**CMSC 210**
**Web Page Design and Scripting (3 credits)**
**Spring 2022**
http://marmorstein.org/~robert/Spring2022/cs210.html

**Lecture/Lab:** 2:00 – 2:50pm (Stevens 118)
**Instructor:** Robert Marmorstein (marmorsteinrm@longwood.edu) **Phone:** (434)395-2185
**Office Hours:** 3:00pm – 4:00pm MF, 12:00pm – 3:00pm R **Office:** Rotunda 329

*I am also available by appointment. My schedule is posted near my office door. To make an appointment, please check the schedule to see which times I am free, then contact me by e-mail and list some possible times we could meet. In general, I need at least 24 hours of notice to schedule an appointment.*

## Communications Policy:

The best way to reach me is to use **Slack**. Slack is a chat utility with clients for mobile devices and desktop computers. It will allow you to easily send me code snippets. Also, since I get notifications when a Slack message comes in, I am more likely to reply to your message quickly than if you send me an e-mail. Slack also allows me to easily set up a Zoom meeting (or Google Hangout) if we need to video chat.

When you send me a Slack message, I instantly get a notification on my computer, tablet, and phone. Typically, I reply to Slack messages within 24 hours (often sooner) on weekdays and sometimes even on weekends. I am much slower at replying to e-mail (since I do not get a notification and have to explicitly check it). Typically, you can expect a reply to an e-mail within 48 hours (longer on weekends).

Slack is also a good way to communicate with other members of the class. You will be invited to a public #cmsc-210 channel in which you can discuss the projects and other course topics with other students in the class. Feel free to ask for and give help on this channel, but please stick to general answers rather than posting code.

You can also reach out to me by e-mail to marmorsteinrm@longwood.edu. However, please do not send me large files by e-mail. They take up space toward my limited quota on the mail server and cause me all sorts of headaches. **E-mail messages containing large files will be deleted unread**.

### Asking for help

If you are asking for help with a project or homework problem, you can send me a direct message through Slack. You should attach your code or your work to a Slack message so that I can see where you are at. You should do this by using the "paperclip" icon to attach the file directly to your message or by copy/pasting the particular snippet of code you are working on to the body of the message.

**Please do NOT attach screenshots or pictures taken on your phone.** They are hard to read and do not allow me to compile your code without retyping it. Instead, send the text of the code directly.

*One last suggestion: don't "ask to ask". I am delighted to answer questions about the projects and homework assignments and you should feel free to ask questions at any time. Asking permission to ask a question wastes my time and yours.*

**Course description:** The class will study interactive web pages that provide customized data in response to visitor requests and/or collect data from site visitors. This interaction will be done via program scripts written in an appropriate language.

**Prerequisite:** CMSC 140 or CMSC 160.

**Required Textbook:** No textbook is required for this course. However, I will be assigning reading from various web resources and tutorials. It is important that you read these articles for comprehension *(Note: I strongly recommend taking notes as you read them!)*

**Course student learning outcomes:**

By the end of the course, the successful student will be able to:
– Write a program that runs
– Make calls to built-in libraries
– Create functions, classes, or other appropriate kind of module
– Access and process stored data (from a file or and/or from a database)
– Use a library, technology, or other program code that was not directly taught in this course

**Section student learning outcomes:**

By the end of the semester, the successful student will be able to:
– Create web pages using HTML markup and CSS styling
– Use Javascript and JQuery to animate page elements and perform AJAX requests
– Access REST services using API calls at the command line and using scripts
– Store information in a database or file using Python microservices

**Course Structure and Student Expectations**

This course is heavily project-driven. In general, I will use the first day or two of each week to lecture on a new topic. You will then have Friday to work on laboratory projects. Laboratory and lecture sessions will take about three hours each week. However, you should expect to spend at least nine to twelve additional hours each week reading the materials, working on homework and the laboratory projects, and preparing for exams.

**Course Work:** Your grade will be determined by your performance on the final exam (10%), participation (5%), homework and quizzes(10%) and programming projects (75%).

**Grading Policy:**

Late work will not be accepted unless you have a serious medical or family emergency which prevents you from completing the assignment on time. In such cases, you do not need a doctor's note, but you must send me e-mail within twelve hours of the assignment due date to explain your circumstances and to make arrangements for the work to be completed.

| **Grading Scale:** | | 100-91: | A | 90: | A- |
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| 89: | B+ | 88-81: | B | 80: | B- |
| 79: | C+ | 78-71: | C | 70: | C- |
| 69: | D+ | 68-64: | D | | |
| 63 or lower: F | | (There is no grade of D- in this course. Anything below a 64% is failing.) | | | |

**Attendance:**

I expect you to attend class unless you are sick or engaged in an approved extracurricular activity. Please do NOT come to class if you are sick. Instead, contact me within 12 hours of the absence to check whether you've missed any work and then make arrangements to get notes from another student in the class. You should also check the course web site for announcements, new assignments, and other important updates.

