

MET CS 401/601: Web Application Development

This class focuses on HTML5, CSS 3.1+ and ES6 with an emphasis using standard web frameworks, such as ReactJS. Students are highly encouraged to bring their laptops to class for our laboratories. Most of our learning comes from hands-on training.

Instructor

Andrew Sheehan asheehan@bu.edu

Office Hours

Office hours are by Zoom meetings since Covid-19 started. Please reserve the time & place ahead of time with me.

Classroom Location

Please check with bu.edu/studentlink for the latest location.

Required eBooks

Most are free and online

- HTML and CSS Design and Build Websites. David Flanagan
<https://wtf.tw/ref/duckett.pdf>
- JavaScript: The Definitive Guide
<http://bit.ly/36VXPE7>
- Exploring ES6
<http://exploringjs.com/es6.html>
- jQuery
<https://books.goalkicker.com/jqueryBook/>
- Eloquent JavaScript
https://eloquentjavascript.net/Eloquent_JavaScript.pdf
- React JS
[Learning React: A Hands-On Guide to Building Web Applications Using React and Redux. By Kirupa Chinnathambi](https://html5hive.org/wp-content/uploads/2018/04/The-Complete-Beginners-Guide-to-React-Dyrr.pdf)
<https://html5hive.org/wp-content/uploads/2018/04/The-Complete-Beginners-Guide-to-React-Dyrr.pdf>
https://www.valentinog.com/blog/redux/#React_Redux_tutorial_what_problem_does_Redux_solve
- Bootstrap
[Bootstrap homepage](https://getbootstrap.com/)

Course Policies

- Do your work. HTML, JavaScript and CSS are best learned by doing. Not just reading/watching.

- Homework will not be accepted after the due date.
- Exams and quizzes cannot be made up or rescheduled.

Grading Policies

- Homework, Quizzes and Laboratories: 25%
- Midterm Examination: 25%
- Term Project: 25%
- Final Examination: 25%

Schedule

Weeks (Thursdays)	Topics	Readings
September 3	<ul style="list-style-type: none"> • Course Introduction and Expectations • Developer Tools: Text Editors and IDE's • Core HTML Elements • The Document Object Model • Using the Chrome debugger • Writing your first HTML page • Hello World with ReactJS 	Duckett: 1-5 Chinnathambi: 1-3
September 10	<ul style="list-style-type: none"> • Core HTML: Forms and Tables • Introduction to Javascript • Expressions, Data Types • Control Structures • Built-in Objects: Window, Document, String and Date • Introduction to Declared Functions • Using DOMContentLoaded with addEventListener() • ReactJS: state and props 	Duckett: chapters 6,7 Flanagan: 1-5,8,14,17 Haverbeke: 3 https://developer.mozilla.org/en-US/docs/Web/API/Window/DOMContentLoaded_event
September 17	<ul style="list-style-type: none"> • Core HTML: Audio and Video Elements • Functions: Arrow, Anonymous and Expressions 	Duckett: 9 Flanagan: 8, 19 https://developer.mozilla.org/en-US/docs/Web/API/Window/DOMContentLoaded_event

	<ul style="list-style-type: none"> • More with Events • The jQuery library • jQuery Event Binding • More of: DOMContentLoaded Event 	
September 24	<ul style="list-style-type: none"> • What is the purpose of Cascading Style Sheets ('CSS') • Using (by example) the various types of CSS Selectors • The important • Using CSS with ReactJS 	<p>Duckett: 10</p> <p>https://css-tricks.com/when-using-important-is-the-right-choice/</p> <p>https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Selectors</p> <p>https://reactjs.org/docs/faq-styling.html</p> <p>https://codeburst.io/4-four-ways-to-style-react-components-ac6f323da822</p> <p>https://medium.com/@dmitrynozhenko/9-ways-to-implement-css-in-react-js-ccea4d543aa3</p>
October 1	<ul style="list-style-type: none"> • More CSS work and examples • Cascading Style Sheets: Flexbox • Lexical Scope Rules: Block (ES6), Function and Global • Hoisting and Closures • Function Expressions and Arrow Functions • Default Function Arguments 	<p>Flanagan: 8</p> <p>https://bit.ly/2WTrBXU</p> <p>https://mzl.la/2OXOk0x</p> <p>https://medium.com/tandemly/basic-scope-a3a6f80800e6</p> <p>https://css-tricks.com/snippets/css/a-guide-to-flexbox/</p> <p>https://learn.co/lessons/fewpjs-js-fundamentals-lexical-scoping</p> <p>https://www.sitepoint.com/demystifying-javascript-variable-scope-hoisting/</p> <p>https://medium.com/@mandeep1012/function-declarations-vs-function-expressions-b43646042052</p>
October 8	<ul style="list-style-type: none"> • CSS: Floating, Visibility and Display • Introduction to Bootstrap 	<p>Duckett: 15</p> <p>https://css-tricks.com/all-about-floats/</p> <p>https://getbootstrap.com/docs/4.5/getting-started/introduction/</p> <p>https://mzl.la/3hBnRIT</p>
October 15	Midterm Examination	
October 22	<ul style="list-style-type: none"> • Data Structures: Array, Set and Map • JSON and XML • Parsing JSON 	<p>Flanagan: 7</p> <p>json.org/json-en.html</p> <p>https://mzl.la/3fIOUF6</p> <p>https://bit.ly/2WYTIVQ</p> <p>https://bit.ly/30KM9mK</p>

		https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Map https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Set
October 29	<ul style="list-style-type: none"> • Classes, Objects and Literals • JavaScript with Modules • Destructuring • Rest and Spread 	Flanagan: 9 https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/Spread_syntax https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Functions/rest_parameters
November 5	<ul style="list-style-type: none"> • Promises and Callbacks • Using async and await 	https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Promise https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Statements/async_function https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/await
November 12	<ul style="list-style-type: none"> • Introduction to Ajax: Native XHR and jQuery • The Fetch API • Axios 	Flanagan: 18 https://github.com/axios/axios https://developer.mozilla.org/en-US/docs/Web/API/Fetch_API
November 19	<ul style="list-style-type: none"> • The superset of JavaScript: TypeScript 	https://www.typescriptlang.org/docs/home.html
November 26	Thanksgiving Recess	
December 3	<ul style="list-style-type: none"> • Final Examination/Course Review • Early Start on Term Project Presentations (if necessary) 	https://reacttraining.com/react-router/web/guides/quick-start
December 10	Term Projects: Student Presentations	
December 17	Comprehensive Final Examination	