

### Course Outline

**COURSE:** CSIS 78                      **DIVISION:** 50                      **ALSO LISTED AS:**

**TERM EFFECTIVE:** Spring 2015                      **CURRICULUM APPROVAL DATE:** 11/24/2014

**SHORT TITLE:** WEBSITES SQL/PHP

**LONG TITLE:** Web Sites with SQL and PHP

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
4	18	Lecture:	3	54
		Lab:	3	54
		Other:	0	0
		Total:	6	108

#### **COURSE DESCRIPTION:**

Covers the programming of database-driven, web-based applications (such as an eCommerce web site) using PHP and MySQL. PHP is a powerful language for writing server-side Web applications. MySQL is the world's most popular open source database. Together these two technologies provide a powerful platform for building database-driven Web applications. This course has the option of a letter grade or pass/no pass. **ADVISORY:** CSIS 128 Database - Access, or equivalent database experience.

**PREREQUISITES:**

**COREQUISITES:**

**CREDIT STATUS:** D - Credit - Degree Applicable

#### **GRADING MODES**

- L - Standard Letter Grade
- P - Pass/No Pass

**REPEATABILITY:** N - Course may not be repeated

#### **SCHEDULE TYPES:**

- 02 - Lecture and/or discussion
- 03 - Lecture/Laboratory
- 04 - Laboratory/Studio/Activity
- 05 - Hybrid
- 72 - Dist. Ed Internet Delayed

**STUDENT LEARNING OUTCOMES:**

1. Create, modify, and use SQL databases.

Measure: homework, projects, exams, quizzes

PLO: 1,2

ILO: 3,7,2,1

GE-LO:

Year assessed or anticipated year of assessment: 2010-11

2. Use PHP to interface SQL databases with Web Pages.

Measure: homework, projects, exams, quizzes

PLO: 1,2

ILO: 7,2,3

GE-LO:

Year assessed or anticipated year of assessment: 2010-11

3. Recognize common security issues inherent in browser - database interaction.

Measure: homework, projects, exams, quizzes

PLO: 1

ILO: 7,2,3

GE-LO:

Year assessed or anticipated year of assessment: 2010-11

4. Demonstrate appropriate use of specialized features of PHP that pertain to databases: user input validation, security, and database integrity.

Measure: homework, projects, exams, quizzes

PLO: 1,2

ILO: 7,3,2,1

GE-LO:

Year assessed or anticipated year of assessment: 2010-11

**PROGRAM LEARNING OUTCOMES:**

After completing an A.S. Degree or Certificate of Achievement in CSIS: Computer Programming, a student will be able to: (1) create programs in three different languages that use control flow statements such as if and switch statements and (2) create programs in three different languages that use loop statements such as for and while statements.

**CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS**

Curriculum Approval Date: 11/24/2014

6 Hours

Chapter 1, Database Applications and the Web

Discusses the three-tier architecture commonly used in web database applications, and how data is exchanged between browsers and servers.

It introduces PHP and MySQL, and discusses when and why databases are used on the Web. This subject will be covered through class lecture and textbook reading assignments. Students will complete programming assignments that demonstrate their comprehension.

6 Hours

Chapter 2, The PHP Scripting Language

Introduces the PHP scripting language. It covers programming in PHP

and discusses the basic programming constructs, variables, types, functions, and techniques. This subject will be covered through class lecture and textbook reading assignments. Students will complete a project that demonstrates their comprehension. Students will complete programming assignments that demonstrate their comprehension.

6 Hours

#### Chapter 3, Arrays, Strings, and Advanced Data Manipulation in PHP

Explains the intermediate level features of PHP, including how to work with arrays, strings, and times and dates. The chapter is illustrated with many short examples that show how each technique is used in practice. This subject will be covered through class lecture and textbook reading assignments. Students will complete a programming project that demonstrates their comprehension.

6 Hours

#### Chapter 4, Introduction to Object-Oriented Programming with PHP

How to use the basic object-oriented features of PHP, and explains why object-oriented programming is popular and becoming important in PHP. This subject will be covered through class lecture and textbook reading assignments. Students will complete a programming project that demonstrates their comprehension.

6 Hours

#### Chapter 5, SQL and MySQL

Introduces MySQL and how to interact with it using the SQL query language. The focus is an example-driven section on querying. The basics of creating, deleting, and updating data and databases are introduced. This subject will be covered through class lecture and textbook reading assignments. Students will complete a project that demonstrates their comprehension.

12 Hours

#### Chapter 6, Querying Web Databases

Introduces connecting to MySQL with PHP. Explains the querying process used in most interactions with MySQL and presents examples that use the PHP MySQL library functions. Shows how user data is encoded, requests sent in from a web browser to a web server and decoded for processing in PHP. We discuss the security implications in processing user data and show steps to secure interactive querying systems. Our discussions are supported by short examples that show how to build simple query modules. This subject will be covered through class lecture and textbook reading assignments. Students will complete a database project that demonstrates their comprehension.

6 Hours

#### Chapter 7, PEAR

Discusses the PEAR package repository. Packages are source code modules that can be used in code and saves the programmer from reinventing widely used concepts. PEAR includes over 100 packages for tasks as diverse as date and time manipulation, security, networking, and database access, and this chapter shows how to install and upgrade them. The chapter focuses on a templates package - a useful tool for

separating HTML from code - and another for database abstraction. Both packages are used in later chapters to develop robust, reusable code. This subject will be covered through class lecture and textbook reading assignments. Students will complete a database project that demonstrates their comprehension.