I will rely primarily on your honor for enforcement of the attendance policy. However, I will keep a record of your attendance as required by Longwood policy. In accordance with that policy, I may (at my discretion) penalize you for missing more than 10% of scheduled class time (about 5 class sessions) to unexcused absences. If you miss 25% or more of scheduled class meetings (about 14 sessions), you will automatically fail this course.

**Honor Code/Collaboration:**
Exams and quizzes are to be completed entirely on your own. You may discuss the homework and lab projects with other students subject to these restrictions:

**1. Only turn in work which YOU have typed or written.**
*The work you submit should, in general, be either your own original work or modifications of material which I have provided. You MAY assist other students or get assistance with simple problems like syntax errors, but you may NOT copy large blocks of code from each other. A good guideline of what "large" means is that changes that involve one or two lines of code are usually okay, but copying more than three complete statements is usually too much.*

**2. You may NOT copy code electronically from other students or the Internet.**
*This doesn't mean you can't look online for help with a project. It just means that you shouldn't copy/paste or download code and turn it in as your own. You must re-type any code you find. You should also not be using large blocks of code from the Internet (again, the three line limit is a good rule of thumb).*
*You may not share code with other students using flash drives, cell phones, e-mail, web sites, floppy disks, CDs, or **any other** electronic storage or communication device. You may not print out copies of your code to share with other students (personal copies are fine).*

**3. You must give proper attribution.**
*Whenever you receive help or use an online resource, you should comment your code to give proper credit. A simple comment like "/* based on* http://codewarrior.com **/" is fine. This comment should go directly above or directly after the place that you used the resource or received help to make it clear which parts of your program are not entirely original.*

**4. You are responsible for securing your code.**
*Helping other students to cheat is also cheating. Furthermore, it is your responsibility to make sure that other students do not use your work to cheat. Be careful with who you allow to access your computer or account. Report any missing files, flash drives, or other devices that contain your work to me promptly.*

Infractions of these policies will be dealt with harshly under the Longwood Honor Code. Any student convicted of an honor offense involving this class will automatically receive a final course grade of **F** in addition to any penalties imposed by the Honor Board. You should consider all work in this class to be pledged work, whether or not the pledge appears on the assignment.

**Food and Drink:**
You may bring non-alcoholic beverages, including soft drinks, to class. However, please do not eat in class (it distracts me and the other students). Violations of this policy will be considered an unexcused absence. I occasionally grant exceptions to this rule for students who must otherwise forgo lunch or have medical needs that require them to eat in class. If you feel that you need such an exception, you must make arrangements with me in advance (that is, before bringing food to class).

**Cell Phones and Laptops:**
Cell phones, music players, and laptops are to be turned off and put away during class, except as needed for the lab sessions. Violations of this policy will be considered an unexcused absence.

## Campus Policies:

This class complies with campus policies on wearing of face masks, intellectual property, disability accommodations, mental health, and reporting of crimes and sexual misconduct. For more information, see http://www.longwood.edu/academicaffairs/syllabus-statements/.

**Tentative Course Schedule:**

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| **Week 1:** Jan. 12 – 14 | Introduction, the Model-View-Controller paradigm, Introduction to Linux and Vim<br>Networking Basics: Clients and Servers, HTTP Methods and Status Codes<br><br>**Read RFC 3986 (**https://tools.ietf.org/html/rfc3986**)**<br>**Lab 0: Introduction to Unix** |

**MLK Holiday (No Class): Jan. 17th**

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| **Week 2:** Jan. 19 – 21 | Advanced HTTP: Headers, URLs, Domains, Paths, and Query Strings<br>The Domain Name System, Registering and Configuring a Domain<br>**Read RFC 1945 (https://tools.ietf.org/html/rfc1945)**<br><br>Introduction to HTML 5: HTML documents, Text, Links, and Paragraphs<br><br>**Lab 1: Introduction to HTTP and APIs** |

