JavaScript & jQuery Essentials - TT4115

JumpStart Responsive Web Design with JavaScript and JQuery | Explore Design, Tooling, Security, Frameworks and More

Duration: 5 Days
Skill Level: Introductory
Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended; On Public Schedule

JavaScript and jQuery Essentials is a comprehensive hands-on course geared for web developers who need to learn basic JavaScript and JQuery to use with today's systems and architectures to build sophisticated web interfaces.

What You'll Learn

Overview

JavaScript and jQuery Essentials is a comprehensive hands-on course geared for web developers who need to learn basic JavaScript and JQuery to use with today's systems and architectures to build sophisticated web interfaces. JavaScript is simple and elegant but is often difficult to work with because it's so different from the programming languages most developers are used to utilizing. The training will guide students through a balanced mixture of theory and practical labs to gain core JavaScript development skills and have them explore its related technologies through to the use of tools and libraries to ease the development of advanced web applications.

This course also covers jQuery and provides practical and hands-on experience with the preferred JavaScript library for building rich web applications. If you are building for the web, learning jQuery will change the way you write JavaScript, working across multiple browsers and platforms. Course attendees will be able to hit the ground running right after class, applying essential JavaScript to projects at both an architectural as well as a line-by-line coding level.

Objectives

Throughout the course you'll explore practical use of the umbrella of tools, toolkits, and frameworks can be used in web development and deployment leveraging JavaScript. The course begins with an initial look at JavaScript and how it is used within the context of web applications, walking you through the different technologies that are used with JavaScript and exploring core aspects of JavaScript and JQuery in terms of web applications, security, tools and frameworks.

Working within in a dynamic, hands-on learning environment, guided by our expert team, you'll explore:

- What is JavaScript, how does it relate to other programming languages, and how do you script your web pages with it?
- How do you traverse and manipulate the DOM and how do you handle events in ways that work in all browsers?
- What are closures and prototypes and other exotic features of JavaScript?
- Learn what jQuery is and how to add it to your applications
- How does jQuery make Ajax programming easier?
- Use jQuery to select complex sets of elements from the DOM
- Develop rich web pages that respond to user interaction
- Interact with your server-side code using Ajax
- What best practices are there for using jQuery?
- What plugins and extensions are available to enhance your applications even more than the core jQuery library can provide?
- Explore a wide variety of plugins and learn how to write your own
- Test your applications to make sure your JavaScript is as solid as the rest of your code

Audience

This is an introductory level course for experienced software developers seeking to enhance and extend their core web development skillset leveraging JavaScript and JQuery. Attendees should have practical experience developing basic software applications and prior experience working with code or scripting.

Follow-on Courses / Take After: Our core training courses provide students with a solid foundation for continued learning based on role, goals, or their areas of specialty. Our Modern Web Developer and Full Stack Developer learning paths offer a wide variety of continued learning paths such as:

- Intermediate and beyond JavaScript traning

- Next-level JavaScript frameworks training: React, Redux, NodeJS / MEANStack, Angular, etc.

Please contact us for recommended next steps tailored to your longer-term education, project, role or development objectives

Pre-Requisites

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 TT4003 Introduction to HTML5, CSS3 and JavaScript

Agenda

Session: Core JavaScript Essentials

Lesson: JavaScript Basics

- JavaScript Defined
- Variables and Operators
- Flow Control and Conditionals

Lesson: Debugging Tools

- Using the strict mode and setting breakpoints
- Browser debugging tools
- Monitoring resource usage and performance
- Emulating devices Exceptions in JavaScript
- Exceptions in JavaScript

Lesson: JavaScript Functions

- Functions in JavaScript

- Invoking Functions
- Function Constructor
- Function Scope and Closures

Lesson: JavaScript Arrays, Math and Date

- JavaScript Literals
- JavaScript Arrays
- Working with Numbers and Dates

Lesson: JavaScript Event Handling and the DOM

- Events and Event Handling
- HTML Document Object Model
- Accessing the DOM
- Dynamically Working with the DOM
- DOM Challenges

Lesson: Object-Oriented JavaScript

- JavaScript Objects and Classes
- Constructors and Prototypes
- Prototypes
- Extending Classes with Prototype
- Reusable, Flexible Classes

Session: jQuery

Lesson: Why jQuery?

- JavaScript Evolution
- Why jQuery?
- jQuery Usage
- Downloading jQuery

Lesson: Basic jQuery

- jQuery: Operational Overview
- jQuery Capability Overview
- Basic Selectors
- Multiple Selector
- Selecting by Order

Lesson: Manipulating the DOM

- Attributes vs. Properties
- CSS Box Model Properties
- Element Content
- Manipulating Children
- Wrapping and Unwrapping

- sEffects (Basic Animation)
- Effects Queues

Lesson: More On Element Selection

- Hierarchical Selectors (Combinators)
- Attribute Selectors
- Basic vs. Child Filters
- Filtering Methods
- Traversing Structure for Selection
- Processing Results of a Selection

Session: Working with jQuery

Lesson: Attributes, Forms, and DOM

- Selecting From Forms
- Selecting Parent and Children
- Automatic DOM Traversal
- Manipulating DOM Elements
- Getting and Setting Attribute Values
- Removing Attributes

Lesson: More jQuery!

