

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

COMPUTER AND INFORMATION SCIENCE 219 – PHP/MYSQL DYNAMIC WEB-BASED APPLICATIONS

2 hours lecture, 3 hours laboratory, 3 units

Catalog Description

PHP, a popular server-side web development language, is used to develop web applications that collect data from HTML forms and store them in databases like MySQL. Examples include online stores and content driven sites like WordPress and Wikipedia. This introduction to PHP and MySQL provides the knowledge and skills necessary to develop dynamic web-based applications that allow users to create, read, update, and delete database data via web browser forms. Students will build practical web applications such as shopping carts, address books, and more.

Prerequisite

None

Recommended Preparation

Prior experience with HTML/CSS coding, programming, and database development. These skills can be acquired by completing CIS 211, CIS 140, and any Computer Science course.

Entrance Skills

Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed:

- 1) Apply file management best practices to organize, name, backup, and upload files.
- 2) Read, write, analyze, and debug HTML and CSS to create standards compliant web pages that include formatted text, internal and external links, images, tables, forms, and lists.
- 3) Write and debug programs using basic elements such as delimiters, control structures, operators, variables, arrays, and functions.
- 4) Demonstrate critical problem-solving skills in the debugging of programs.
- 5) Trace the flow of execution and values of all variables through a complex program.

Course Content

- 1) PHP Overview
 - a. Installing and using a local testing server (e.g., XAMPP)
 - b. Using an Integrated Development Environment (IDE) to edit and test a PHP application
 - c. Embedding PHP in HTML
 - d. Coding comments and statements
 - e. Data type, variables, and constants
 - f. Using GET and POST
 - g. Working with data (string and numeric expressions, echo, assignment operators, built-in functions)
 - h. Control statements
 - i. Passing control to another page (include, require, exit and die functions)
 - j. PHP documentation
- 2) PHP with MySQL Review
 - a. SQL statements to Create, Read, Update, and Delete (CRUD)
 - b. phpMyAdmin (import, review data and structure, run SQL statements, create users and privileges)

- c. Using PHP to connect to a MySQL database
 - d. Using PHP to Create, Read, Update, and Delete (CRUD)
 - e. Working with data set arrays
- 3) MVC Organization
 - a. Coding functions
 - b. Redirecting requests
 - c. Using model, controller, and view
 - 4) MySQL Database Design
 - a. Designing a data structure
 - b. Normalizing
 - c. MySQL Workbench
 - 5) Using SQL to create a MySQL database
 - a. Creating, selecting, and dropping a database
 - b. Working with tables
 - c. Indexes
 - d. Users and Privileges
 - 6) Using SQL to work with a MySQL database
 - a. Selecting data from a single table
 - b. Selecting data from multiple tables
 - c. Summary queries and subqueries
 - d. Inserting, updating, and deleting rows
 - 7) Professional PHP for working with MySQL
 - a. API's
 - b. PDO
 - c. Preventing MySQL injection with prepared statements
 - d. MySQLi
 - 8) A database driven web site example
 - a. Working with large text columns
 - b. A content management system
 - 9) Creating secure web sites
 - a. Using a secure connection
 - b. Authentication
 - c. Encrypted data
 - 10) Sending email and working with other web sites
 - a. PEAR mail package
 - b. cURL
 - 11) Files, uploads, and images
 - a. Working with files
 - b. Uploading files
 - c. Working with images
 - 12) An eCommerce web site example
 - a. Prototyping and stepwise refinement
 - b. User interface for end users
 - c. User interface for administrators

Course Objectives

Students will be able to:

- 1) Integrate PHP, SQL, HTML, and CSS to develop web applications that Create, Read, Update, and Delete data from a MySQL database.
- 2) Refactor code using MVC organization to improve efficiency and scalability.
- 3) Write SQL to create and work with MySQL databases.
- 4) Develop secure web applications.
- 5) Use advanced PHP skills to send email and work with other web sites, work with files, and develop eCommerce sites.

Method of Evaluation

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in the subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Hands-on exercises that require students to code and upload web pages that use valid HTML and CSS.
- 2) Quizzes and exams that measure students' ability to use coding terminology and explain coding concepts.
- 3) Practical exams that measure students' ability to use computer applications to solve real-life web design problems.
- 4) Projects that require students to integrate production skills and design best practices to create technically proficient and well-designed web sites.

Special Materials Required of Student

- 1) File storage system
- 2) Access to web-based course material and software specified in syllabus

Minimum Instructional Facilities

Computer lab with Internet access, appropriate software

Method of Instruction

- 1) Lecture and demonstration
- 2) Hands-on practice
- 3) Assignments

Out-of-Class Assignments

- 1) Read textbook and assignment instructions
- 2) Participate in online discussion
- 3) Complete assignments and online quizzes
- 4) Review online resources, including videos

Texts and References

- 1) Required (representative example): Murach & Harris. *Murach's PHP and MySQL, 3rd Edition*. Murach, 2017.
- 2) Supplemental: None

Exit Skills

Students having successfully completed this course exit with the following skills, competencies and/or knowledge:

- 1) Integrate PHP, SQL, HTML, and CSS to develop web applications that Create, Read, Update, and Delete data from a MySQL database.
- 2) Refactor code using MVC organization to improve efficiency and scalability.
- 3) Write SQL to create and work with MySQL databases.
- 4) Develop secure web applications.
- 5) Use advanced PHP skills to send email and work with other web sites, work with files, and develop eCommerce sites.

Student Learning Outcomes

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

- 1) Integrate PHP, HTML, CSS, and SQL to create a dynamic web application that meets 70% of the technical, organizational, structural, and presentation requirements outlined in a detailed scoring rubric based on the course content and objectives.