**Web Development Bootcamp.**

## TAUGHT BY

*Dr. Angela Yu*

## COURSE LENGTH

*12 Weeks*

## COURSE FEE

*$18,000*



# SYLLABUS

T H E C O M P L E T E W E B D E V E L O P M E N T

B O O T C A M P

### W E B D E V E L O P M E N T F U N D A M E N T A L S

 Understand how websites work and how HTML, CSS and JavaScript contribute.

 Understand how the internet works and how websites are served.

 Learn to use git, GitHub and version control.

 Learn key troubleshooting and debugging skills to apply to your projects.

### H T M L 5

 Learn the anatomy of HTML syntax to structure your websites.

 Understand the HTML boilerplate and HTML doctypes.  Understand indentation and nesting in HTML code.

 Learn to use HTML tags to structure headings, paragraphs.

 How to structure HTML lists to create unordered and ordered lists.

 How to insert images using HTML

 How to create hyperlinks using anchor tags.  Create multi-page websites.

 Learn HTML best practices.

### C S S 3

 Understand what are cascading style sheets and how you can use it to style your website.

 How to use CSS selectors and properties.

 Learn about how to use inline, internal and external CSS.  Understand CSS coding best practices.

 Learn about CSS specificity and inheritance.

 Learn and understand the CSS Box Model.

 Learn to use developer tools to inspect and diagnose CSS.  Learn about CSS positioning and display properties.

 Learn about font styling using CSS and web safe fonts.  Implement responsiveness using CSS media queries.

 How to use CSS float and clear properties.

 How combine CSS selectors and understand selector priority.



### A P P B R E W E R Y

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### F L E X B O X

 Learn about why flexbox was introduced to CSS.

 Understand what happens when display is set as flex.  Understand flex direction and how it affects layout.

 Learn to use align and justify for layout of child items

 Understand how child items are sized and distributed in a flexbox and use the flex shorthand property.

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### G R I D

 Learn about how grid is different to flexbox and their strengths and weaknesses.

 Understand what happens when display is set as grid.

 Learn how grid sizing is done and how to create and arrange a grid.

 Learn to position items in a grid and how placement across rows and columns is done.

 Learn to use grid in combination with flexbox to create complex layout using native CSS.

### B O O T S T R A P

 Understand the difference between native CSS tooling and external frameworks.

 Learn to install the Bootstrap framework into your website.

 Understand the Bootstrap 12 column layout system.

 Learn to use Bootstrap components such as buttons, carousels, cards and navigation bars.

 Accessing and incorporating designer icons from Bootstrap.

 Find and use bootstrap code snippets, examples and pre-built templates to quickly created beautiful mobile-first websites.

### W E B D E S I G N

 Learn the fundamental principles of web design, UI and UX.

 Understand colour theory and how to choose and use modern colour palettes to make your website look professional.

 Understand modern typography and choose free-for- commercial use typefaces to make your website user friendly and stylish.

 Learn to manage user attention using the key principles of User Interface (UI) design.

 Learn to design user friendly websites by understanding User Experience (UX) design.



### A P P B R E W E R Y

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### D O C U M E N T O B J E C T M O D E L ( D O M )

 Learn the tree structure of HTML based websites.

 Traverse through the document using object notation.

 Separation of concerns and coding best practices.

 Manipulate and change the HTML elements using your understanding of the DOM.

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### A P P B R E W E R Y

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### J A V A S C R I P T E S 6

 Compare programming languages like JS with scripting and markup/stylesheet languages.

 Overview of JavaScript and its uses.

