

**College of San Mateo
Official Course Outline**

1. COURSE ID: CIS 380 **TITLE:** PHP Programming

Units: 3.0 units **Hours/Semester:** 48.0-54.0 Lecture hours; and 96.0-108.0 Homework hours

Method of Grading: Grade Option (Letter Grade or Pass/No Pass)

Recommended Preparation:

Completion of CIS 111 or CIS 254

2. COURSE DESIGNATION:

Degree Credit

Transfer credit: CSU; UC

3. COURSE DESCRIPTIONS:

Catalog Description:

Comprehensive course in PHP (hypertext preprocessor scripting language). Includes writing server-side PHP scripts for the Web, procedural and object-oriented programming, forms and browser I/O, an introduction to SQL statements and the MySQL database, and advanced topics such as creating dynamic Web content with PHP and MySQL, sessions, Web services, e-commerce, and authentication with PHP. Intended for students with previous programming experience.

4. STUDENT LEARNING OUTCOME(S) (SLO'S):

Upon successful completion of this course, a student will meet the following outcomes:

1. Develop server-side PHP scripts for publishing on the Web.
2. Employ control structures, functions, arrays and hashes to create robust PHP applications.
3. Design rigorous code for validation and authentication with attention to security and performance.
4. Write SQL commands and use a MySQL database to develop data-driven Web applications.
5. Create an advanced project using PHP and a MySQL database.

5. SPECIFIC INSTRUCTIONAL OBJECTIVES:

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

1. Develop server-side PHP scripts for publishing on the Web.
2. Employ control structures, functions, arrays and hashes to create robust PHP applications.
3. Design rigorous code for validation and authentication with attention to security and performance.
4. Write SQL commands and use a MySQL database to develop data-driven Web applications.
5. Create an advanced project using PHP and a MySQL database.

6. COURSE CONTENT:

Lecture Content:

1. Introduction
 - A. History of PHP
 - B. Limitations of COI Programming
 - C. Dynamic Web Pages
 - D. PHP and HTML
 - E. Web Servers and Server-Side Programming
 - F. PHP and Databases
 - G. UNIX/Linux Environment
2. Data and Operations
 - A. Data Types (No Explicit Type Declarations)
 - B. Variables
 - C. Constants
 - D. Operators
 - E. Expressions
 - F. Operator Precedence
3. Conditional Statements and Control Structures
 - A. If/Else
 - B. Switch
 - C. While
 - D. Do/While

- E. For
- F. Foreach
- G. Break
- H. Continue
- I. Exit
- J. Die
- K. Return
- 4. Functions
 - A. Scope
 - B. Static Variables
 - C. Arguments
 - D. Recursion
 - E. Dynamic Function Calls
 - F. Exception Handling
- 5. Arrays and Hashes
 - A. Single-Dimensional Arrays
 - B. Indexing Arrays
 - C. Initializing Arrays
 - D. Multi-Dimensional Arrays
 - E. Casting Arrays
 - F. Hashes
- 6. Classes and Objects
 - A. Defining a Class
 - B. Constructors
 - C. Accessing Properties and Methods
 - D. Static Class Members
 - E. Access Types
 - F. Binding
- 7. Input/Output and Disk Access
 - A. HTTP Connections
 - B. Writing to the Browser
 - C. Getting Form Input
 - a. GET Method
 - b. POST Method
 - D. Passing Arrays in Forms
 - E. Cookies
 - F. File Uploads
 - G. Reading/Writing to Files
 - H. Sessions
 - a. Browser
- 8. MySQL Databases
 - A. Introduction to SQL Syntax
 - B. Designing and Creating a Table in MySQL
 - C. MySQL Data Types
 - D. MySQL Metadata
 - E. Inserting Values into a MySQL Table
 - F. Retrieving Data from a MySQL Table
 - G. Deleting Data from a MySQL Table
- 9. Creating Dynamic Content with PHP and MySQL
 - A. Connecting to MySQL
 - B. Extracting Data Using PHP
 - C. Populating Form Menus Using Data from MySQL
 - D. Putting Returned Records into a Table
 - E. Authentication with PHP
 - a. Using Sessions
 - b. Using HTTP Header Authentication
- 10. Advanced Topics
 - A. Web Services
 - B. E-Commerce

7. REPRESENTATIVE METHODS OF INSTRUCTION:

Typical methods of instruction may include:

- A. Lecture
- B. Directed Study
- C. Activity
- D. Discussion
- E. Observation and Demonstration
- F. Other (Specify): Lecture will be used to introduce new topics; Teacher will model problem-solving techniques; Class will solve a problem together, each person contributing a potential "next step"; Students will participate in short in-class projects (in teacher-organized small groups) to ensure that students experiment with the new topics in realistic problem settings; Teacher will invite questions AND ANSWERS from students, generating discussion about areas of misunderstanding; Teacher will create and manage an Internet conference for discussion of course topics; and Students will work in small groups to solve programming assignments.

8. REPRESENTATIVE ASSIGNMENTS

Representative assignments in this course may include, but are not limited to the following:

Writing Assignments:

Weekly programming assignments.

Assignments will cover: -server-side PHP scripts for the Web -procedural and object-oriented programming -forms and browser I/O -SQL statements and the MySQL database -creating dynamic Web content with PHP and MySQL -sessions -Web services -e-commerce -authentication with PHP

Reading Assignments:

Reading assignments accompanied by self-test questions and running code examples.

Other Outside Assignments:

Studying posted lecture notes and relevant handouts. Computer programming assignments. The reading assignment frames the concepts covered and provides the basic knowledge necessary to do the self-test questions and understand the sample code. The lecture notes and handouts provide a more in-depth look at topics and distills the information down to what the faculty thinks is most important. The computer programming assignments provide hands on practice of the concepts covered in the readings.

9. REPRESENTATIVE METHODS OF EVALUATION

Representative methods of evaluation may include:

- A. Exams/Tests
- B. Group Projects
- C. Homework
- D. Projects
- E. Quizzes
- F. Written examination
- G. Bi-weekly quizzes (short answer--from textbook material) to provide feedback to students and teacher; Assessment of student contributions during class discussion and project time; Individual programming assignments; Midterm and Final exams (short answer - textbook material), general problem solving (similar to in-class work), short program segments (similar to programming assignments); Assessment of group participation on course projects, including peer-assessment of participation and contribution to the group effort.

10. REPRESENTATIVE TEXT(S):

Possible textbooks include:

- A. Nixon. *Learning PHP, MySQL & JavaScript: With jQuery, CSS & HTML5*, 5th ed. O'Reilly, 2018
- B. Murach. *Murach's PHP and MySQL*, 3rd ed. Murach & Associates, 2017
- C. Ullman. *PHP and MySQL for Dynamic Web Sites*, 5th ed. Peachpit Press, 2017
- D. Prettyman, S. *Learn PHP 8: Using MySQL, JavaScript, CSS3, and HTML5*, 2nd ed. Apress, 2020

Origination Date: October 2020

Curriculum Committee Approval Date: November 2020

Effective Term: Fall 2021

Course Originator: Melissa Green