Florida Foundations of Web Design Syllabus

High School - One Year (165 hours)

Course Overview and Goals

The CodeHS Florida Foundations of Web Design Course is intended to teach students the fundamentals of web design in a project-based learning environment. Students will learn the basic elements of web design, such as creating HTML/CSS files, and incorporating Javascript into HTML files. Over the school year, students will collaboratively and independently design, develop, and implement functional and responsive web pages using these foundational skills.

Learning Environment

The course utilizes a blended classroom approach. The content is fully web-based, with students writing and running code in the browser. Teachers utilize tools and resources provided by CodeHS to leverage time in the classroom and give focused 1-on-1 attention to students. Each unit of the course is broken down into lessons. Lessons consist of video tutorials, short quizzes, example programs to explore, and written programming exercises, adding up to over 100 hours of hands-on programming practice in total. Several units end with a comprehensive unit test that assesses students' mastery of the material from that unit as well as challenge problems where students can display their understanding of the material.

Prerequisites

There are no prerequisites for this course. The course is highly visual, dynamic, and interactive, making it engaging for new coders.

Technology Requirements

To complete all activities and exercises in this course, students must have access to the 3rd party sites and tools listed here: Florida Foundations of Web Design Course Links

More Information

Browse the content of this course at https://codehs.com/course/24928/explore

Course Breakdown

Module 1: Getting Started - What is the Web? (5 hours/ 1 week)

Students are provided with a high-level introduction to the Internet and how it functions, investigate how the Internet has impacted society over time and set course goals for themselves.

Topics Covered	• Course introduction • Goal setting • The Internet • URLs • How a web page gets to your computer
Example Assignments	• Example exercises:

	○ Free Response: “When you think of the Internet, what comes to mind?” ○ “What would you like to learn in this course?” ○ Brainstorm something you would like to create “Wouldn’t it be great if...” ○ Why is the Internet often called “The Web”? ○ Explain the steps it takes for a web page to get to your computer ○ Class Activity: The Internet Then and Now ■ Students investigate the capabilities of the Internet 20 years ago, 10 years ago, today, and looking forward to the future

Module 2: HTML - Structuring Websites (15 hours / 3 weeks)

Students learn about the language behind all websites: HTML. Students learn about several different HTML tags as well as the basic structure of a web page. Students use HTML to develop several of their own creative web pages.

Topics Covered	● How do we build web pages? ● Markup Languages ● HTML ● HTML tags ● HTML attributes ● HTML elements ● The Anatomy of an HTML page ● Formatting text ● Hyperlinks ● Images ● Copyright fair use ● Lists ● Nesting tags ● Tables ● Styling with HTML ● HTML Colors
Example Assignments	● Students create several web pages to practice each of the concepts above ● Example exercises: ○ Modify existing web pages using formatting tags to make text more readable ○ Use links to create a web page linking to your 5 favorite websites ○ Use links and images to create a personal library web page showing your favorite books ○ Use lists and images to create a flashy list article ○ Use tables to create a personal calendar web page ○ Use styling attributes to add style to your web pages

Module 3: CSS - Styling Websites (10 hours / 2 weeks)

Students learn the language CSS and use it to style their web pages. Students learn about the benefits of styling with CSS and will use CSS to create several styled web pages of their own.

Topics Covered	● How do we style web pages? ● CSS vs HTML ● CSS Selectors

	• Selecting by tag • Selecting by class • Selecting by id • The Cascade (order of selector precedence)

Example Assignments	• Students create several web pages to practice each of the concepts above
	• Example exercises:
	  ○ Use CSS selectors to style your previous web pages
	  ○ Use CSS selectors to style new web pages
	  ○ Create a music library web page and use CSS to style each song in your table
	  ○ Use CSS styling to make several images fit together properly
	  ○ Explain the benefits CSS provides over styling with only HTML
	  ○ Identify CSS selectors and rules used on example web pages

Module 4: Advanced HTML and CSS (20 hours / 5 weeks)

This module dives deeper into different things we can do with HTML and CSS. Students practice advanced topics in HTML and CSS, including visibility, image filtering, interaction, and animation, to develop more advanced websites.