- Review jQuery functions and processing
- Review the jQuery object
- Discuss instance vs. static usage
- Review function overloading

Lesson: Event Handling

- Binding Multiple Events to Same Handler
- Multiple Events to Different Handlers
- Event Targets
- Triggering Events
- Custom Events
- Live Events

Lesson: More On Elements!

- Changing HTML Content
- Changing Text Content
- Managing Elements
- Introduction to Animations

Lesson: Ajax

- Posting Data
- Global Ajax Handlers

- JSONP
- Serialization
- Deferred Objects
- Promises and Piping
- Chaining Tasks

Lesson: jQuery Plugins

- jQuery Validation Plugin
- jQuery Form plugin
- Tree Plugins
- Writing custom plugins

Lesson: jQuery UI

- jQuery UI Effects
- Advanced Easing
- Interactions
- Position Utility
- Widgets
- Icons

Session: JavaScript Object Notation (JSON)

Lesson: Introduction to JSON and AJAX

- JSON defined in terms of persistence
- AJAX Overview
- How to use JSON in an Ajax application
- How to transfer data to and from the server

Lesson: JSON Objects

- Understand JavaScript's literal syntax for creating arrays and objects
- Understand object literals
- Understand arrays
- Understand arrays in objects
- Understand objects in arrays

Lesson: JSON Syntax and Processing

- Understand JSON Syntax
- Understand JSON Parsers
- Read and write object and array literals in JavaScript
- Sending Data: Stringify to JSON
- Consuming Data: Parse JSON

Lesson: jQuery, JSON, and AJAX

- Types of Content to be Processed

- Processing JSON with jQuery
- Working with Deferred Objects
- Promises and Chaining Tasks

Session: Advanced JavaScript Topics

Lesson: ES6 and TypeScript

- ES6 Defined
- ES6 Default and Rest Parameters
- IIFE and Closures
- ES6 Importing/Exporting Modules
- Arrays, ES6 Maps, and ES6 Sets
- Working Arrays with ES6
- Working Strings with ES6 Strings
- ES6 Constructs and Inheritance
- ES6: Getters and Setters

Lesson: HTML5 JavaScript API

- Cross-Domain Messaging
- Working with Web Storage
- Geolocation: What, Why, and How

Lesson: TypeScript

- Strong Data Typing
- Compiling TypeScript to JavaScript
- TypeScript Datatypes
- TypeScript Classes and Interfaces

Lesson: JavaScript Best Practices

- Code Conventions for the Lifecycle
- Resolving Shared Resources
- Constructs to Use
- Constructs to Avoid
- Memory Considerations

Session: Web Design

Lesson: Responsive Web Design

- Adapting to Varying Screen Sizes
- Scaling Page and Text Content
- Scaling and Adapting for Media
- Options for Adjusting Media

Lesson: User Interface Principles

- Design Principles

- Improving Interactions with Users
- Matching Web Flow to User Expectations

Lesson: Layout Techniques

- Page Layout Consideration
- Stacking Content
- Handling Excessive Content
- Providing Consistency Across Web Presence

Lesson: Navigation Techniques

- Handling Excessive Content
- Providing Context and State Feedback
- Navigation Placement and Techniques

Lesson: Selection Techniques

- Improving Text Input
- Improving Enumerated Input
- Accessibility Considerations

Bonus Topics: Time Permitting

These topics will be included in your course materials but may or may not be presented during the live class depending on the pace of the course and attendee skill level and participation.

Lesson: JavaScript Scheduling, Execution, and Security

- Timers and Scheduling
- Execution Contexts
- Same Origin Policy and JavaScript
- Security Considerations

Lesson: Performance and Optimization

- Code Optimization
- JavaScript Verbosity Tradeoffs
- Memory Considerations
- Cyclic References

Lesson: Download Options

- Basic principles underlying web application performance optimization
- Role of downloading options in smoothing bandwidth usage
- How caching can reduce bandwidth usage

Lesson: Security

- Security: The Complete Picture
- Unvalidated Input

- Injection Flaws
- XSS
- Spoofing
- How Attackers See JavaScript Applications

Related Courses

TT4003	Introduction to HTML5, CSS3 and JavaScript
TT4190	Getting Started with React Essentials
TT4195	Mastering React Boot Camp
TT4154	Introduction to TypeScript: Clean Code and Strong Skills for Web Developers

Each participant will receive a Student Guide with course notes, code samples, software tutorials, step-by-step written lab instructions, diagrams and related reference materials and resource links. Students will also receive the project files (or code, if applicable) and solutions required for the hands-on work.

For More Information

Please contact us or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.