



## Course Content

### Course Description:

This instructor lead course presents the JavaScript and jQuery skills that you need in a manageable progression, this course is divided into three sections.

The first part of this course covers an introduction to JavaScript. When you finish this section, you'll have a solid set of JavaScript skills, especially the skills that help you get the most from jQuery.

After you learn the JavaScript essentials, you will cover the jQuery skills that every web developer should have. You will cover the core jQuery skills followed by a focus on effects and animations, forms and data validation, jQuery plugins, and jQuery UI widgets. Finally, you will learn how to use Ajax and JSON so you can get data from a web server and add it to a web page without reloading the entire page.

We will conclude the class by covering topics to take your JavaScript skills to the next level of expertise. You will learn how to use numbers, strings, dates...how to handle exceptions and use regular expressions...when and how to use browser objects, cookies, web storage, and arrays...and how to create and use your own objects.

### Target Student:

This course is for anyone who needs to know how to develop JavaScript and jQuery applications. That includes just about all web developers who are in either of these groups:

Web designers who use HTML and CSS and would like to know how to build applications with JavaScript and jQuery.

Server-side programmers who use languages like ASP, JSP, Python, or PHP and would like to add JavaScript and jQuery programming to their skillsets.

### Topics:

#### Chapter 1 Introduction to web development

##### How a web application works

- The components of a web application
- How static web pages are processed
- How dynamic web pages are processed
- How JavaScript is used for client-side processing

- What you need to know about the ECMAScript specification

##### The components of a JavaScript application

- The HTML
- The CSS
- The JavaScript



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## The HTML skills that you need for this course

- How to use the HTML5 semantic elements
- How to use the div and span elements
- How to use the basic HTML attributes

## The CSS skills that you need for this course

- How to provide the CSS styles for an HTML page
- How to code the basic CSS selectors
- How to code CSS style rules

## How to test a JavaScript application

- How to run a JavaScript application
- How to find errors in your code
- How to provide cross-browser compatibility

## How to use Aptana to develop JavaScript applications

- How to create or import a project
- How to work with files
- How to edit a file
- How to run a JavaScript application

## Chapter 2 Getting started with JavaScript

### How to include JavaScript in an HTML document

- Two ways to include JavaScript in the head of an HTML document
- How to include JavaScript in the body of an HTML document

### The JavaScript syntax

- How to code JavaScript statements
- How to create identifiers
- How to use comments

### How to work with JavaScript data

- The primitive data types
- How to declare and assign values to variables

- How to code arithmetic expressions
- How to use arithmetic expressions in assignment statements
- How to concatenate strings and include special characters in strings

### How to use objects, methods, and properties

- Introduction to objects, methods, and properties
- How to use the parseInt() and parseFloat() methods of the window object
- How to use the write() and writeln() methods of the document object

## Chapter 3 The essential JavaScript statements

### How to code conditional expressions

- How to use the relational operators
- How to use the logical operators

### How to code the basic control statements

- How to code if statements
- How to code while and do-while loops
- How to code for loops

### How to work with arrays

- How to create and use arrays
- How to use for loops to work with arrays

## Chapter 4 How to work with JavaScript objects, functions, and events

### How to use objects to work with data

- How to use the window and document objects
- How to use Textbox and Number objects
- How to use Date and String objects

### How to use functions

- How to create and call a function expression
- How to create and call a function declaration



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- When and how to use local and global variables
- When and how to use strict mode

## How to handle events

- How to attach an event handler to an event
- How to use an onload event handler to attach other event handlers

## Chapter 5 How to test and debug a JavaScript application

### An introduction to testing and debugging

- The three types of errors that can occur
- Common JavaScript errors
- How to plan the test runs
- How to use top-down coding and testing to simplify debugging

### How to debug with Chrome's developer tools

- How to use Chrome to find errors
- How to use breakpoints and step through your code

### Other debugging methods

- How to trace the execution of your JavaScript code
- How to view the source code
- When and how to validate the HTML

## Chapter 6 How to script the DOM with JavaScript

### DOM scripting properties and methods

- DOM scripting concepts
- The properties of the Node interface
- The methods of the Document and Element interfaces
- The properties of the DOM HTML specification

### How to script forms and controls

- How forms work

- How to script Textbox, Textarea, and Select objects
- How to script Radio and Checkbox objects
- How to use the methods and events for forms and controls

### How to add and remove nodes from the DOM

- How to use the innerHTML property of the Element interface
- How to view the changes to the DOM in Chrome

## Chapter 7 How to work with links, images, and timers

### How to work with links and images

- How to cancel the default action of an event
- How to preload images

### How to use timers

- How to use a one-time timer
- How to use an interval timer

## Chapter 8 Get off to a fast start with jQuery

### Introduction to jQuery

- What jQuery is
- How jQuery can simplify JavaScript development

### The basics of jQuery programming

- How to include jQuery in your web pages
- How to code jQuery selectors
- How to call jQuery methods
- How to use jQuery event methods

### A working subset of selectors, methods, and event methods

- The most useful selectors
- The most useful methods
- The most useful event methods
- Other event methods that you should be aware of



