Course Syllabus

CSCE A490: Web Application Development  
Room 202, Eugene Short Hall

Fall 2017

Meets: Tuesdays and Thursdays, 4:00 – 5:15, 202 Eugene Short Hall

Instructor: Dr. Shawn Butler

Email: sabutler2@uaa.alaska.edu

Office Hours: Wednesdays 1:00 – 2:30 PM, 301J ECB   
 Mondays and Wednesdays 10:00 – 11:00 AM, 301J ECB

## Textbook: None Required

Software: Visual Studio 2017 Community Version

Imagine Account Azure for Deployment

SQL Server Express

GitHub

Pivotal Tracker

References and Resources:

1. ASP.NET Core 1.1: Building a Website for Beginners, Jonas Fagerberg, CsharpSchool.com
2. Pro ASP.NET Core MVC, 6th Edition, Adam Freeman
3. https://www.w3schools.com/
4. PluralSight.com
5. https://docs.microsoft.com/en-us/aspnet/core/tutorials/
6. Google – There are lots of tutorials online

Course Description: This course will introduce the process of Web application software development, with and emphasis on ASP.NET Core 1.1, Git, Azure, and other tools. Although the pre-requisites for this course are CSCE A311 (Data Structures and Algorithms) and CSCE A360 (Database Systems), there is no expectation that you have worked with web applications and the various components of ASP.NET Core. In addition, the course is a hands-on, project course, so I expect that you will need to heavily rely on the free material on the Internet to accomplish your projects.

Objectives: After completing this course, students should be able to:

1. Build a mobile aware web application using ASP.NET Core using the following tools/components:
   1. Entity Framework
   2. Identity Framework
   3. JavaScript
   4. AngularJS
   5. Bootstrap – including mobile awareness
   6. Bower – Client Package Manager
   7. Pivotal Tracker – Agile PM tool
2. Deploy the web application to Azure, or other hosting environment
3. Use Git to manage development and integration of source code
4. Understand how SQL Server Express integrates into ASP.NET Core
5. Learn how to integrate AngularJS into an ASP.NET Core application

Course Project: This is a project-based course. Students will work in teams of 2, and produce a working, demonstrable product following software development best practices. Student teams will meet with me every two weeks to demonstrate progress, set the next bi-weekly goals, discuss issues.

Projects: All teams will build an on-line “Introduction to Computer Science Course”. Each team is free to design and build the web application using the tools that we cover in class and additional tools discovered on-line. However, there are some basic requirements that all teams must implement:

1. A user must create a login and password before they can access the course.
2. The user must be able to logout at anytime and their progress in the course is saved so that they can resume when they return.
3. The web application must be able to support multiple modules from which the user can select which module they want to work with. However, if there is a dependency, they will not be allowed to start a module for which they have not completed the pre-requisite module.
4. Each module will have several topics which the student will complete in sequence.
5. At the end of each topic (or module), the student will complete a proficiency test and receive immediate feedback for each question or task.
6. Student Programming tasks will be done in Python
7. Students will be able to repeat modules they have completed or have failed the proficiency test. They will not be able to continue to the next topic until they have successfully completed the proficiency test.
8. A web site administrator must be able to enter content for the application through special access using their User ID and Password.
9. The web site administrator should be able to create modules and content within modules
10. The web site administrator should be able to reset user passwords, or users may automatically reset their passwords.
11. The site administrator should be able to view all students and which modules they have completed, and their success and failures.
12. Content will need to be well structured, so that the administrators can enter questions and acceptable answers for the proficiency tests, users can select the appropriate answer (no free text answers), or enter code for which the result can be compared to an appropriate result.
13. The web application should allow the administrator to create, modify, and delete modules, and topics within modules.
14. The application must take advantage of the SQL Server integration for the entity framework.

The Computer Science and Engineering Department faculty will evaluate the web applications and select the top 3 projects. Of the top 3 projects, the Department may use the project to continue the development of an Introduction to Computer Science on-line course, with appropriate credit given to the team members. The following features are expected at each milestone.

## Project Grade:

The project grade consists of 6 milestone grades and a final project grade. 75% of the course grade will be based on project milestone grades. Of the 6 milestones, the lowest graded milestone will be dropped.

Milestone 1 (15%): Assessed other course sites, Initial design completed and very high level project features identified. Deliverable: Project plan with “Epic” stories implemented in Pivotal Tracker

Milestone 2 (15%): Application development started with Student interface styled using tools, demonstrated bootstrap implementation, mobile aware views. Website skin applied and changes to skin are starting to be applied.

Milestone 3 (15%): Student views and controllers implemented, field validation

Milestone 4 (15%) Entity framework implemented, data is persistent, additional views implemented for administrator

Milestone 5 (15%) Logging and error handling implemented, all views completed

Milestone 6 (15%) Testing completed and final issues identified and entered in Pivotal Tracker

Final Project Grade (25%): Demonstration and documentation due. FINALS WEEK

**Cheating:** Students are expected to uphold the UAA standard of conduct relating to academic dishonesty outlined in the UAA catalog and student handbook. Cheating is not tolerated and constitutes grounds for dismissal. For this class, it is permissible and encouraged to assist classmates in general discussions of how to attack the homework problems or assist with code debugging. It is not permissible to copy another’s work (or portions of it) and represent it as your own, or copy another’s work and cite that it came from someone else. The code for many of the algorithms and data structures can be found on-line. You are encouraged to review the code; however, you must implement the assignments without directly copying the code; i.e. make it your own This applies to all work, including open source software. Students suspected of cheating will be referred to the Dean for Students for evaluation. A student found in violation of this policy will receive a failing grade for the assignment or project. A second offense results in an F for the class.

**Course Schedule: CSE A490 Fall 2017   
Web Application Development**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Date** | **Topic** | **Assignments Posted** |
| 1 | 29 & 31 August | Introduction, ASP.NET Core 1.1 Application Architecture, GitHub |  |
| 2 | 5 & 7 Sept | HTML, CSS, HTML5, and HCI, Pivotal Tracker Stories, Bootstrap |  |
| 3 | 12 & 14 Sept | JavaScript, C#, and Packages   * Instructor Meeting | Milestone 1 Due |
| 4 | 19 & 21 Sept | Tag Helpers, Razor Views, Controllers   * Group Meeting |  |
| 5 | 26 & 28 September | Services   * Instructor Meeting | Milestone 2 Due |
| 6 | 3 & 5 Oct | Models Unit Testing   * Group Meeting |  |
| 7 | 10 & 12 Oct | Model Binding   * Instructor Meeting | Milestone 3 Due |
| 8 | 17 & 19 Oct | Creating the API   * Group Meeting |  |
| 9 | 24 & 26 Oct | Validation   * Instructor Meeting | Milestone 4 Due |
| 10 | 31 Oct &  2 Nov | Configuration and Routing, Deploy   * Group Meeting |  |
| 11 | 7 & 9 Nov | Identity   * Instructor Meeting | Milestone 5 Due |
| 12 | 14 & 16 Nov | Angular JS  Team Meeting |  |
| 13 | 21 & 23 Nov | * 21 Nov Group Meeting   Thanksgiving Break(No class) |  |
| 14 | 28 & 30 Nov | Angular JS   * Instructor Meeting | Milestone 6 Due |
| 15 | 4 & 6 Dec | TBD   * Group Meeting |  |
|  | 11 – 16 Dec | Final Exam Week | Final Project Demonstrations and Documentation |

This schedule is subject to change. Changes will be announced on Blackboard.