ME 220 Intro to Web Programming (Coding)

Class Description

This course introduces web programming and covers topics in computer science concepts, using Unix systems, programming client side websites with HTML/CSS/JavaScript, and integrating them with server-side backends. The course concepts are reinforced with several programming assignments and a semester long project.

Course Information

Hello, I'm your instructor Dr. Jonathan Metzgar. Welcome to class. I'm excited to introduce you to the world of web programming. Below is my contact information. MS Teams will be the preferred mode of communication and I encourage you to chat online with your fellow students about questions.

Name	Dr. Jonathan Metzgar
Cell	(719) 685-6158
Email	jmetzgar@gsbc.edu
MS Teams	TBD
Class Days	Wed/Fri 8-9am
Location	Media Lab (across from Chapel)
Last day to add	2022-01-24
Last day to drop	2022-01-31

Class Verses

> "**God is not a man, that he should lie**; neither the son of man, that he should repent: hath he said, and shall he not do it? or hath he spoken, and shall he not make it good?" (Numbers 23:19)

> "That by two immutable things, in which **it was impossible for God to lie**, we might have a strong consolation, who have fled for refuge to lay hold upon the hope set before us:" (Hebrews 6:18)

Important Links

The following links will be useful at different times of this course. I also heartily recommend Grammarly and spell checking to improve your English.

Requirements Sheet	requirements-sheet.md
Important Links	important-links.md
GitHub	https://github.com
Course GitHub	https://github.com/microwerx/gsbc-intro-web
Course Examples	https://microwerx.github.io/gsbc-intro-web/

VS Code	https://code.visualstudio.com
GVIM	https://vim.org
Student Bulletin	F21-Student-Bulletin_Online.pdf

Using Bing or Google is usually the fastest way to look up answers for programming questions. However, the following websites are really useful in learning web technologies.

MDN	https://developer.mozilla.org/en-US/
Stack Overflow	https://stackoverflow.com/
W3 Schools	https://www.w3schools.com/
VI Quick Reference	https://ss64.com/vi.html
Linux Commands	https://ss64.com/bash/

Schedule

We will roughly follow the schedule below. All topics are subject to change. The assignment due dates are listed later.

- January
  - Computer Science Fundamentals
  - Using GitHub
  - How the Internet Works
  - Using Markdown
  - Using Un*x systems, the shell, and VI
- February
  - Data Structures and Algorithms
  - Focus on Frontend Web Development (HTML5/CSS3/JavaScript)
  - Using a remote web server
- March
  - Using an Integrated Development Environment (VS Code)
  - Using JavaScript libraries
  - Working with a backend web server
  - Using AJAX to send and receive data
  - Object-Oriented Programming
- April
  - CRUD!
  - Using PHP and MySQL
  - Miscellaneous Topics

Grading

There are 6 homework assignments worth 100 points, a project proposal worth 100 points, a midterm project goal worth 150 points, and a final project goal worth 150

points. The total number of points for the class is 1000. Together they are proportioned as follows:

- 60% Assignments (`HW1-HW6`)
- 10% Project Proposal (`PROJ1`)
- 15% Midterm Project Goal (`PROJ2`)
- 15% Final Project Goal (`PROJ3`)

Final grades are rounded to the nearest integer and then assigned to a letter grade. The grading scale is listed below:

Grade	Range	Grade	Range
A+	100	C	76–82
A	94–99	C-	75
A-	93	D+	74
B+	92	D	67–73
B	85–91	D-	66
B-	84	F	65–0
C+	83		

Detailed grading details are in the **detailed-grading-criteria.md** document.

Submitting Homework

All homework is to be **committed** into your GitHub repository. We will discuss how to do this in class. You can check your grades on *Moodle*. Homework is always due on Mondays by midnight. There is no penalty for late homework if it is turned in by the end of the week that it is due. The goal of this policy is to allow you to regularly practice what you are learning in class. The grace period allows for sick time, perhaps a busy course load in a different course, or maybe a bad week learning the material. However, once the grace period has elapsed, that homework will receive a **zero** grade. For this reason, I encourage you to ask for help *early*. I encourage you to seek assistance from your fellow classmates, and you are allowed to work together. However, your work should still be *your work* and cheating will not be tolerated.

Due Dates

Here is a list of tentative due dates for the homework and project assignments. We will discuss the details of the assignments in the class. Those details will also be posted to the course GitHub site as they are mentioned in class.

No.	Assignment	Language	Due Date
HW0	GitHub account and `gsbc-intro-web` project	Markdown	2022-01-24
PROJ1	Write a Biography and Project Ideas	Markdown	2022-01-31
HW1	Make a web site with simple JS	HTML/JS	2022-02-14

No.	Assignment	Language	Due Date
HW2	Implement an Algorithm in JS	HTML/JS	2022-02-21
HW3	Make a user interface with JS callbacks	HTML/CSS/JS	2022-02-28
PROJ2	Show off your midterm project	HTML/CSS/JS	2022-03-14
HW4	Use a JavaScript library	HTML/JS	2022-03-21
HW5	AJAX: Request HTML from a server	HTML/CSS/JS	2022-03-28
HW6	Make a Game/App with OOP compo	HTML/CSS/JS	2022-04-11
PROJ3	Show off your final project goal	HTML/CSS/JS	2022-04-25

Semester Project

You have a major semester assignment to create a website using GitHub Pages. You will define two major goals for your semester assignment and discuss this in your first project assignment (PROJ 1). The goals should be Specific, Measurable, Achievable, Realistic, and Timely (SMART). You should also describe and cite two websites that you find particularly interesting (i.e. you want to know how they work). To be perfectly clear, whatever comes in your mind initially is probably too ambitious and needs to be broken down. If we can clearly identify goals, creating the right size project is much easier.

Additionally, you should apply the Rule of the Loop (Schell, 2020, **The Art of Game Design**):

The more times you test and improve your design, the better your game/app/etc. will be.

To help you, answer these two questions:

- How can I make every loop count?
- How can I loop as fast as possible?

We will discuss these ideas in class as we talk about the project.

Policies and Expectations

All students are expected to follow the guidelines for the college. In this class, the general expectations are for every student to:

- Show up ahead of time so we start on time.
- Be prepared to learn and listen attentively.
- Do *your* best work and participate in class.
- Avoid doing homework, surfing the Internet, checking email, instant messaging, etc during class.

Our general class procedure is to conduct attendance, open the class in prayer, discuss a lecture topic, do a lab exercise on the computer, and dismiss with prayer. We're all adults, so you don't need permission to use the restroom, stand up and stretch, stand in the back of the room if you're a little sleepy, etc.