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## Chapter 9 How to use effects and animations

### How to use effects

- The jQuery methods for effects
- The FAQs application with jQuery effects

### How to use animation

- How to use the basic syntax of the animate() method
- How to chain animate() methods
- How to use the delay(), stop(), and finish() methods
- How to use easings with effects and animations
- How to use the advanced animate syntax and the methods for working with queues

## Chapter 10 How to work with forms and data validation Introduction to forms and controls

- How forms work
- The HTML5 controls for working with forms
- The HTML5 and CSS3 features for data validation

### How to use jQuery to work with forms

- The jQuery selectors and methods for forms
- The jQuery event methods for forms

## Chapter 11 How to use jQuery plugins and jQuery UI widgets

### Introduction to jQuery plugins

- How to find jQuery plugins
- How to use any jQuery plugin

### How to use three of the most popular plugins

- How to use the Lightbox plugin for images
- How to use the bxSlider plugin for carousels
- How to use the Cycle 2 plugin for slide shows

## Introduction to jQuery UI

- What jQuery UI is and where to get it
- How to download jQuery UI
- How to include jQuery UI in your web pages
- How to use any jQuery UI widget

### How to use five of the most popular jQuery UI widgets

- How to use the Accordion widget
- How to use the Tabs widget How to use the Button and Dialog widgets How to use the DatePicker widget

## Chapter 12 How to use Ajax and JSON

### Introduction to Ajax

- How Ajax works
- Common data formats for Ajax
- The members of the XMLHttpRequest object
- How to use the XMLHttpRequest object

### How to use the jQuery shorthand methods for Ajax

- The jQuery shorthand methods for working with Ajax
- How to use the load() method to load HTML data
- How to use the \$.get() or \$.post() method to load XML data
- How to use the \$.getJSON() method to load JSON data
- How to send data with an Ajax request

### How to use the \$.ajax() method for working with Ajax

- The syntax of the \$.ajax() method
- How to use the \$.ajax() method to load data



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## How to use Ajax with Flickr

- How to use the feed API for Flickr
- How to display Flickr data on a page
- How to review the feed from a website
- How to display descriptions for a Flickr photo feed
- How to search for photos by tags

## Chapter 13 How to work with numbers, strings, and dates

### How to work with numbers

- How to use the properties and methods of the Number object
- How to use the properties and methods of the Math object
- How to generate a random number

### How to work with strings

- How to use the properties and methods of the String object
- Examples of working with strings

### How to work with dates and times

- How to create Date objects
- The methods of the Date object
- Examples of working with dates



## **Chapter 14 How to work with control structures, exceptions, and regular expressions**

### **What else you need to know about control structures**

- How to use the equality and identity operators
- How to use the break and continue statements
- How to use the switch statement
- How to use the conditional operator
- How to use the AND and OR operators for selections

### **How to handle exceptions**

- How to use try-catch statements
- How to create and throw Error objects

### **How to use regular expressions**

- How to create and use regular expressions
- How to match special characters and types of characters
- How to match string positions, subpatterns, and repeating patterns
- Regular expressions for data validation

## **Chapter 15 How to use browser objects, cookies, and web storage**

### **How to script browser objects**

- How to use the location object
- How to use the history object

### **How to use cookies**

- An introduction to cookies
- How to create cookies
- How to read cookies
- How to delete cookies

### **How to use web storage**

- How to use local and session storage
- The Task List application with web storage

### **How to use Chrome to work with items in the browser**

- How to view and delete cookies
- How to view, edit, and delete items in web storage

## **Chapter 16 How to use arrays**

### **How to create and use an array**

- How to create an array
- How to add and delete array elements
- How to use for loops to work with arrays
- How to use for-in loops to work with arrays

### **How to use the methods of an Array object**

- Methods that accept simple parameters
- Methods that accept functions as parameters
- Examples of the Array methods

### **Other skills for working with arrays**

- How to use a String method to create an array
- How to create and use an associative array
- How to create and use an array of arrays



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## Chapter 17 How to create and use your own objects

### Basic skills for working with objects

- How to create and use the native object types
- How to create your own objects with object literals
- How to extend or modify an object
- How to create and use JavaScript libraries

### How to create and call constructors

- How to create your own object types with constructor functions
- What else you should know about prototypes

### How to create a factory function

- How to use the create() method of the Object object
- The Trips application with a factory function

### Advanced skills for working with objects

- How to use the arguments property of a Function object
- How to create cascading methods
- How to inherit methods from another object
- How to use the this keyword

## Chapter 18 How to create and use closures, IIFEs, the module pattern, and plugins

### How to use closures

- How closures work
- How to use closures to create private state
- How to work with the this keyword in closures

### How to use immediately invoked function expressions

- How to code an IIFE
- How to use an IIFE to solve the closure loop problem

### How to work with the module pattern

- What the module pattern is

- How to augment a module and use accessor properties

### How to use the module pattern to create jQuery plugins

- The structure of a plugin
- How to code a plugin that highlights the items in a menu
- How to add options to a plugin