**Last Day to Add/Drop classes: Jan. 20th**

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| **Week 3:** Jan. 24 – 28 | Advanced HTML: Structure Elements, Images, and SVG<br>**Read "In Depth SVG Tutorial" (https://flaviocopes.com/svg/)**<br><br>Introduction to Cascading Style Sheets<br>**Read CSS Tutorial (https://www.csstutorial.net)** |

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| **Week 4:** Jan. 31 – Feb. 4 | Parts of a web site: Hero Images, Headers, Footers, Navigation Bars<br>Designing for Mobile and Desktop<br>Web Accessibility<br>Responsive Mobile Development<br><br>**Read "Parts of a Website: A cheat sheet for non-techies"**<br>**(**https://www.markbrinker.com/parts-of-a-website**)**<br><br>**Lab 2: Introduction to HTML and CSS** |

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| **Week 5:** Feb. 7 – 11 | Advanced Cascading Style Sheets and CSS Layout<br>**Read Flexbox Tutorial**<br>**(**https://internetingishard.com/html-and-css/flexbox/**)**<br><br>**Read "How to build a Responsive Navigation Bar"**<br>**(**https://www.makeuseof.com/responsive-navigation-bar-using-html-and-css/**)** |

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| **Week 6:** Feb. 14 – 18 | Introduction to Javascript<br>**Read Modern Javascript Tutorial Part 1, Chapters 1 – 3**<br>**(**https://javascript.info/**)** |

**Feb. 18** **Pass/Fail Decision Deadline (5pm)**

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| **Week 7:** Feb. 21 – 25 | Object-Oriented Programming in Javascript<br>**Read Modern Javascript Tutorial Part 1, Chapters 4 – 8**<br>**(https://javascript.info/)** |

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| **Week 8:** Feb. 28 – Mar. 4 | Using JQuery<br>**Read JQuery Fundamentals Tutorial ("Basics" through "AJAX")**<br>**(http://jqfundamentals.com/chapter/jquery-basics)**<br><br>**Lab 3: Using Javascript and JQuery** |

**Mar. 7 – 11 Spring Break: NO CLASS**

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| **Week 9:** Mar. 14 – 18 | Introduction to Python<br>**Read Python Tutorial (Chapters 1 – 5)**<br>**(https://docs.python.org/3/tutorial/)**<br><br>**Lab 4: Python CGI Scripts** |

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| **Week 10:** Mar. 21 – 25 | Python Data Structures and File I/O, Using and Creating APIs<br>**Read Python Tutorial (Chapters 6 – 8)**<br>**(https://docs.python.org/3/tutorial/)**<br><br>**Lab 5: Using an API in Python and Javascript** |

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| **Week 11:** Mar. 28 – Apr. 1 | Flask and Jinja<br>**Read Flask Tutorial**<br>**(http://flask.pocoo.org/docs/1.0/tutorial/)** |

**Mar. 30 Deadline to withdraw without an F (5pm)**

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| **Week 12:** Apr. 4 – 8 | Cookies, Requests, and AJAX<br><br>**Lab 6: Server Side Programming Using Flask and Jinja** |

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| **Week 13:** Apr. 11 – 15 | Introduction to SQL<br>**Read SQL Bolt Tutorial (Lessons 1 – 9)**<br>**(https://sqlbolt.com/)** |

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| **Week 14:** Apr. 18 – 22 | Using SQL in Python<br>**Read Psycopg2 Tutorial**<br>(http://initd.org/psycopg/)<br><br>**Lab 7: Using Databases on the Server** |

**Apr. 20** **Symposium on the Common Good (No Class)**

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| **Week 15:** Apr. 25 – 29 | Catchup and Review<br>**Final Review Packet due Monday, Apr. 25** |

**Final Exam**: May 2 (Mon. 11:30am – 2:00pm)

## Major Assignments:

This class is heavily project driven and most of your grade will come from successful completion of the projects. However, there will also be a final exam and (roughly) weekly homework assignments. See the course schedule (above) for tentative due dates.

**Projects:** Projects are worth 75% of your grade. There will be six to eight laboratory projects.

**Exams:** The final exam on May 2nd will be a comprehensive exam covering all course topics and is worth 10% of your grade.

**Homework and Quizzes:** Homework assignments (largely based on the reading) will comprise 10% of your grade. In general, I will assign these at the beginning of the week and they will be due that Friday, however, due dates may vary depending on the schedule, so check the course web site for updated due dates. I also give unannounced pop quizzes, so make sure you have done, the reading for each week by the beginning of that week!

Probably the largest part of your homework grade will be the final review packet at the end of the year which will be due on April 25th.