Topics Covered	• Splitting your site into separate files • Iframes and embedding • • • Combining CSS selectors • Special CSS selectors • Reading documentation • Avoiding repeated code • Visibility • Positioning • Image manipulation • Animation • Interaction • CSS Frameworks

Example Assignments	• Example exercises:
	  ○ Use iframes to embed a video into your web page
	  ○ Use iframes to embed a previous exercise into your web page
	  ○ Use divs and spans to style groups of HTML elements
	  ○ Add CSS styling to elements that the user clicks on
	  ○ Add CSS styling to elements that the user hovers over
	  ○ Use CSS to add a black-and-white filter to a group of images
	  ○ Use CSS to add a blur filter to a group of images
	  ○ Use CSS animations to make your site slowly fade in over time

Module 5: Project - Create Your Homepage (5 hours /1 weeks)

Students build their own websites about themselves. This site will be accessible on their own custom domain and will be continually improved by the students as they continue on in the course. It will serve as a running portfolio of each creative project they create in the course.

Topics Covered	• Software Development Life Cycle • Combination of the concepts learned thus far • Allow students to think creatively about applications of the concepts they have learned • Designing a web page from scratch
Example Assignments	• Students will build their own websites about themselves. This site will be accessible on their own custom URL on the CodeHS site and can be continually improved by the student as they continue on in the course. It will serve as a running portfolio of each creative project they create in the course.

Module 6: JavaScript Basics (15 hours / 3 weeks)

Students learn the basics of programming in JavaScript.

Topics Covered	• Hello World • Variables • User Input • Basic Math in JavaScript • Booleans • Logical Operators • Comparison Operators • If Statements • For Loops in JavaScript • Functions and Parameters • Intro to Lists/Arrays • Array Operations • Looping Through Arrays
Example Assignments	• Title of an activity from each lesson ○ Description of activity

Module 7: Introduction to JavaScript in HTML (15 hours / 3 weeks)

Students learn about the script tag, and how it can be used to write JavaScript code in their HTML files. Students are also introduced to useful JavaScript methods that can be used to alter the state of the CSS and HTML of a webpage, as well as how the Document Object Model supports the ability to make such changes.

Topics Covered	• The Script Tag • Using the DOM • Creating Elements Using the DOM • Styling Elements Using JavaScript • Functions in HTML • This Keyword • Keyboard Interactions • JavaScript Animations • Positioning and Animations
Example Assignments	• Make a Quilt ○ Students practice iteration and appending elements to a web page. They also develop a randomizer set to initiate whenever the mouse hovers over an element. • Challenge: Make a Keyboard

	○ Students create a clickable keyboard using only JavaScript. This is a three-part project, where students develop the keyboard, make it clickable, and finally get text to show up on a webpage. ● Add Div Animation ○ Students practice developing animations by creating a program designed to create and move divs across a webpage. Students will need to be able to access the height and width of the page, as well as the total distance that the elements have to move before stopping.

Module 8: Using JavaScript Libraries (10 hours / 2 weeks)

Students are introduced to jQuery, a JavaScript library that makes webpage interaction easier. Students will learn the basic syntax of jQuery, how to incorporate it into their web pages, and useful methods that help animate and change the responsiveness of their websites.

Topics Covered	● Introduction to jQuery ● Iterating with jQuery ● Animations with jQuery ● Callback Functions and Synchronization ● Using Multiple Files in JavaScript
Example Assignments	● Smart jQuery Table ○ Students learn how to create a smart table that changes colors based on the content of the table. If the values in the table are too low, then the table flags them as important. ● The Wave ○ Students learn how to create animations that rely on asynchronous execution. This assignment has them practice timing animations using callback functions. ● FrankenDiv ○ This assignment has students practice manipulating elements using the jQuery animations function. Students will create actions to change the size, color, and proportions of a div.

