**General Course Information**

**Course Title:**  Computer Science Concepts with JavaScript

**Course Number:**  HIGH1-CE 9108 - 001

**Instructor:** Mohammed Rahman

**Instructor's email:** [mar23@nyu.edu](mailto:mar23@nyu.edu)

**Dates:  Oct 23, Oct 30, Nov 13, Nov 20** (4 classes, No class on Nov 6)

**Day:**  Saturdays

**Time:** 9 AM – 12:30 PM

**Location:** Remote

**Instructor Bio**

Mohammed Rahman has been teaching various courses at NYU for more than 21 years. He has earned an MS in Computer Science from NYU and an MBA from Stony Brook University. Mr. Rahman is currently doing another MS in Computer and Network Security at SUNY Polytechnic Institute.

He has published three books: Get a grip on *JavaScript, Lean on Python and Crystal Clear Java*

In addition to teaching at NYU's School of Professional Studies and writing new books, Mr. Rahman also manages the security and reliability of a robust eCommerce website – [www.MSCDirect.com](http://www.mscdirect.com).

**Course Description**

Computer programmers—particularly web developers—are the key players in the information technology department of every organization. Companies must continuously maintain, update, and innovate their websites to capture customers and sales increasingly competitive online marketplace. Knowing how to leverage JavaScript in complex website development is essential to accomplishing this task. As a result, job opportunities for JavaScript developers are growing rapidly and will continue to be in high demand as people from around the world flock to the web for all their shopping needs.

This course will introduce you to programming using JavaScript, a great starting point for all students considering a career in programming, web development, or computer science. You will be trained to think like a programmer by applying your skills in JavaScript while simultaneously preparing to use this technology for consumer-facing and internal applications (i.e., Node.js). Throughout the course, you will learn the basic principles of programming, using JavaScript as a gateway to building web pages with validations and dynamics, as well as a tool for exploring emerging issues in the information technology field. By the end of the course, you will have completed various assignments that demonstrate your knowledge of JavaScript concepts.

In this course, learn the fundamentals of employing JavaScript for web applications:

* Learn JavaScript expressions, functions, arrays, and built-in objects.
* Learn how to create reusable components such as form validators.
* Acquire a deep understanding of the document object model (DOM), and learn how to use JavaScript and CSS to create DHTML components such as hover menus, flyouts, and mouse-over effects.
* Dynamically control HTML elements' placements and visibilities.

**Prerequisites**

Basic HTML and CSS knowledge is helpful but not needed.

**Course Structure/Method**

This course will take place in a classroom setting with the instructor present in person. The instructor will run, explain and illustrate JavaScript programming and concepts. Sometimes students will be asked to code and debug as proof of concepts. The instructor will also hold interactive sessions to clarify all JavaScript concepts. Students will have opportunities to ask questions and answer questions to clear up any confusion. There will be three take-home assignments for students throughout the week.

**Course Learning Outcomes**

After this course, the students will be able to:

* Incorporate JavaScript on their web pages.
* Develop dynamic, user-friendly web applications with confidence and speed.

**Communications**

If you have any questions, please email me at: [**mar23@nyu.edu**](mailto:mar23@nyu.edu)**.** Emails will be answered as soon as possible, preferably within 24 hours.

**Course Expectations**

Each student is expected to do their homework individually. All work must be original and the student's work. Violation of the policy on academic integrity is a serious offense.

Regular homework assignments will be assigned every week starting from the 1st class and due on the following week.

Homework assignments will be handed in via email. The email address is [mar23@nyu.edu](mailto:mar23@nyu.edu).

There will be three homework assignments:

|  |  |  |  |
| --- | --- | --- | --- |
| HW # | Assigned on | Due on | Points |
| 1 | Session 1 | Session 2 | 20 |
| 2 | Session 2 | Session 3 | 20 |
| 3 | Session 3 | Session 4 | 20 |
| Points from Homework | | | 60 |
| Class Participation | | | 40 |
| Total | | | 100 |

Please submit homework on the due date, even if it is incomplete, so that you secure partial credit. Late submissions for homework assignments are not accepted. There is no late submission for homework assignments.

