

UCSD StudentTECH 2020

Advanced Technology for Middle School Students

Sponsored by the San Diego Supercomputer Center and UCSD College Explorations at the University of

Introduction to Web Development: Learning to Program an Amazing Website with HTML, CSS, and Javascript

Monday- Friday, August 10-14, 2020

Class meets at the University of California, San Diego from 8:30am - 3:00pm.

Course Description

During the last 15 years, web applications have become commonplace throughout almost everyone's experience on the Internet. Gmail, Hotmail, Facebook, Twitter, Wordpress, Evernote, and Groupon are all web applications build by web developers. The technologies powering these Internet phenomena boast unparalleled accessibility and potential for inspiring young programmers. While the topic may be quite expansive, any willing student can learn web development and have a blast doing it. Even students who have never programmed will enjoy creating their own web applications and games.

Course Overview

This course is intended to provide an overview of web development to student with little to no previous experience. The topics will include the following technologies: HTML, CSS, and JavaScript. Students will learn these technologies through practical real-life examples and demonstrations, including using JavaScript to control physical hardware. ~~One or more guest speakers may contribute to add additional perspective.~~

Workshop Schedule

1. Introduction to HTML and CSS
 - a. Create a web page using HTML
 - b. Add style using CSS
2. A Deeper Look at HTML and CSS
 - a. The tricks of the trade that makes your page great
3. Introduction to JavaScript
 - a. How to do what HTML can not
 - b. Add additional functionality to your pages using JavaScript
4. JavaScript continued, introduction to JavaScript tools
 - a. Create JavaScript code faster using specialized software.
5. Using JavaScript to animate!
 - a. Students will use JavaScript to create simple animations
6. Basic Game Creation with JavaScript! ~~ASP.NET Razor continued~~
 - a. Students will create a small, basic game using JavaScript ~~Store and display your data with a database~~
7. Bonus: Controlling physical hardware with JavaScript ~~ASP.NET Razor continued~~

- a. Interested students will have hands on opportunities to program Sphero robots, as well as the Adafruit Circuit Playground Express ~~Students will Adding interactive content~~
- 8. ~~ASP.NET Razor continued~~
 - a. ~~Let's build a blog!~~
- 9. Final Project Collaboration Workshop
 - a. Use this time to ask questions and work together
- 10. Final Project Presentation
 - a. Show off and play your final projects

Final Project

The final project should reflect how the coursework has inspired the students to design and create a game or animation on their own, or, with a group.

The students final project will be a culmination of the work done during the week, a styled website that features their JavaScript game or animation.

Students will be encouraged to work in a group, although this will not be a requirement. Any student or group of students with a differing final project in mind should pursue said project instead, as long as it is cleared by the instructor.

All final projects will be posted online as fully accessible websites.

Instructor: Todd Resley, UCSD

Prerequisites:

- Must be a current middle school student in grade 6– 8.
- No previous programming experience is required.
- Willingness to learn and listen carefully to expert instructi