|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Number** | CS 295N |  | **Instructor** | Brian Bird |
| **CRN** | 22568 |  | **E-mail** | [birdb@lanecc.edu](mailto:birdb@lanecc.edu) |
| **Classroom** | 19/126 |  | **Office** | Building 19, Room 152 |
| **Credits** | 4 |  | **Office Phone** | 541-463-3024 (e-mail is better) |
| **Day & Time** | M, W 2:00 – 3:50 |  | **Office Hours**  **Lab Hours** | M, W: 4:00 - 4:50  Tu, Th: 2:00 - 3:50 |

**Course Description**

This course provides an introduction to server-side programming in C# using the ASP.NET framework. You will learn the concepts, and skills necessary to analyze web development problems from an object oriented perspective in order to develop extensible web applications. The course will provide you with an introduction to server-side web programing using ASP.NET Razor Pages as well as REST web services that are consumed by client side AJAX code. Programming assignments will consist of guided tutorial exercises as well as labs in which you will design and program a web app on your own.

**Learning Outcome**

To be able to design and program a web site that uses the ASP.NET framework for a moderately complex web application.

**Course Content**

***Technologies***

|  |  |  |
| --- | --- | --- |
| C# | JavaScript / AJAX | Visual Studio |
| ASP.NET Razor Pages | ASP.NET Web API | REST web service |
| SQL Server | LINQ | Entity Framework |

***Themes and Issues***

|  |  |  |
| --- | --- | --- |
| Software engineering | Architectural Design Patterns | Test-driven development |
| Web standards | Extensibility | Object oriented programming |
| Separation of concerns | Avoiding dependencies | Data driven web applications |

***Skills***

|  |
| --- |
| Develop and publish ASP.NET web sites using server-side C# and Razor Pages. |
| Develop and publish ASP.NET web apps using a REST web service and a JavaScript client |
| Effectively use software development tools like test driven development |
| Design, implement, test and debug a web application |
| Design and manage an SQL Server database that is used by a web application |

**Learning Resources**

***Textbook***

There is no textbook for this course. We will be using the online tutorials listed in the syllabus and on the Moodle course pages.

***Software***

The hardware and software required for the course are available to all students in the CIT Main Lab on campus.  You paid a fee when you registered for this course that provides you with unlimited access to CIT lab facilities.

Visual Studio (Mac OS and Windows) and Visual Studio Code (Mac OS, Windows, and Linux) will be the development tools provided in class and in the CIT Main Lab.  This software can be obtained free of charge through your LCC Microsoft Imagine account (formerly Microsoft Dream Spark, and before that called MSDNAA), <http://e5.onthehub.com/WebStore/Welcome.aspx?vsro=8&ws=EC37AD18-ED9B-E011-969D-0030487D8897>. You can download it or borrow the setup DVD from the CIT computer lab.

You may alternatively use Visual Studio Community edition which is a free download from Microsoft at [www.visualstudio.com/en-us/products/visual-studio-community-vs](http://www.visualstudio.com/en-us/products/visual-studio-community-vs). You may also use Visual Studio code which is also a free download at <https://code.visualstudio.com>

***Web Sites***

<https://classes.lanecc.edu> will give you access to the Moodle site for the course.

You will be deploying web apps that you create to the Microsoft Azure cloud. You are entitled to a free Azure account through LCC’s Microsoft Imagine subscription as described here: <https://azure.microsoft.com/en-us/offers/ms-azr-0144p>

**Assessment and Grading**

Specific grading criteria will be applied to each of the labs, quizzes, and exams you will be working on in this class. Part of the lab involves peer evaluation. You will be provided with lab evaluation worksheets for each lab. Attendance is not graded.

The table below summarizes the grade distribution for each of the assessment tasks:

|  |  |  |  |
| --- | --- | --- | --- |
| ***Assessment Activities*** | ***Points for each*** | ***Total Points*** | ***Total Percentage*** |
| 8 Labs | 50 | 400 | 40% |
| 8 Lab Reviews | 10 | 80 | 8% |
| 8 Tutorial exercises | 10 | 80 | 8% |
| Term Project | 440 | 440 | 44% |

Letter grades for the course will be determined by the following percentages:

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***-*** |  | ***+*** |
| *A* | 90 – 91 | 92 – 97 | 98 – 100 |
| ***B*** | 80 – 81 | 82 – 87 | 88 – 89 |
| ***C*** | 70 – 71 | 72 – 77 | 78 – 79 |
| ***D*** | 60 – 61 | 62 – 67 | 68 – 69 |
| ***F*** | Below 60 | | |

***Late Work***

* The grade for labs submitted after the due date will be reduced by 10%.
* Exams cannot be taken after the due date. Plan ahead!
* Exceptions will only be made for severe illness or emergency situations.

***Academic Honesty***  
While students are encouraged to discuss labs and to use each other as resources, each student is responsible for his/her own work. In other words, you can help each other, but you can't copy any part of someone else’s work. The end product must be entirely your own individual work.

***Attendance***

Class attendance is not graded but will be essential for successful completion of the class. Students who miss a class are responsible for obtaining the course content provided in class and mastering it.

