COURSE OUTLINE

DMA247 Web Application Development

Course Number Course Title

3 Credits

1 lecture/4 studio hours

Catalog description: Builds upon previous Web development knowledge by introducing concepts of server-side programming and database integration. Emphasizes use of server space and client-side processing to enhance the collation and delivery of information to the viewer. Programming languages covered include PHP, MySQL and JavaScript (jQuery library).

Is course New, Revised, or Modified? New

Required texts/other materials:

Course coordinator: Sarah Sweeney, sweeneys@mccc.edu

Information resources:
php.net
phpfreaks.com

Other learning resources:
Computer Labs outside classes, college library, web resources provided by the instructor

Course Competencies/Goals:

The student will be able to:

1. Demonstrate an understanding of the concepts involved in the LAMP solution stack
2. Develop strategies to bring web concepts through to creation and launch
3. Organize file structures for ease of use and security
4. Create and maintain small-to-large databases accessible via PHP-enabled pages
5. Render web pages with server-created data and advanced interactivity using PHP and AJAX
6. Work in teams to contribute modules for a working website
7. Defend and critique methods used to achieve launch
Course-specific General Education Knowledge Goals and Core Skills.

**General Education Knowledge Goals**
- **Goal 1. Communication.** Students will communicate effectively in both speech and writing.
- **Goal 4. Technology.** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

**MCCC Core Skills**
- **Goal A. Written and Oral Communication in English.** Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.
- **Goal B. Critical Thinking and Problem-solving.** Students will use critical thinking and problem solving skills in analyzing information.
- **Goal E. Computer Literacy.** Students will use computers to access, analyze or present information, solve problems, and communicate with others.
- **Goal F. Collaboration and Cooperation.** Students will develop the interpersonal skills required for effective performance in group situations.

Units of study in detail.

**Unit 1 – Introduction to LAMP**

*The student will be able to...*

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i. Demonstrate an understanding of how a simple static HTTP server works and how it is different from the LAMP solution stack.

ii. Demonstrate an understanding of how a PHP server works and the method it uses to send back dynamically generated web pages.

iii. Demonstrate an understanding of relational databases and their organizational structures.

iv. Demonstrate and understanding of the history of the creation of MySQL and how it integrates with the LAMP Framework.

v. Download and install PHP and MySQL.
### Unit 2 – Foundations of PHP

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i. Demonstrate knowledge of PHP data types, variables, and literals.
ii. Write statements using if-else and while loops
iii. Demonstrate the ability to receive and process a file from a form
iv. Create an array, place data into an array and sort and search an array
v. Discuss the advantages of using functions to group code that performs a single task
vi. Create and call functions in PHP
vii. Collaborate with team members to design a PHP form that processes information
viii. Discuss her/his work during critiques and critically evaluate and justify her/his creative choices

### Unit 3 – MySQL Databases

*The student will be able to...*

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i. Create a database with new users, and grant specific access to the different users
ii. Write simple queries that insert and retrieve data from database tables
iii. Design and implement a simple relational database
iv. Query a database using PHP, and return a page with the specific results
v. Demonstrate an understanding of the concepts of data filtering and SQL Injection hacks, and how to defend against them
vi. Collaborate with team members to create a relational database that produces dynamically generated web pages
vii. Discuss her/his work during critiques and critically evaluate and justify her/his creative choices

### Unit 4 – Front-end Interaction using AJAX

*The student will be able to...*

i. Describe the concepts behind the AJAX framework, and demonstrate how it is implemented on the client side

ii. Create dynamic content using the JQuery Javascript framework

iii. Create basic animations with JQuery including page expansions, element fade-ins, and sliding elements

iv. Request data from a server by creating an XHR instance, and update a page with the progress

v. Collaborate with team members to produce a website that employs basic animations and advanced interactivity

vi. Discuss her/his work during critiques and critically evaluate and justify her/his creative choices

### Evaluation of student learning:

Instructional modes to be used are: Integrated lecture and laboratory, studio assignments with specifications and limitations set by the instructor, demonstrations by the instructor, and discussions and critiques of student work.

The student is responsible for his or her regular attendance, participation in classroom discussions and critiques of student work, and for including his or her work to be discussed and evaluated. Diligent work on assignments is essential.

Evaluation of progress and grades are determined by the instructor, based upon the following considerations: attendance, participation, and estimate of quality of class work and homework assignments (by instructor).

Values of quality, aesthetics, etc., are based upon the instructor’s judgment of the work produced, the effort employed, and the total result achieved. To receive full credit, all assignments are due on time. A late assignment will be accepted one class period after due date with a reduced letter grade.
The grade of “A” will be earned by students who demonstrate mastery of the essential elements of the material presented, as well as demonstrating excellence in aesthetics and originality in completing course objectives with at least 90% accuracy.

The grade of “B” will be earned by students who demonstrate more than adequate mastery of the essential elements of the material presented and acceptable knowledge of the course content. Achievement will be demonstrated when all of the specific course objectives are fulfilled with at least 80% accuracy.

The grade of “C” will be earned by students who demonstrate adequate mastery of the essential elements of the material presented. Achievement will be demonstrated when all of the specific course objectives are fulfilled with at least 70% accuracy.

The grade of “D” is undesirable, but indicates a minimum passing of the course requirements. All of the course objectives must be fulfilled with at least 60% accuracy.

The grade of “F” will be earned by students who do not demonstrate achievement.

Grade Breakdown
Class Attendance and Participation 10%
Foundations Quiz 15%
Project 1: Design a PHP form 25%
Project 2: Create a MySQL database 25%
Project 3: Add Front-end Interaction 25%

Academic Integrity Statement:
Students are expected to comply with the college-wide requirements for academic integrity. Mercer County Community College is committed to Academic Integrity—the honest, fair, and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work. Presenting another individual’s work as one’s own and receiving excessive help from another individual will qualify as a violation of Academic Integrity. The entire policy on Academic Integrity is located in the Student handbook and is found on the college website (http://www.mccc.edu/admissions_policies_integrity.shtml).

Special Needs
Any student in this class who has special needs because of a disability is entitled to receive accommodations. Eligible students at Mercer County Community College are assured services under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. If you believe you are eligible for services, please contact Arlene Stinson, the Director of Academic Support Services.