

# JavaScript

**Course Number - X52.9755 / Y12.1406**

**Wednesday - 6:00-9:30pm**

## Announcement(s):

**Instructor:** Sam Sultan

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**Instructor TA:** Jack Provoost

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**Class web site:** [[samsultan.com/javascript](http://samsultan.com/javascript)] (or) [[oit.scps.nyu.edu/~sultans/javascript](http://oit.scps.nyu.edu/~sultans/javascript)]

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+ [syllabus](#) + [grades](#) + [student](#) + [examples & demos](#) + [student feedback](#)  
+ [books](#) + [policy](#) + [listing](#) + [post a comment](#) + [student evaluation & comments](#)  
+ [final project](#) + [other classes](#)

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**Session -** [1](#) [2](#) [3](#) [4/5](#) [6](#) [7a](#) [b](#) [c](#) [8](#) [9](#) [10](#)

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[ITS](#) - [HTML](#) - [JavaScript](#) - [DOM](#) - [CSS](#) - [DHTML](#) - [AJAX](#)

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## COURSE OBJECTIVE:

The objective of this course is to teach you JavaScript as it relates to web page development. The course will discuss JavaScript core language, including JavaScript data types and variables, expressions and operators, functions, arrays and objects. We will also examine the Document Object Model and JavaScript event model, and will explain how you can use these to interact with HTML components to create dynamic web content. The course will also show you how to interact with HTML forms, and how to create, manipulate and save client-side cookies.

In addition the course will also examine Cascading Style Sheet and DHTML, and will teach you how to create dynamic HTML components by creating and manipulating HTML content through their DOM element objects. The course completes with a discussion of AJAX which allows you to perform dynamic asynchronous communications with the server to obtain and present data more interactively on your web pages, and with OO (object oriented) techniques for writing JavaScript.

The focus of the course will be on the following topics:

- JavaScript core language
- The DOM - Document Object Model
- JavaScript events and event handling

- CSS - Cascading Style Sheets
  - Creating an manipulating DHTML components
  - Asynchronous server calls through AJAX
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## **BOOKS - (Required / Suggested)**

### **Required Books -**

- Beginning JavaScript (4th Edition)
  - **Authors** - Paul Wilton & Jeremy McPeak
  - **Publisher** - Wrox Press

### **Suggested Books -**

- JavaScript - The Definitive Guide (5th Edition)
    - **Authors** - David Flanagan
    - **Publisher** - O'Reilly
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## **GRADES AND GRADING POLICY**

For non-credit and 2 credit students, your final grade will be based on the following:

- Midterm Exam - **30%**
- Final Exam - **30%**
- Web Site Project - **20%**
- Homework & Class Participation - **10%**
- Attendance - **10%**

For 4 credit students, your final grade will be based on the following:

- Midterm Exam - **25%**
- Final Exam - **25%**
- Project Proposal - **10%**
- Web Site Project - **20%**
- Homework & Class Participation - **10%**
- Attendance - **10%**

Homework assignments are always due the next session we meet.

Print your solutions code and bring with you. Students will be asked to discuss solutions in class.

**Grades are FINAL.**

Please do not negotiate for a better grade. If you are expecting to receive a grade of an "A" at the end of the semester, then I expect you to attend all sessions (unless I am notified ahead of time), to participate in these sessions, to keep up with the class reading material, and to complete your homework assignments. This will ensure that you stay current with the class content, and will ensure that you get a good grade on your test(s), project as well as your final grade.

If you are **not** interested in a grade, or you do not submit your homeworks/project or take the exams, then you will receive a grade of an "NE" (Non-Evaluative). A grade of NE is final, and cannot be changed. A grade of NE cannot be applied as partial fulfillment for any NYU certificate program.

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**To receive your final grade** at the end of the semester, follow the instructions found at NYU SCPS

<http://www.scps.nyu.edu/student-affairs/continuing-education/policies-and-procedures/>

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## LAB FACILITIES

You can always access the class web site from your home or any other PC anytime of the day. If you do not have a computer at home, or do not have internet access, you can always use the NYU lab facilities. You can use those computers locally, or you can access the Unix server and web site.

