**JavaScript (Full Stack Web Development)**

INFO1-CE9755.001 | Spring 2024 | Tuesdays 3/5 – 5/7/2024

Online Synchronous via Zoom Sessions

Course Site URL: <https://brightspace.nyu.edu/d2l/home/299536>

**General Course Information**

Faculty Name & Title: Sam Sultan, Adjunct Assistant Professor

NYU email: sam.sultan@nyu.edu

Class Meeting Schedule: Tuesdays 3/5/2024 - 5/7/2024 @ 6:30pm-9:30pm

Class Location: Online Synchronous via Zoom.

Office Hours: Email instructor to request an appointment.

**Description**

JavaScript is a scripting language embedded in webpages to create dynamic, interactive web content. In this hands-on course, learn the fundamentals of employing JavaScript for web applications. Learn JavaScript expressions, functions, arrays, and built-in objects. Use JavaScript to display timers, slide shows, and dynamic image galleries. Learn how to create reusable components such as form validators. Work with—and set—cookies to create personalized webpages. Learn about HTML5 web storage. Acquire a deep understanding of the document object model (DOM), and learn how to use it with JavaScript and CSS to create DHTML components, such as hover menus, flyouts, and mouse-over effects. Dynamically control HTML elements placements and visibilities. Complete the course by learning about the latest web techniques, such as Web Services, AJAX and Fetch.

**Prerequisites**

[*Webpage Development with HTML5/INFO1-CE9740*](https://www.sps.nyu.edu/professional-pathways/courses/info1-ce9740) or equivalent knowledge

**Learning Outcomes**

* The ability to write JavaScript to create modern pages for a variety of devices and to apply unobtrusive JavaScript programming patterns.
* Experience creating dynamic, interactive forms with enhanced validation.
* An understanding of how to develop custom functions to simplify maintenance and code reuse.
* Use JavaScript to interact with available Web Services to provide more dynamic and more reactive UI/UX web pages.

**Communication Methods**

Be sure to turn on your [NYU Brightspace notifications](https://www.nyu.edu/servicelink/KB0018507) and frequently check the “Announcements” section of the course site. This will be the primary method I use to communicate information critical to your success in the course. To contact me, send me an email. I will respond within 24-48 hours.

**Structure | Method | Modality**

There are 10 session topics in this course. The sessions are lectures in style with associated code demonstrations. There will be exercises/assignments throughout the course. There will also be a midterm and a final exam. In addition, students are required to deliver a final project which includes the creation and delivery of a client-side website. Course sessions will be conducted synchronously on NYU Zoom, which can be accessed from the course site in [NYU Brightspace](https://brightspace.nyu.edu/).

**Expectations**

Learning Environment

You play an important role in creating and sustaining an intellectually rigorous and inclusive classroom culture. Respectful engagement, diverse thinking, and our live experiences are central to this course, and enrich our learning process.

Participation

You are integral to the learning experience in this class. Be prepared to actively contribute to class activities, discussions, and work outside of class. Each student is expected to ask at least one question or respond to instructor or other student question or inquiry at least once every session.

Assignments and Deadlines

Exercise assignments should be completed before due date. Due dates in most cases are one week from assigned date, and are due prior to meeting the following week. Assignment and questions relating to assignments are covered and discussed during the first few minutes of the following week’s session.

Course Technology Use

You will need a computer to access the course session via NYU Zoom. Course content is provided online over the internet through various web pages and Microsoft Word documents. All course examples and demos can also be accessed and run over the internet.

Feedback and Viewing Grades

I will provide feedback on your work/exams via our course site in NYU Brightspace. You can access your grades on the course site Gradebook. Grades will be posted 1 week from submission date.

Attendance

I expect you to attend all class sessions. Attendance will be taken into consideration when determining your final grade. Refer to the [SPS Policies and Procedures page](https://www.sps.nyu.edu/homepage/student-experience/policies-and-procedures.html) for additional information about attendance.

**Textbooks And Course Materials**

**Required Books –**

Beginning JavaScript (5th Edition) – 2015

**Authors** - Jeremy McPeak and Paul Wilton

**Publisher** – Wrox Press Inc.

**ISBN** – 1118903331 **ISBN-13 -** 978-1118903339

**Grading | Assessment**

Your grade in this course is based on your performance on multiple exercise assignments, a midterm exam, a final exam, and on the delivery of a final project that represents a fully functional client-side website that utilizes HTML and JavaScript. Keeping up with the course content, materials and practice is utmost important and it is directly related to course objectives and learning outcomes, failure to do so will result in attaining an unsatisfactory course grade.

