

Capstone Project Overview

You will now put all of your knowledge from this course into one final project. You have a lot of freedom to design and develop a multi-page web site. There are 4 phases to the project.

Phase 1: Topic Research

Before you get started, you will need to get your topic approved. This is an informational site, so you will need a topic broad enough to span multiple web pages. Good topics might include:

- **An animal:** the homepage could include an interesting fact about the animal, with additional pages about the animal's physical features, behavior, habitat, and diet
- **A celebrity:** the homepage could include a personal note about why you are a fan of the celebrity, with additional pages about the celebrity's career, personal history, and philanthropy
- **A sport:** the homepage could include an inspirational quote from a professional player, with additional pages about the history of the sport, how it is played, what equipment is required, and professional/Olympic records
- **A topic from another class:** Do you have a major project for another class, too? Consider asking your other teacher if this website could count toward that project. It may just help you to focus on one topic for both projects, even if the requirements are totally different -- using what you are learning in another class for your topic could help you learn it better and save research time

Once your topic is approved, you should gather research on your topic. This will help you determine appropriate sub-topics for each page of your site and give proper credit to avoid plagiarism or copyright infringement. You'll notice in the rubric below that one of the features you'll be graded on is your respect for intellectual property rights. The easiest way to guarantee full credit in that feature is to track your information and images as soon as you find them.

Your bibliography will be reviewed twice: once as a unit activity and again in the final project rubric.

Phase 2: Design

After your research, sketch possible designs for your pages. You may sketch with pen and paper (take a picture or scan these to create digital copies) or a software program such as Pixlr or Balsamiq. The idea with the sketches is not to produce some kind of exact design, but to plan ahead the features you need to organize the information on your topic.

Consider what links you will need in your main navigation on all pages. Include consistent headers/footers. Spend some time looking through fonts to find good ones that are easy to read. Consider what images you might need for design purposes, such as icons and divider lines.

During this design phase, look ahead to the grading rubric and essay topics listed in this document. You will need to include a practical application of one of these topics in your project (that is, you need to implement the essay topic somewhere in your code). One of the pages of your site will be the essay itself -- it is your choice whether a link to it is provided in the main navigation or somewhere more discreet such as the footer.

Annotate your sketches with the HTML tags that you expect to use on your content.

Phase 3: Development

Time to write some code! Use your annotated designs to write your HTML files. You should expect to take 1-2 hours to write your HTML code. After 1 hour, take a break to determine if you will meet that goal. If it appears you will not meet that goal, ask for help to determine if your annotations need more work, if you need more time to complete the HTML, or some other need to finish in a reasonable time.

Then apply CSS. In general, you'll want to use external CSS files, unless you have very special circumstances. Initially writing the CSS should take another 1-2 hours, but you may wish to plan for extra time tweaking the CSS to get the details *just right* while still meeting all of the feature requirements.

Along the way, be sure to incorporate one of the essay topics and write your essay. Depending on the topic, this is something you may need to do at/near the beginning of your project (such as applying reset styles before other CSS styles), so plan ahead! Incorporating your essay topic and writing your essay may take another 1-2 hours.

Your teacher should provide at least 9 hours of time for development. In many classrooms this would be 2 weeks. It may seem like a lot of time, but there is a lot to do! Set goals for each class session so that you will complete the project in the amount of time allotted. If you do not think you can meet the goals, plan ahead to use extra time outside of class. It is your responsibility to set goals and meet the deadline. Find out if your teacher or school offers extra lab time, computers to check out during study hall, or other resources to complete your project on time.

As you develop your site, keep the grading rubric open to be sure you are meeting all of the feature requirements. Near the end of Phase 3, give yourself a practice "grade" according to the rubric.

Phase 4: Revision

At the beginning of this phase, you will be assigned another student's project to review according to the grading rubric. You'll be given exactly the same rubric that your teacher will use to grade the projects, and you will give a practice "grade" to the project. This means another student will be "grading" yours, too! The teacher will be working on giving you a practice grade as well, but remember the teacher has to do *all* of them so it might take some time.

Once you get back the results, you will be provided with at least 2 hours of class time to edit and improve your project. There are 55 points available in the rubric, and you need 50 of them for a "mastery" score of 100%. Your specific school or classroom should have a grading scale to tell you how many points out of 50 will earn a specific grade.

This revision phase is all about improvement. If you already had a superb score, see if you can get all 55 points available in the rubric. If you have a very poor score, set a goal for how many features you can improve with the time you are given. Again, plan ahead if you think you will need extra time outside of class to complete the project. It is your responsibility to set goals and meet the deadline.

You can do it!

Grading Rubric

A 100% score demonstrating mastery of HTML and CSS involves reaching **50 points**.