12 Hours

#### Chapter 8, Writing to Web Databases

Covers writing data to web databases. Reloading or printing a page from a web browser can cause data to be written to a database more than once. Multiple users accessing the same database introduces other problems, such as data unexpectedly being changed by one user while it's being read by another. We discuss how to solve problems related to the nature of the Web and multiple users. We illustrate the principles with a case study example of collecting form data from a user and saving it in a database. This subject will be covered through class lecture and textbook reading assignments. Students will complete a database project that demonstrates their comprehension.

6 Hours

#### Chapter 9, Validation

Presents the principles and techniques for user input validation. We show techniques such as how to validate dates, credit card numbers, and phone numbers, and explain how to use these in error-checking modules that are scalable and practical for web database applications. This subject will be covered through class lecture and textbook reading assignments. Students will complete a programming project that demonstrates their comprehension.

6 Hours

#### Chapter 10, Sessions

Covers the principles of adding session management to web database applications. Session management allows the interactions between a user and the application to be related so that, for example, a user can log in and log out of an application and be guided through a series of steps in a process. We show how PHP manages sessions and illustrate the techniques with a case study of managing error feedback to users. We also discuss when and when not to use sessions, and how to configure PHP's session handler so it's secure and scalable. This subject will be covered through class lecture and textbook reading assignments. Students will complete a database and programming project that demonstrates their comprehension.

6 Hours

#### Chapter 11, Authentication and Security

Discusses web security and authentication. We show how PHP can be used for basic authentication, how databases can be used to manage users, and why you might need to secure communications with the secure sockets layer (SSL). The case study is a reusable authentication module with login, logout, and password change features. This subject will be covered through class lecture and textbook reading assignments. Students will complete a database and programming project that

demonstrates their comprehension.

6 Hours

#### Chapter 12, Errors, Debugging, and Deployment

Error handling and debugging are the focus of this chapter. We discuss the types of errors that can occur in PHP and show how to identify the source of common programming errors that cause these problems. We then show you how to write your own error handler that can be integrated into an application, and how to trigger your own errors when you need them. Adding a custom error handler gives a professional finish to an application. This subject will be covered through class lecture and textbook reading assignments. Students will complete a programming project that demonstrates their comprehension.

6 Hours

#### Chapter 13, Reporting

Discusses reporting for the Web and what solutions work in PHP. The focus is producing PDF (Adobe Portable Document Format) reports using a popular PHP PDF library, and we illustrate the techniques with several examples. The chapter concludes with a function reference for the class we use. This subject will be covered through class lecture and textbook reading assignments. Students will complete a programming project that demonstrates their comprehension.

6 Hours

#### Chapter 14, Advanced Features of Object-Oriented Programming in PHP

This chapter shows the advanced features of PHP's object-oriented programming model. We extend the discussion of Chapter 4, and show how to build and reuse classes, and how to write powerful object-oriented applications. The chapter concludes with a case study that shows how all the features can be used together to build a complex and powerful class hierarchy. This subject will be covered through class lecture and textbook reading assignments. Students will complete a programming project that demonstrates their comprehension.

6 Hours

#### Chapter 15, Advanced SQL

This chapter shows the advanced features of MySQL. It extends the discussion of Chapter 5, and shows how to write complex queries, manipulate data in complex ways, manage users, and tune your database and MySQL. This subject will be covered through class lecture and textbook reading assignments. Students will complete a database project that demonstrates their comprehension.

2 Hours

Final

ASSIGNMENTS:

See Content.

#### **METHODS OF INSTRUCTION:**

Lecture, computer demonstration, database examples.

#### **METHODS OF EVALUATION:**

Category 1 - The types of writing assignments required:  
Percent range of total grade: 20 % to 60 %  
Other: Programming projects

Category 2 -The problem-solving assignments required:  
Percent range of total grade: 20 % to 60 %  
Homework Problems  
Quizzes  
Exams

Category 3 -The types of skill demonstrations required:  
Percent range of total grade: 20 % to 60 %

Performance Exams

Category 4 - The types of objective examinations used in the course:  
Percent range of total grade: 20 % to 60 %  
Multiple Choice  
True/False  
Matching Items  
Completion

#### **REPRESENTATIVE TEXTBOOKS:**

Required:

Kevin Yank. PHP & MYSQL, novice to ninja; Fifth Edition. Sitepoint, 2012. Or other appropriate college level text.

ISBN: 978-0-9871530-8-1

Reading level of text, Grade: 12th      Verified by: MS Word

#### **ARTICULATION and CERTIFICATE INFORMATION**

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Transferable CSU, effective 200630

UC TRANSFER:

Not Transferable

#### **SUPPLEMENTAL DATA:**

Basic Skills: N

Classification: I

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN:  
CAN Sequence:  
CSU Crosswalk Course Department: CSIS  
CSU Crosswalk Course Number: 78  
Prior to College Level: Y  
Non Credit Enhanced Funding: N  
Funding Agency Code: Y  
In-Service: N  
Occupational Course: C  
Maximum Hours:  
Minimum Hours:  
Course Control Number: CCC000086567  
Sports/Physical Education Course: N  
Taxonomy of Program: 070710