Kenneth P. Dietrich School of Arts and Sciences
College in High School

2024-2025
Web Site Design and Development
CS 0134--3 Credits

Description: The objective of this course is to provide a basic understanding of the methods and techniques of developing a simple to moderately complex Web site. Using the standard web page language XHTML and HTML5, students will be instructed on creating and maintaining a simple web site. After the foundation language of XHTML as well as HTML5 has been established, the aid of an Internet editor – Dreamweaver or Aptana – will be introduced. To further enhance the web sites, a second language, Java Script, will be included. Finally, Web site design and layout techniques as well as basic search engine analysis will be added to enhance the students practical design skills.

Prerequisites: None.

Grading: Grading will be based on in class labs, homework, a final project, and exams.

Textbook: Recommended: *Murach's HTML5 and CSS3*, Zak Ruvalcaba and Anne Boehm; Murach, Publisher. ISBN 978-1-890774-66-0. Or any textbook that covers the topics below.

The course will be divided into 4 primary topics: XHTML; Web site maintenance with Dreamweaver; Java Script; Web site layout and design techniques & Internet search engine analysis.

The WWW (World Wide Web) is the section of the Internet that displays text and graphics on a specific site. These sites are stored and maintained on a server that allows for distribution throughout the Internet. Each Web site stores information that has been organized into individual hypermedia documents that we refer to as web pages.

1. Introduction to Web Development
- How Web applications work
- What are the components of a Web application?
- What is a static Web page and how are they processed?
- What is a dynamic Web page and how are they processed?
- Web browsers and operating systems
- What can JavaScript add to our pages?
- An initial introduction to the languages of HTML and CSS

2. Code, test, and validate
- XHTML syntax
- Basic HTML5 structure elements, tags, attributes
- CSS syntax
- CSS rule sets and comments CSS basic selectors
- How to use a Web editor like Dreamweaver or Aptana
- How are projects or "sites" defined?
- Creating and editing new HTML files
- How to create and edit CSS files
- Previewing sites in a Web editor

- How to test, debug, and validate your Web pages
- How are Web pages tested and debugged?
- What are options for validating sites?

3. Using HTML5 to structure a Web page
- Coding the head section
- How to code the title element, how to link a favicon (and what is a favicon) and how to include metadata
- Formatting text elements
- Coding text heading and paragraphs
- How and when to code in line elements for formatting and identifying text
- Structuring the content of the page
- Coding div and span elements
- How to structure a page with HTML5 semantic elements
- Adding links, lists, and images
- Including both relative and absolute URL links
- How to code both ordered and unordered lists
- Including images
- Putting the structured Web page all together
- Incorporating it all into a Web page

4. Using CSS to format the elements of a Web page
- Introduction to CSS
- Three ways to provide CSS styles for a Web page
- Using CSS with HTML5 semantic elements in older browsers
- Specifying measurements and colors in CSS
- How specify relative and absolute measurements in CSS. Using hex and RGB colors in CSS
- Coding selectors

- How to code selectors for all elements, element types, ids, and classes
- How to code relational, attribute and combinations of selectors
- CSS and formatting text
- How to use CSS to include some of the standard text formatting such as font family, font size, font styles, font alignments, and decorative text
- Using external style sheets
- How to incorporate the HTML and CSS files

5. Using the CSS box model for spacing, borders, and background
- Using external style sheets
- Floating elements. in 2 and 3 column layouts
- Using CSS to create text columns
- Positioning CSS elements

6. Working with tables
- Basic skills for using tables
- Creating, formatting and editing a table
- How to use CSS to format the table
- How to use HTML5 figure and figcaption elements with a table
- How to merge rows and columns of a table

7. Working with images
- Basic skills for working with images
- Types of images for the Web
- How to include and image on a page
- How to resize, align, and float and image on a page
- Advanced image skills
- Using HTML5 figure and figcaption elements
- Working with thumbnails
- Creating image map

8. Working with forms
- Using forms and controls
  - How to create a form
  - Using buttons, text fields, drop-down lists, radio buttons, check boxes, labels, and text areas
  - How to use a file upload control
  - Using HTML5 features for data validation

9. Using JavaScript to enhance your Web pages
- How JavaScript and the Document Object Model works
- Using JavaScript to enhance your web pages
  - Intro to JavaScript and DOM scripting
  - Basic JavaScript
  - JavaScript for data validation
  - How to use JavaScript for data validation
  - Using JavaScript for opening a popup window, image rollovers, image swaps, slide shows, and tabbed data
  - What if the JavaScript doesn't work on your page?

Chapters 11, 16, & 17 may be included as part of a course taught for an entire academic year.

Academic Integrity: All College in High School teachers, students, and their parents/guardians are required to review and be familiar with the University of Pittsburgh's Academic Integrity Policy located online at https://www.as.pitt.edu/faculty/policies-and-procedures/academic-integrity-code.

Grades: Grade criteria in the high school course may differ slightly from University of Pittsburgh standards. A CHS student could receive two course grades: one for high school and one for the University transcript. In most cases the grades are the same. These grading standards are explained at the beginning of each course.

Transfer Credit: University of Pittsburgh grades earned in CHS courses appear on an official University of Pittsburgh transcript, and the course credits are likely to be eligible for transfer to other colleges and universities. Students are encouraged to contact potential colleges and universities in advance to ensure their CHS credits would be accepted. If students decide to attend any University of Pittsburgh campuses, the University of Pittsburgh grade earned in the course will count toward the student grade point average at the University. At the University of Pittsburgh, the CHS course supersedes any equivalent AP credit.

Drops and Withdrawals: Students should monitor progress in a course. CHS teacher can obtain a Course Drop/Withdrawal Request form from the CHS office or Aspire. The form must be completed by the student, teacher and parent/guardian and returned to teacher by deadlines listed. Dropping and withdrawing from the CHS course has no effect on enrollment in the high school credits for the course.