***Tentative Course Schedule***

|  |  |  |  |
| --- | --- | --- | --- |
| ***Week*** | ***Topic / In-class exercises*** | ***On your own: reading, exercises, labs*** | ***Due date*** |
| **1**  *1/10* | **Intro to MVC**  <https://docs.microsoft.com/en-us/aspnet/core/tutorials/first-mvc-app/index> | Skim Freeman Ch. 1 – Core MVC in Context  Exercise 1: Freeman Ch. 2– Your 1st MVC Application  Read Freeman Ch. 3– The MVC Pattern |  |
| 1/12 |
| **2**  *1/17* | **Controllers and Views**   * <https://docs.microsoft.com/en-us/aspnet/core/tutorials/first-mvc-app/adding-controller> | Lab 1 beta: Propose a web app term project  Lab 1 review of your lab partner’s beta version  Skim Freeman Ch. 4 – Essential Language Features  Read Freeman Ch. 5 – Working with Razor  Exercise 2: Do the Ch. 5 project  Lab 1 production version. | Mon, 1/16  Tue, 1/17  Thu, 1/19 |
| 1/19 |
| **3**  *1/24* | **Unit Testing, Publish to Azure**   * <https://docs.microsoft.com/en-us/dotnet/articles/core/testing/using-mstest-on-windows> * <https://docs.microsoft.com/en-us/aspnet/core/tutorials/publish-to-azure-webapp-using-vs> | Lab 2 beta: Skeletal version of your web app with Razor  Lab 2 code review  Skim: Freeman Ch. 6 – Working with Visual Studio (36 pages)  Read Ch. 7 through page 171– Unit Testing MVC Applications (12 pages)  Exercise 3: Download and run the Ch. 7 project  Lab 2 production version and completed code review form. | Mon, 1/23  Tue, 1/24  Thu, 1/26 |
| 1/26 |
| **4**  *1/31* | **Dependency Injection, Models**   * <https://docs.microsoft.com/en-us/aspnet/core/mvc/controllers/dependency-injection> * <https://docs.microsoft.com/en-us/aspnet/core/mvc/controllers/testing> | Lab 3 beta: Add unit tests to your web site  Lab 3 code review  Read Freeman Ch. 7 starting at page 171  Read Freeman Ch. 8 – SportsStore (pgs. 191 – 207)  Exercise 4: Do the Ch. 8 project, stop before “Preparing a Database”.  Lab 3 Release version and completed code review form. | Mon, 1/30  Tue, 1/31  Thu, 2/2 |
| 2/2 |
| **5**  *2/7* | **Entity Framework and Scaffolding**   * <https://docs.microsoft.com/en-us/aspnet/core/tutorials/first-mvc-app/adding-model> * <https://docs.microsoft.com/en-us/aspnet/core/tutorials/first-mvc-app/working-with-sql> | Lab 4 beta: Add EF and a database and publish  Lab 4 code review  Read Freeman Ch. 8 (pgs. 207 – 234)  Exercise 5: Finish the Ch. 8 SportsStore project  Lab 4 Release version and completed code review form. | Mon, 2/6  Tue, 2/7  Fri, 2/10 |
| 2/9 |

|  |  |  |  |
| --- | --- | --- | --- |
| **6**  *2/14* | **Navigation** | Lab 5 beta: Add navigation to your web app  Lab 5 code review  Read Freeman Ch. 9 – SportsStore: Navigation (34 pages)  Exercise 6: Do the Ch. 9 project  Lab 5 Release version and completed code review form. | Mon, 2/13  Wed, 2/15  Fri, 2/17 |
| 2/16 |
| **7**  *2/21* | **Forms and Tag Helpers** | Lab 6 beta: TBD  Lab 6 code review  Read Freeman Ch. 10 – SportsStore: Completing the Cart (22 pages)  Exercise 7: Do the Ch. 10 project  Lab 6 Release version and completed code review form. | Mon, 2/21  Tue, 2/22  Thu, 2/23 |
| 2/23 |
| **8**  *2/28* | **Annotation and validation** | Lab 7 beta: Add an administrative page to your web app  Lab 7 code review  Read Ch. 11 – SportsStore: Administration (28 pages)  Exercise 8: Do the Ch. 10 and 11 projects.  Lab 7 Release version and completed code review form. | Mon, 2/27  Tue, 2/28  Thu, 3/2 |
| *3/2* |
| **9**  *3/7* | **Authorization and** | Lab 8 Beta: TBD  Lab 8 code review Ch. 12 – Security and Finishing Touches  Read Ch. 12  Exercise 9: Do the Ch. 12 project  Lab 8 Release version and completed code review form. | Mon, 3/6  Tue, 3/7  Thu, 3/9 |
| *3/9* |
| **10**  *3/14* | **Authentication** | Lab 9 Beta: Add authorization and authentication to your web app  Lab 9 code review  ~~Read Ch. 20 – API Controllers~~  ~~Exercise 10: Do the Ch. 20 project~~  Lab 9 Release version and completed code review form. | Mon, 3/13  Tue, 3/14  Thu, 3/16 |
| *3/16* |
| **11** | Finals Week | No reading, exercise or lab. |  |
| *3/21* | **Final Project Presentations** |  | Tue, 3/21 |

***Weekly Schedule (after the first week)***

Monday

Post the beta (draft) version of last week’s lab assignment

Tuesday

Complete a review of your lab partner ’s beta version

Wednesday

Finish this week's reading

Finish the exercise

Friday

Submit the production (final) version of last week’s lab work

***Academic Calendar for Winter Term 2017***

First day of class                                                                            1/9/17

Last day to receive refund                                                                   1/15/17, 11:59 pm

Martin Luther King Jr. holiday                                                         1/16/17

President's Day holiday                                                                     2/20/17

Last day for schedule changes                                                           3/3/17

Finals week                                                                                        3/20/17 – 3/19/16

Term ends                                                                                           3/25/17

**Disability Services**

If you need support or assistance because of a disability, you may be eligible for academic accommodations through Disability Services. For more information, contact Disability Services at 463-5150 (voice) or 463-3079 (TTY), or stop by building 1, room 218.