**Classroom Expectations:**

As continuing education students, you are expected to conduct yourselves in a professional manner and engage and collaborate with your classmates in the Zoom meeting room. Here are our guiding principles:

* Dress as if you are in the Classroom.
* Keep your microphone muted unless asking a question or engaging in discussion.
* Check your video and audio when entering your class session.
* Think background, minimize distractions around you.
* Look into the camera instead of looking at the screen.
* Type quietly, mute if necessary.
* Don't eat during a Zoom class session and refrain from engaging in any activity such as smoking, consuming alcohol, etc. that you would not engage in if the class was in person.

SPS classrooms are diverse and include students who range in age, culture, learning styles, and levels of professional experience. To maintain an inclusive environment that ensures all students can equally participate with and learn from each other, as well as receive feedback and instruction from faculty during group discussions in the classroom, all course-based discussions and group projects should occur in a language that is shared among all participants.

**Required Material**

* **eBook - Get a grip on JavaScript by Mohammed Rahman (Kindle Edition)**

<https://www.amazon.com/Get-grip-JavaScript-Concepts-ebook/dp/B08KWNGBLK/ref=sr_1_1?dchild=1&keywords=get+a+grip+on+javascript&qid=1602308803&sr=8-1>

**Assessment Strategy**

All students will receive a letter grade for this course unless they complete and submit a Non-Evaluative Grade Form, which allows them to receive an NE in lieu of a letter grade. The grading scale for the High School Academy is based on an A-C letter scale (A, A-, B+, B, B-, C+, C). Students wishing to audit the course must obtain prior written permission from: [sps.hsacademy@nyu.edu](mailto:sps.hsacademy@nyu.edu)

For the Computer Science Concepts with JavaScript Spring 2020 class, the grades will be based on:

60% Homework (3 homework assignments)

40% Class participation as stated above.

**NYUSPS Policies**

Policies regarding the Family Educational Rights and Privacy Act (FERPA), Academic Integrity and Plagiarism, Students with Disabilities Statement, and Standards of Classroom Behavior among others can be found on the NYU Classes Academic Policies tab for all course sites as well as on the University and NYUSPS websites. Every student is responsible for reading, understanding, and complying with all of these policies. The full list of policies can be found at the web links below:

● University: http://www.nyu.edu/about/policies-guidelines-compliance.html

● NYUSPS: http://sps.nyu.edu/academics/academic-policies-and-procedures.html

**School Grading Policies for NYUSPS Career Advancement (non-degree) courses can be found at:** http://sps.nyu.edu/content/scps/academics/noncredit-offerings/academic-noncredit-policies-and- procedures.html

**JavaScript**

**HIGH1-CE9108**

**Course Outline**

**Session 1**

* What is JavaScript?
* Why learn JavaScript?
* How is JavaScript different from other programming language?
* What is Browser Console?
* Accessing Browser Console to execute JavaScript
* Primitive data types : Numbers, String, Boolean
* console.log()
* Declaring Variables
* Mathematical operators
* Autoincrement and decrement
* Relational operators
* if-else
* switch
* While loop
* For loop
* Infinite loop
* Break statement

**Session 2**

* Defining Functions
* Accessing Functions
* Function without parameter and return value
* Function with return value
* Debugging function
* Function with parameters
* Function with parameters and return values
* Functions as Variable
* Global Variables
* Local Variables
* Declaring Global Variables by Accident

**Session 3**

* [] syntax for Arrays
* Length Property of Array
* Looping through an array with index
* Push method
* Pop method
* {} syntax for objects
* Properties – assigning values and retrieving values
* Methods – defining methods and calling methods

**Session 4**

* Passing objects as argument <INPUT type=”text”>
* <INPUT type=”password”>
* <INPUT type=”button”>
* Importance of ID attribute
* Tagging for onclick event and JavaScript functions
* window.alert() or simply alert()
* DOM and “document” object
* Document. getElementById(), getElementByTagName(), getElementByClass()
* DIV tag - innerHTML, style property
* TextBox, Password validation
* Checkbox validation
* Dropdowns and validation
* Radio Buttons and validation
* Handling event using addEventListener() method (recommended)