Feature	Basic: 1 Point	Intermediate: 3 Points	Advanced: 5 Points
# of Pages	1-2; any content	3-4; on-topic	5+; organized by sensible sub-topics
Required HTML Tags	HEAD, TITLE, BODY, P, IMG	Basic Tags plus META, LINK, A, and a data structure (UL, LI, or TABLE with appropriate nested elements)	Intermediate Tags plus 5 additional tags as appropriate for content
HTML Quality	HTML renders with no malformed tags	Valid HTML5	Valid HTML5 with good whitespace/indentation; consistent across pages
IP Rights	Bibliography present	Bibliography complete including images	Bibliography complete; sources/attributions cited inline
Fonts	Use of font-family CSS property	Use of font-family CSS property with appropriate fallbacks	Use of font service to guarantee proper font display on any device
Unique CSS Selector Types (See List Below)	1-3	4-6	7+
Unique CSS Properties (Any that render)	1-6	7-12	13+
CSS Quality	Every CSS statement renders	Basic Level plus good whitespace/indentation and appropriate use of inline/internal/external stylesheets	Intermediate Level plus mobile response, as well as file names and code comments which organize CSS statements logically
Essay Format	Any means of writing 3 paragraphs; included with project files	Any means of writing 3 paragraphs; linked within project	HTML including 5 paragraphs and links to related reading/sources; linked within project; consistent styling with project
Essay Topics	See List Below	See List Below; topic integrated into project	See List Below; topic integrated into project
Overall Quality	This is a subjective category to provide 5 more points to exceptional work. Projects earning 5 points in this category would make good examples to show in a professional portfolio. Problems that do not fit the other categories may be docked from this one, including but not limited to: slow load times, horizontal scroll bars, color/layout choices which make reading difficult, broken image/url references, etc.		
TOTALS	11	33	55

CSS Selector Types

- Tag Name Selector
- ID Selector with #
- Class Selector with .
- Selector grouping using comma
- Descendant Selector using spaces
- [Direct] Child Selector using >
- Pseudoclasses using :
- Attribute Selector with syntax [attribute] or [attribute='value']
- Adjacent sibling using +
- General sibling using ~
- Universal Selector using *

Essay Topics

Basic

HTML Template -- describe purpose with 2 specifics

Reset Styles -- describe purpose with 2 specifics

HTML5 Semantic Elements -- justify choices in the project; use and explain CSS shiv for IE8-

Fonts from a Font Service -- use Google Fonts, Type Kit, or another font service; explain the benefits

Pick an HTML Tag -- explain the tag, its purpose, its attributes, and any other details relevant to the tag

Pick a CSS property -- explain the property, its purpose, its possible values, and any other details relevant to the property

Intermediate

HTML Template -- adjust the given template to better fit your needs and explain

CSS Reset Styles -- adjust the given reset to better fit your needs and explain

CSS Selectors -- choose the grouping, descendant, child, attribute, or universal selector; describe the purpose, with examples

Base64 Encoding -- how it's done and pros/cons

Font-Based Icons -- how it's done and benefits

Data Structures -- choose hyperlinks, lists, or tables; explain the related tags, attributes, CSS, and any other details about the structure

Images -- describe, compare, and show examples of different images types used on the web

CSS Position Property -- describe and compare the different values of the position property

Grid-Based Layouts -- describe the purpose and techniques for implementing a design with a grid layout

CSS Pseudoclasses -- choose a set of at least 2 related pseudoclasses to describe the purpose, with examples

Advanced

Mobile-Responsive Development -- pick 2 techniques for mobile response to explain (compare/contrast them if appropriate)

CSS3 Transitions -- how it's done and compatibility concerns

Theme Toggling -- form elements for toggling action; local storage for saving choice; url params?

Interactive Features from jQuery UI -- how it's done; specific details on widgets used in project

Custom-Made Fonts -- create your own fonts using vector graphics and upload to Font Squirrel for use in your web site; describe the process

CSS Sprites -- describe the purpose, techniques, and pros/cons of using CSS sprite images

Print Styles -- how it's done and the restrictions/enhancements that are possible for print media

Suggested Timelines

For class periods of 45-60 Minutes in a five-day week:

Introduce Project; Phase 1 Review	Phase 2 Homepage Sketch	Phase 2 Additional Pages Sketches	Phase 2 Annotations	Phase 2 Wrapup
Phase 3 Homepage HTML	Phase 3 Additional Pages HTML	Phase 3 Finish HTML Content	Phase 3 Incorporate Essays	Phase 3 Begin CSS
Phase 3 CSS	Phase 3 CSS	Phase 3 Rubric Self-Review	Phase 3 Wrapup	Phase 4 Student Reviews
Phase 4 Editing	Phase 4 Editing	Final Submission		

For A/B block scheduling in a five-day week:

Phase 1 Review; Phase 2 Begin Sketches		Phase 2 Finish Sketches & Annotations		Phase 3 Begin HTML
	Phase 3 Finish HTML & Essays		Phase 3 Begin CSS	
Phase 3 Finish CSS		Phase 3 Rubric Reviews		Phase 4 Editing
	Final Submission			