Course grading and assessment is based on:

DESCRIPTION PERCENTAGE

Attendance, Participation & Assignments 15%

Midterm Exam 30%

Final Exam 30%

Final Project 25%

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TOTAL POSSIBLE 100%

*You can choose to take the course using a Pass/Fail option. You can also choose to take it on a Non-Evaluative basis. In either case, if you are taking multiple NYU courses leading toward a Certificate, the Pass/Fail or the Non-Evaluative option will not be credited toward attaining that certificate. If you choose a P/F or an NE option, you must submit a P/F or NE form prior to the final exam.*

**Course Outline**

**Session 1, Week 1, Introduction to JavaScript**

* Introduction to JavaScript
* Where to insert JavaScript in HTML
* 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

**Session 2, Week 2, JavaScript Programming Logic**

* 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:** Chapters 3,4

**Session 3, Week 3, The Browser Objects**

* 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:** Chapter 7 (timers only), 8

**Session 4-5, Week 4-5, The Document Object Model**

* 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:** Chapter 9 (first half), 11

**Session 6, Week 6, Core DOM and DHTML Effects**

* **Midterm Exam**
* **Core DOM** and **DHTML** Effects
* Cross browser challenges
* Core DOM in modern W3C compliant browsers
* The **HTMLElement** Object
* The element **Style** Object
* Accessing HTML elements
* Altering the content of HTML elements
* Altering the style of HTML elements
* Hiding and showing content
* Dynamically creating HTML elements & attributes
* JavaScript

 **Reading:** Chapter 9 (second half), 10

**Session 7, Week 7, JavaScript built-in Objects**

* 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, 5,6,7

**Session 8, Week 8, Cookies and Web Storage**

* What is a **cookie?**
* The structure of HTTP cookies
* Storing data in a cookie
* **Transient** vs. **permanent** cookies
* Retrieving data from cookies
* HTML5 **Web Storage**
* Working with **sessionStorage** and **localStorage** ption

 **Reading:** Chapter 13

**Session 9, Week 9, Web Services**

* **Web Services** and Full Stack Development
* What are Web Services
* Basic client/server web communication
* The **HTTP request/response** paradigm
* Asynchronous server communication
* **AJAX** - Asynchronous JavaScript and XML
* The **XMLHttpRequest** Object
* XML data Streams
* Advantages of asynchronous processing
* Ajax examples
* The **Fetch** command

 **Reading:** Chapters 12,14

**Session 10, Week 10, Final Exam and Project Presentation**

* **Final Exam**
* **Final Project Presentation**

**NOTE:** The syllabus may be modified to better meet the needs of students and to achieve the learning outcomes.

**New York University School of Professional Studies Policies**

1. Policies - You are responsible for reading, understanding, and complying with [University Policies and Guidelines](http://www.nyu.edu/about/policies-guidelines-compliance.html), [NYU SPS Policies and Procedures](http://sps.nyu.edu/academics/academic-policies-and-procedures.html), and [Student Affairs and Reporting](https://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/student-services.html).

2. Learning/Academic Accommodations - New York University is committed to providing equal educational opportunity and participation for students who disclose their dis/ability to the [Moses Center for Student Accessibility](https://www.nyu.edu/students/communities-and-groups/student-accessibility.html). If you are interested in applying for academic accommodations, contact the [Moses Center](https://www.nyu.edu/students/communities-and-groups/student-accessibility/academic.html) as early as possible in the semester. If you already receive accommodations through the Moses Center, request your accommodation letters through the [Moses Center Portal](https://www.nyu.edu/students/communities-and-groups/student-accessibility.html) as soon as possible (mosescsa@nyu.edu | 212-998-4980).

3. Religious Observance - As a nonsectarian, inclusive institution, NYU policy permits members of any religious group to absent themselves from classes without penalty when required for compliance with their religious obligations. Refer to the [University Calendar Policy on Religious Holidays](https://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/university-calendar-policy-on-religious-holidays.html) for the complete policy.

4. Academic Integrity and Plagiarism - You are expected to be honest and ethical in all academic work. Moreover, you are expected to demonstrate how what you have learned incorporates an understanding of the research and expertise of scholars and other appropriate experts; and thus recognizing others' published work or teachings—whether that of authors, lecturers, or one's peers—is a required practice in all academic projects.

Plagiarism involves borrowing or using information from other sources without proper and full credit. You are subject to disciplinary actions for the following offenses which include but are not limited to cheating, plagiarism, forgery or unauthorized use of documents, and false form of identification

[Turnitin](https://www.nyu.edu/servicelink/KB0018471), an originality detection service in NYU Brightspace, may be used in this course to check your work for plagiarism.

Read more about academic integrity policies at the NYU School of Professional Studies on the [Academic Policies for NYU SPS Students](https://www.sps.nyu.edu/homepage/student-experience/policies-and-procedures.html) page.

5. Use of Third-Party Tools - During this class, you may be required to use non-NYU apps/platforms/software as a part of course studies, and thus, will be required to agree to the “Terms of Use” (TOU) associated with such apps/platforms/software.

These services may require you to create an account but you can use a pseudonym (which may not identify you to the public community, but which may still identify you by IP address to the company and companies with whom it shares data).

You should carefully read those terms of use regarding the impact on your privacy rights and intellectual property rights. If you have any questions regarding those terms of use or the impact on the class, you are encouraged to ask the instructor prior to the add/drop deadline.