Module 9: Project: Build an Interactive Resume (5 hours / 1 weeks)

Students create a single page, interactive resume. Students are expected to add several animations using jQuery to prove their ability to modify HTML and CSS. This unit also examines web design theories that can help students improve the aesthetics of their resumes, and to evaluate the quality of a website based on its layout.

Topics Covered	● Creating a Resume ● Layout and Web Design Theory ● Interactive Resume Development
Example Assignments	● Online Interactive Resume ○ Students will develop an online interactive resume, and evaluate the quality of their peers' resumes using rubrics to initiate feedback. Students will also determine the quality of the layout, using web design layout theory to establish their reasoning.

Module 10: Collecting and Storing Data (15 hours / 3 weeks)

This unit will explore the role that data plays in creating websites. Students will learn about the various ways that data is taken from web pages, as well as ways to secure themselves from unwanted data collection. Students will also learn how to incorporate data collection into their own websites and collect simple information from users.

Topics Covered	• Collecting and Storing Data • Storing Data with Local Storage • Storing Data Structures with Local Storage • JavaScript Objects • Using Input Fields • Server-side Languages

Example Assignments	• Saving Active Divs
	  ○ Students will learn how to save which elements on their page are active at a given time and reproduce the same active state the next time a user loads the page.
	• Contact List
	  ○ Students will create a phonebook that stores and collects information about users' names and numbers, as well as retrieve information about users in their phonebook.
	• Birthday Tracker
	  ○ Students will create a Birthday Tracker to log birthdays. If a user enters a date, it will generate a list of all users who have that birthday.

Module 11: Project: Collecting Data (15 hours / 3 weeks)

Students create a multi-file webpage that tracks the number of clicks that items of content on the site receive, allowing the web owner to make decisions about which content should be kept, and which should be changed out the next time that they update their site. Students test out one another's webpages and write a written response highlighting the content that they will change on the next iteration and why.

Topics Covered	• Define Your Product • Develop Hypothesis • Creating Your Data Collection Website • Collect User Data • Analyze User Data • Making Decisions
Example Assignments	• Title of an activity from each lesson ○ Description of activity

Module 12: How to Build and Maintain a Website (10 hours / 2 weeks)

While students can run functional and responsive websites on CodeHS, this unit explores how students can create and run websites without the help of CodeHS. This unit will explore how to store web files, secure a domain name, and maintain a website. The majority of the lessons will be explanatory - students will not be expected to host and maintain a webpage off CodeHS but will be given the tools needed to do so if they desire.

Topics Covered	• Choosing a Domain Name • Personal Servers vs Web Servers • Web Optimization • Choosing a CMS • Web Accessibility

	• Web Security

Example Assignments	• Comparing CMS Systems
	  ○ Students compare popular CMS systems and make decisions about which CMS is best suited for their own needs.
	• Yoast Analyzer
	  ○ Students use a Yoast analyzer to determine if their website, or websites that they frequent are optimized for search engines. Students learn how to optimize their websites by organizing their file structure and using metadata for search engine crawlers.

Module 13: Bootstrap (10 hours / 2 weeks)

This module introduces students to Bootstrap, an HTML and CSS framework for developing responsive, professional websites. Students use Bootstrap to develop several professional, mobile responsive websites.

Topics Covered	• Combination of the concepts learned thus far • Allow students to think creatively about applications of the concepts they have learned • Designing a web page from scratch • Collaborating when developing web sites
Example Assignments	• Photo Portfolio ○ In this activity, students make the structure of a portfolio site cleaner by adding grids to the pages.

Module 14: Final Project (15 hours / 3 weeks)

In this group final project, students will act as web designers and developers to create a professional website for a mock client. They will conduct client interviews, design wireframes and sitemaps, develop the site, and present their final project. This hands-on experience emphasizes technical skills, teamwork, and real-world problem-solving.

Topics Covered	• Project Overview • Planing Your Site • Creating Your Site • Providing Feedback • Presenting Your Project
Example Assignments	• Client Vision Workshop ○ Students will conduct mock client interviews to gather requirements and understand the client's goals. Using this information, they will collaborate to draft initial wireframes and a sitemap that align with the client's vision.