

# COURSE OUTLINE

## CMSY-149

### Introduction to JavaScript and Perl

3 Semester Hours

## HOWARD COMMUNITY COLLEGE

### Description

This course will present intermediate topics needed to create, design, write, test, debug and document programs to run on client machines with JavaScript and Perl. This course is designed to teach computer programming skills that can be used in learning other programming languages, especially those that work with HTML.

Prerequisite: CMSY-148 or [(CMSY-141 or CMSY-190) and (CMSY-128 or CMSY-129)]. (3 hours weekly)

### Overall Course Objectives

Upon completion of this course, the student will be able to:

1. Master fundamental concepts of the Document Object Model.
2. Understand the role of sequencing, looping and conditional branching.
3. Place JavaScript in HTML documents and create external libraries of code.
4. Create form validation code with JavaScript.
5. Write event handler code for form elements.
6. Learn how to create, run and debug CGI scripts.
7. Understand the role of a CGI scripts in creating interactive Web sites.
8. Use scripts to collect data from Web page visitors.
9. Learn how to use scalar, array, and hash variables in a script.
10. Manipulate files using Perl.
11. Understand the purpose and use of subroutines and how to employ them.

### Major Topics

- I. Introduction to JavaScript
  - A. Inserting JavaScript Tags in an HTML document; using comments
- II. JavaScript BasicsData Types, Variables, and Variable scope, Reserved Words, Operators
  - A. Defining and calling Functions
  - B. JavaScript Objects, Methods, and Properties
  - C. Understanding Events and Event Handlers
  - D. Form Validation
- III. Using Arrays
  - A. Defining an array and creating an array instance
  - B. Creating Pop-up windows
  - C. Adding scrolling messages
- IV. Working with query string, cookies and security
- V. Working with frames and windows
  - A. Using hidden frames
  - B. Creating new windows; writing to a window object from a document
  - C. Referring to a window from another window

- VI. Using objects
  - A. Creating and deleting objects
  - B. Using the With Statement to reference an object
  - C. Looping through the elements of an object
- VII. Introduction to Perl
  - A. Security issues
  - B. Using Perl's Error Reporting and viewing the system Error Log
  - C. Documentation for Perl
- VIII. Perl Data
  - A. Numbers and Strings, Constant and Variables, Operators and Functions
  - B. Scalars vs. list vs. hashes
  - C. Arrays
- IX. Getting Data Info
  - A. Documenting scripts; Statements, blocks and Scope
  - B. Single-valued Form data and Multiple-valued Form data
  - C. Getting all the form element's names and values
- X. String manipulations
  - A. Converting a string to uppercase letters and lowercase letters
  - B. Return, replace, or insert text; locating a string within another string
  - C. Replace text using the transliteration and the substitution operators
  - D. Use the binding operators
  - E. Perform pattern matching and using metacharacters in a search pattern
- XI. Conditionals and Loops
  - A. Comparing numbers; logical operators
  - B. Creating loops with do, for, foreach
- XII. Arrays
  - A. Assigning a list to an array variable; Referring to an item in an array
  - B. Modifying the members of an array
- XIII. User-Defined Functions
  - A. Create and call a user-defined function
  - B. Pass information to and receive information from a user-defined function
  - C. Access the contents of an environment variable
  - D. Code the repetition structure
- XIV. Working with Hashes
- XV. Two ways of remembering Info about your visitors—Hidden fields and cookies
- XVI. Files and Directories
  - A. Opening, closing, renaming, removing a file; Writing to an External File and reading data from it; Opening a directory and reading its contents.

### **Course Requirements**

Specific assignments and procedures for evaluating student performance in the class will be described in the individual class syllabus, but will include the following:

1. A written test on definitions and procedures.
2. A computer test to demonstrate knowledge of concepts.
3. Projects to demonstrate understanding of concepts.

### **Other Course Information**

This course is a business elective.