The following are the facilities available for student use:

- **The ITS Third Avenue North Lab** (Windows and Macintosh)  
75 Third Avenue, Level C3  
(212) 998-3500  
*Opened:* 24 hours a day, 7 days a week
- **48 Cooper Square**  
Room 210  
*Friday:* 10:00 a.m. - 8:00 p.m.

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## SYLLABUS -- JAVASCRIPT

DATE	SESSION	TOPIC[s] COVERED
[Week 1]	<u>1</u>	<ul style="list-style-type: none"><li>• Introduction to JavaScript</li><li>• HTML and scripting languages</li><li>• Where to insert JavaScript in HTML</li></ul>

- The **<script>** tag
- JavaScript **variables** and data types
- Numeric and String operators
- Comparison and Logical operators
- JavaScript **Arrays** and **Objects**
- What is an array?
- Accessing array elements
- What is an object?
- Object properties and methods

Reading: Chapters 1, 2, 5 (pages 133-138)

- [Week 2]      [2](#)
- Basic JavaScript programming concepts
  - The **if** statement
  - The **else** condition
  - The **switch** and **case** statements
  - The **for** and **for..in** loops
  - The **while** and **do..while** loops
  - The **break** and **continue** statements
  - The **label** identifier
  - Defining functions
  - Passing parameters and receiving data from functions
  - Variable scope and the **var** statement

Reading: Chapter 3

- [Week 3]      [3](#)
- The Browser Objects
  - The Browser Object Hierarchy
  - The **Window** object
  - The **History** object
  - The **Location** object
  - The **Navigator** object
  - The **Screen** object
  - Opening up additional windows
  - Accessing other frames
  - JavaScript events and event handling
  - Setting up timers

Reading: Chapters 6 (first half), 8

- [Week 4 & 5]      [4/5](#)
- The Document Object Model
  - The **Document** object
  - The **Image** object

- Creating an image rollover effect
- The **Form** object
- The elements **Input** object
- Common properties and methods
- The **Select** and **option** objects
- Interacting with HTML form elements
- Validating data entered in a form

Reading: Chapters 6 (second half), 7

[Week 6]

[6](#)

• **Midterm Exam**

- JavaScript built-in objects
- The **Math** object
- The **String** object
- String manipulation
- The **Array** object
- Sorting arrays with additional helper functions
- The **Date** object
- Date manipulation
- Conversion between data types

Reading: Chapters 5, 9, 10

[Week 7]

[7a](#)

[7b](#)

- CSS - Cascading Style Sheets
- Structure of a CSS rule
- Inline, embedded and external CSS
- Creating style sheets
- Applying styles to your HTML
- CSS **selectors**
- **Class** and **Id** selectors
- Cascading and Inheritance rules
- CSS **Properties** and **Values**
- [7c](#)
  - **DHTML** - Dynamic HTML
  - Cross browser challenges
  - DHTML in modern W3C compliant browsers
  - The **HTMLElement** Object
  - Accessing HTML elements
  - Altering the content of HTML elements
  - Altering the style of HTML elements
  - Hiding and showing content

Reading: Chapter 12

- [Week 8]      [8](#)
- What is a **cookie**?
  - The structure of HTTP cookies
  - Storing data in a cookie
  - **Transient** vs. **permanent** cookies
  - Retrieving data from cookies

Reading: Chapter 11

- [Week 9]      [9](#)
- **AJAX** - Asynchronous JavaScript and XML
  - Basic client/server web communication
  - The **HTTP request/response** paradigm
  - Asynchronous server communication
  - The **XMLHttpRequest** Object
  - XML data Streams
  - Advantages of asynchronous processing
  - Ajax examples

Reading: Chapter 14

- [Week 10]      [10](#)
- **Final Exam**
  - JavaScript Object Oriented Concepts.
  - **Objects** vs. **Classes**.
  - Defining Object **Constructors**.
  - Defining **Properties** and **Methods**.
  - **Instantiating** Objects.
  - Class vs. Instance properties and methods.
  - The **"This"** keyword.
  - Defining Object **prototype**.
  - **Project Presentations**

Reading: Chapter 8 (Javascript - The Definitive Guide)

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Revised 01/04/2012 10:44:00