 Understand how to work with a code editor and IDEs.  Basic syntax and data types in JavaScript, including:

 Variables and their scope (let, const)

 Data types (string, number, boolean, null, undefined, symbol)  Operators and expressions, including arithmetic, comparison,

and logical operators

 Control structures like if/else statements and loops, including:

 The for loop and while loop

 The for...of loop to iterate over arrays

 The for...in loop to iterate over object properties

 Functions and their importance in JavaScript, including:  Function declaration and expression

 Function scope and closures

 Arrow functions and their syntax  Higher-order functions, including:

 Passing functions as arguments to other functions  Returning functions from other functions

 The map, filter, and reduce methods on arrays and their use with higher-order functions

 Arrays and their methods, including:

 Creating and accessing arrays

 Adding and removing elements from arrays  The slice method for slicing arrays

 The concat method for concatenating arrays

 The indexOf and lastIndexOf methods for finding elements in arrays

 The map, filter, and reduce methods for manipulating arrays  The spread syntax ... to spread the elements of an array into

a new array or function call

 Object-oriented programming in JavaScript, including:  Creating objects with object literals

 Creating objects with constructor functions and the new keyword

 Creating objects with classes and the class keyword

 Adding and accessing properties and methods on objects  The this keyword and how it works in object methods

 The super keyword for accessing parent class methods and properties

 Manipulating objects and arrays using methods and iteration, including:

 The Object.keys and Object.values methods for getting the keys and values of an object as arrays

 The for...in loop for iterating over object properties

 The Object.assign method for copying properties from one object to another

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### R E A C T . J S

 Learn front-end development with React.

 Understand when and how to use React Components.  Learn to pass Props and work with them.

 Learn to write JSX and understand JSX syntax.  Learn about the React DOM.

 Learn State Management in React.  Learn about React Hooks.

 Learn about conditional rendering in React.

 Understand the difference between class and functional components.

### T H E U N I X C O M M A N D L I N E

 How to use basic bash commands in a Unix/Linux Terminal.

 How to manipulate files and folders without needing a graphical user interface.

 How to download and install to your computer using command line.

### G I T G I T H U B A N D V E R S I O N C O N T R O L

 Using git for version control and collaboration  Git forking, branching and cloning

 Using GitHub as a remote repository

 Checkout and rolling back changes with git  Using git and GitHub with Xcode



### A P P B R E W E R Y

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### N O D E . J S

 Explore the components of back-end development, working with an MVC framework

 Apply concepts like data types, objects, methods, object- oriented programming, and classes in the context of back- end development.

 Server-Side JavaScript

 Using Node on the command line

 NPM

 JavaScript Build Processes  Event Loop and Emitters

 File System Interaction  Modules

 Native Node drivers

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T H E C O M P L E T E W E B D E V E L O P M E N T

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### E X P R E S S . J S

 Understand how to install and use express in Node applications

 Creating Node and Express based servers RESTful Routing with Express

 Understand and use middleware for Node applications

### A P P L I C A T I O N P R O G R A M I N T E R F A C E S ( A P I S )

 Understand what APIs are and how they work.

 HTTP in Depth  Calling APIs

 Reading API documentation  Basic API Authentication

 Server to server communication

 JSON vs. XML, sending data over the wire.

### E J S

 Understand what EJS does and how to use it with Node and Express.

 Templating with EJS

 Running code in EJS templates

 Passing data from server to template and vice versa

 Creating layouts/partials with EJS

### D A T A B A S E F U N D A M E N T A L S

 Data Relationships

 Designing a Data Model

 Relational Databases

 Alternative Databases

 Entity Relationship Modelling (ERM) and Object Relational Mapping (ORM)



### A P P B R E W E R Y

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### S Q L D A T A B A S E S

 Working with Database Schemas

 Create-Read-Update-Destroy (CRUD)

 Database Joins

 Querying SQL databases

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T H E C O M P L E T E W E B D E V E L O P M E N T

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### P O S T G R E S D A T A B A S E S

 PostgreSQL queries

 Create-Read-Update-Destroy (CRUD)

 Postgres Best Practices

 Installing Postgres

 Relational Databases

 Implementing One to Many, One to One and Many to Many Relationships.

 Working with Postgres in Node with the pg Package.

