Term Grading

The Term will contain 8 micro-projects, each worth 10%, and due at the close of each unit in the Lesson Plan. A Final term project will take place worth 20%.

Item	Unit MP	Weight (%)	Due
Microproject (MP)	1	10	January 10th
	2	10	January 17th
	3	10	January 24th
	4	10	February 7th
	5	10	February 14th
	6	10	February 21st
	7	10	February 28th
	8	10	March 9th
Final Project		20	March 16th midnight

Term Final Project

Students may choose from one of the following Tracks for the final project.

1. **Interactive Web Product.** The final project compiles each micro-project into a cohesive interactive web product. Teams may be formed with no more than 5 members. Compile a product video on a promotional page of the product's website.

Students should plan the project within the first month of the course, then seek to develop small facets of the project with each mini-project. Since each mini-project awards conceptual development, the final should complete whatever concept was initiated during the term.

Grading rubric:
A. Product is suitable to compete a Cal Poly entrepreneurship competition. A working prototype should exist with a demonstration account. A video should demonstrate the website in a clear and honest manner, with narration and instruction (not a marketing presentation). Product should possess a goal, be conceived the solve a problem, and lay out the rationale for its design. The product should operate smoothly, and bring the user through a basic business process where the concept is can be discussed by an outside observer. The site should be hosted publicly on Amazon web services simple storage service (S3), and employ techniques taught during the term.
B. Missing one element from an A project

C. Missing two elements from an A project
D. Missing three elements from an A project
E. Missing four or more elements from an A project.

2. **Website Security Analysis**. Implement a Web Application Firewall for a Product team, then test the application for vulnerabilities using common penetration testing tools. Submit a video of proof of your analysis and an accompanying test report.

Students who have not completed upper-level coursework in security, network or systems administration will not be permitted to do Track 2.

Grading rubric:

A. The team employs AWS WAF, implemented on an existing product team, or a demonstration site created by them, which interacts with AWS via database, as instructed in class. A micro-project hosted on S3 with DynamoDB interactions may be used as a test. Penetration testing tools must attempt to capture data in-transit to and from the site before and after OAUTH is implemented. Common, open-source tools that are commonly used in penetration testing are to be used to investigate the site. A suite of five tools should be used to demonstrate the security state of the site through several security vectors, defined by the team. Tools with overlapping test capacity are not to be used. A website documenting the test is constructed to show off the results, with a video summarizing your results. The video should be constructed for a security audience, and sufficient for presentation during a security interview.
B. Missing one element from an A project
C. Missing two elements from an A project
D. Missing three elements from an A project
E. Missing four or more elements from an A project.

Micro-Projects

For each unit in the following matrix, a small project is made by the student to practice and implement the technology. Source code will be presented and made available online on our course GitHub. Students will be expected to show competency implementing the code demonstrated for the unit in some working metaphor, or micro-project.

Deliverable. Three pages should be made per unit, with some contrasting use of the programming techniques. The coding practices taught in the unit should be present on each page in some functional, explainable way. The student should show that they have learned how to use the skills, then apply them in a very simple demonstration. An outside observer should show them moving data then display it in HTML markup, in a very simple business process.

Each student will use a public blogging service to describe their work, then link to their project. The assignment is a blog post, completed by the due date, which links to their functioning micro-project on the web.

Best Practices
For your micro-project, understand that *A* projects are small portfolio pieces, adequate to show employers a wide range of web development skills.

Due dates
Micro-projects must be submitted by beginning of the next unit. For example, class ends on a Thursday, then the micro-project will be due on the following Tuesday, before the next unit begins. Your micro-project must be online and accessible for full credit.

Grading Rubric

A
Demonstrates the topic instructed completely, with some conceptual development. The skills from the prior unit are incorporated, and stacked into a new version of the site. There is clear progress toward the final project.

B
Demonstrates the programming skills instructed but lacks conceptual development (has no theme, idea or functional goal). There is limited integration of prior code. The code has limited integration into the final project.

C
B project, but errors exist which are fixable with additional instruction. The student is trying to implement the code.

D
Code is present in a copy/pasted way, with little evidence of the student having tried the code.

E
Code is not present for the unit.

Lesson Plan, Lecture Topics and Session Objectives

Months	Class sessions	Topics and links	Unit # on github
January	3	**Basic Javascript**. Basic user interface interactivity, HTML elements	1
	5	*Micro-project. Dedicated time in-class to answer questions, debug your technology.*	
	10	**Javascript objects**. Manipulating member variables and functions in javascript core language	2
	12	*Micro-project. Dedicated time in-class to answer questions, debug your technology.*	

Months	Class sessions	Topics and links	Unit # on github
	17	**Handling Data with Javascript Objects**. Javascript Object Notation (JSON), java objects, arrays, array traversal, functions, forEach iteration, Document Object Model (DOM) and javascript, text nodes	3
	19	*Micro-project. Dedicated time in-class to answer questions, debug your technology.*	
	24	**Cloud Security and Querying NoSql Databases**. OAUTH, Amazon Web Services SDK, Identity and Access Management (IAM), DynamoDB and DocumentClient, event-driven javascript, Web Identity Federation, Third Party Authentication Systems and Cloud Computing	4
	26	*Micro-project. Dedicated time in-class to answer questions, debug your technology.*	
	31	**Integrating services into client-side javascript**. HTML Elements integrated with cloud computing API use	
February	2	*Micro-project. Dedicated time in-class to answer questions, debug your technology.*	
	7	**Basic Get, Put, Update, Delete on NoSql cloud environments**. Transferring cloud JSON into HTML elements	5
	9	*Micro-project. Dedicated time in-class to answer questions, debug your technology.*	
	14	**Persisting client-side data with cookies**	6
	16	*Micro-project. Dedicated time in-class to answer questions, debug your technology.*	
	21	**HTML FILE protocols and uploading images to the cloud**	7
	23	*Micro-project. Dedicated time in-class to answer questions, debug your technology.*	
	28	**Responsive Web Design with CSS**. Introduction to Bootstrap.	8
March	2	*Micro-project. Dedicated time in-class to answer questions, debug your technology.*	
	7	Final project work	
	9	Final project work	
	finals week, 14/16	final exam	