Course Acronym:	CIS
Course Number:	84
Descriptive Title:	MySQL Database Programming for the Web
Division:	Business
Department:	Computer Information Systems
Course Disciplines:	Computer Information Systems
Catalog Description:	This course is an introduction to the MySQL database, a popular open-source database choice used in modern web applications. Students will learn the MySQL interface and architecture, the fundamentals of relational databases, how to design and develop MySQL queries and reports, and how to build web applications which incorporate MySQL as the database layer. Topics include fundamental concepts such as data types, logical operators, working with multiple tables and joins, and how to create and manage a MySQL database, and integrate it into server-side programs which collect and present data. This course will incorporate a server-side programming language to demonstrate the use of a MySQL database for a business application.
Prerequisite:	
Co-requisite:	
Recommended Preparation:	Computer Information Systems 13 with a minimum grade of C or equivalent experience Computer Information Systems 28 with a minimum grade of C
Enrollment Limitation:	
Hours Lecture (per week):	2
Hours Laboratory (per week):	3
Outside Study Hours:	4
Total Course Hours:	90
Course Units:	3
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	4/16/2018
Transfer UC:	propose
Effective Date:	pending
General Education: ECC	
Term:	
Other:	

CSU GE:	
Term:	
Other:	
IGETC:	
Term:	
Other:	
Student Learning Outcomes:	**SLO #1 Designing and Developing a MySQL Database** Students will be able to design and develop a MySQL database given a set of requirements. **SLO #2 Implement a MySQL database into a business application** Students will be able to incorporate a MySQL in server-side website processing. **SLO #3 Deploying a Web Application which uses MySQL** Students will be able to identify web server requirements, configure a server, and deploy a MySQL database and website to a web server.
Course Objectives:	1. Understand the MySQL framework. 2. Plan, design, create, and manage a MySQL database. 3. Incorporate and manage a MySQL database in a web application for business. 4. Optimize a MySQL database in a server-side web application.
Major Topics:	**I. Introduction to MySQL (2 hours, lecture)** A. History of MySQL B. Hardware and Software Requirements C. The MySQL Framework D. Local installation of MySQL **II. MySQL Administration (6 hours, lecture)** A. Users B. User Permissions C. Database creation D. Table creation and management **III. MySQL Usage (12 hours, lecture)** A. MySQL connectivity to server-side programs B. Database Integration into a web application C. MySQL, MySQLI, and PDO extensions D. CRUD principles E. Relationships F. Prepared Statements **IV. Server-side Programming (2 hours, lecture)** A. Multi-tier design patterns

B. Server-side programming languages

V. Basics of a server-side programming (8 hours, lecture)

A. Language Syntax
B. Data Types
C. Variables and Arrays
D. Operators
E. Expressions
F. Functions
G. Selection structures

VI. Design and development of a database-driven web application (6 hours, lecture)

A. Web application requirements
B. User Interface considerations
C. Data Requirements
D. Application design
E. Application development

VII. The MySQL and server-side programming environment (3 hours, lab)

A. Software Installation
B. Frameworks and tools
C. Web servers
D. Host providers

VIII. MySQL Database Definition (14 hours, lab)

A. MySQL Syntax
B. Database creation
C. Table creation and maintenance
D. Users and permissions

IX. Web Application Design (12 hours, lab)

A. Web application design
B. MySQL database design
C. Information Architecture
D. Data Gathering, storage, and maintenance

X. MySQL Database Integration into a website (18 hours, lab)

A. Database connections
B. Database development
C. Website development
D. SQL code integration
E. Query execution
F. Fine-tuning

XI. Performance and Fine-tuning (6 hours, lab)

	A. De-normalization B. Software Optimization **XII. Web Server Deployment (1 hour, lab)** A. Web server and permission configuration B. Database and application deployment C. Configuration Testing
Total Lecture Hours:	36
Total Laboratory Hours:	54
Total Hours:	90
Primary Method of Evaluation:	2) Problem solving demonstrations (computational or non-computational)
Typical Assignment Using Primary Method of Evaluation:	Create a purchase order form for a shoe store. Include selection lists for standard items such as sneakers, dress shoes, flip-flops, and boots. Validate customer input using MySQL constraints and server-side logic. Store the data in a MySQL table. Test and debug the application. Install on a web server for evaluation. Submit code.
Critical Thinking Assignment 1:	You have been hired as a consultant to create a multi-page Web site that maintains employee data. The information collected on one web page will be available to other web pages in the web site. You have decided to store the collected information in a MySQL database: I. Design the web pages that will be collecting data II. Design the tables the data will be saved into. III. Create the application software to collect and store the data. IV. Create the application software that will display the employee information stored in the table. V. Implement all of the components on the web server and debug and test the application software. Submit code for evaluation.
Critical Thinking Assignment 2:	Design and develop the MySQL database for a blogging website. The website will require users to create a login account and log in. Once logged-in, users will be able to search and view postings by categories. Users will be able to reply to postings, and create new postings. Create the database on the web server. Submit the database design documentation for evaluation.
Other Evaluation Methods:	Class Performance, Objective Exam, Quizzes
Instructional Methods:	Demonstration, Lab, Lecture, Multimedia presentations
If other:	
Work Outside of Class:	Answer questions, Problem solving activity, Required reading, Study, Written work (such as essay/composition/report/analysis/research)
If Other:	
Up-To-Date Representative Texts:	Joel Murach and Ray Harris. My SQL. 3rd ed. Mike Murach and Associates Publishing, 2019.

Alternative Texts:	McGrath, Mike. PHP and MySQL in Easy Steps. 2nd ed. In Easy Steps, 2018 ISBN: 978-1-84078-827-3 McGrath, Mike. Coding for Beginners in Easy Steps. 2nd ed. In Easy Steps, 2022 ISBN: 978-1-84078-975-1 McGrath, Mike. Python in Easy Steps. 2nd edition, In Easy Steps, 2018 ISBN: 978-1-84078-812-9
Required Supplementary Readings:	
Other Required Materials:	USB storage device
Requisite:	
Category:	
Requisite course(s): List both prerequisites and corequisites in this box.	
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	Computer Information Systems-13 Computer Information Systems-28
Requisite and Matching skill(s):Bold the requisite skill. List the corresponding course objective under each skill(s).	**Successful completion of this course requires a fundamental understanding of computers and the Internet. The student should also be proficient in using a Windows PC including computer terminology, file management, and software usage. It will be helpful to have had some database or programming experience** **Computer literacy** CIS 13 - Solve common business problems using appropriate information technology applications and systems. **Demonstrate an understanding of the development and use of information systems in business.** CIS 13 - Explain the development and use of information systems in business.

	Experience in designing and developing databases. CIS 28 - Design, create, and modify table structures. CIS 28 - Modify tables to include default values, validation rules, input masks, and indices.
Requisite Skill:	Equivalent experience
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	**Successful completion of this course requires a fundamental understanding of computers and the Internet. The student should also be proficient in using a Windows PC including computer terminology, file management, and software usage.** **Computer literacy** Solve common business problems using appropriate information technology applications and systems. **Demonstrate an understanding of the development and use of information systems in business.** Explain the development and use of information systems in business.
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	
Date:	
Original Board Approval Date:	
Last Reviewed and/or Revised by:	Roger Dellaca
Date:	09/25/2023
Last Board Approval Date:	12/18/2023
Effective Term:	FALL 2024