### D E P L O Y M E N T

 Understand hosting and deployment.

 Hosting static websites with GitHub Pages.

 Deploying server based applications with Heroku.  Deploying Databases with Mongo Atlas.

#### B U I L D I N G R E S T f u l A P I s

 Understand REST and guiding principles behind API design.  Learn to work with a MongoDB GUI Robo 3T

 Implementing GET, POST, PUT, PATCH and DELETE by creating a public API from scratch.

 Understand and use chained route handlers from Express.



### A P P B R E W E R Y

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#### A U T H E N T I C A T I O N a n d S E C U R I T Y

 Understand the need for authentication and keeping user details secure.

 Learn about Encryption and use encryption to keep your database secure.

 Learn and implement Hashing and Salting with bcrypt

 Using Sessions and Cookies to persist user log in sessions.  Setting up local authentication from scratch.

 Implementing Passport to authenticate users quickly and effectively.

 Understand and use environment variables to keep secret keys secure.

 Understand and use OAuth 2.0 to log in users using Google and Facebook.

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T H E C O M P L E T E W E B D E V E L O P M E N T

B O O T C A M P

### W E B 3 B A S I C S A N D B L O C K C H A I N D E V E L O P M E N T

 Understand Web3 and blockchain development.  Understand a Canister

Understand a Motoko actor

### D E P L O Y Y O U R C V W E B S I T E O N T O A B L O C K C H A I N

 Set up a cycles wallet

 Obtain free cycles from Dfinity

 Understand how to manage the cycles balance of a canister  Build and deploy a static, personal CV website to the Internet

Computer

 Check how many cycles were used

### W O R K W I T H A R E A C T F R O N T E N D A N D B L O C K C H A I N B A C K E N D

 Use a React frontend in combination with the Internet Computer

 Allow users to create their own notes and persist these in a canister

 Learn to use CRUD style operations on a canister from the front end

 Learn to use the Candid interface to test the app

### C R E A T E Y O U R O W N C R Y P T O T O K E N

 Understand the role of tokens in dapps and open internet services

 Create a token modelled on Ethereum's ERC-20 and deploy it on the Internet Computer

 Create a faucet contract that dispenses small amounts of the token.

 Understand and work with principal IDs to identify users and smart contracts

 Use the Plug wallet to track token balances

 Learn how to transfer the token between user accounts.



### A P P B R E W E R Y

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### C R E A T E A N N F T A N D M A R K E T P L A C E

 Create a non-fungible token modelled on ERC-721 and deploy it to the Internet Computer

 Build a marketplace website like OpenSea to allow users to mint, buy and sell NFTs.

 The owner of the NFT can interact with the canister to transfer the ownership of the .jpeg to another account

# FAQs

T H E C O M P L E T E W E B D E V E L O P M E N T

B O O T C A M P

#### What's the difference between

**your online and in-person bootcamp?**

The online bootcamp on Udemy has the same curriculum as our in-person bootcamp. Our in-person bootcamp only runs once per year and is wait-list based. The Udemy online course can be taken at anytime, on your schedule.

#### What's the difference between your online courses on Udemy and appbrewery.com?

Since 2019, we have moved all our courses on to Udemy other than some courses with prior contracts (e.g. the agreement with have with Google for the Flutter course). You should get our courses from Udemy.

#### How long does the bootcamp take to complete?

We teach the course in person over 12 weeks. But we have seen students online complete the course as quickly as 3 weeks. It depends if you are going to work full-time or part-time. It can also be helpful to read around the topics and do more self-directed research and experimentation.

#### I don't have any prior experience or a technical background, can I join the bootcamp?

The course is designed for students of all levels. The youngest person we've had on the course is 11, the oldest 86. The most inexperienced student didn't know what a website is, the most experienced works for Twitter as a developer. The most important thing is perseverance and willingness to learn. If you have that then you'll do great!



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