.com/
Jon Skeet (C#) http://msmvps.com/blogs/jon_skeet/