WEB DATABASE APPLICATION DEVELOPMENT
CSIT 2530

Class Hours: 2.0  Instructor:  
Laboratory Hours: 2.0  Office:  
Credit Hours: 3.0  Phone:  
Date Revised: October 2012  Email:  

Catalog Course Description:
This course is designed for applications programmers and database developers to create interactive Web sites to store and retrieve data. Topics include object-oriented application development, relational table creation and maintenance, data cleansing and validation, data manipulation, forms and reports, queries, stored procedures, optimization, and security. Hands-on training includes design and development of dynamic Web pages using PHP and SQL.

Entry Level Standards:
The student must have an understanding of database concepts including entity-relationship modeling, normalization and relational operations. The student must also have experience applying theoretical principles to database application development. The student must have math, writing, verbal and English language skills at the college entry level. The student should be able to use a standard keyboard and maintain 28 words per minute.

Prerequisites: CSIT 1810 and one programming course or WEB 2300.

Textbook(s) and Other Course Materials:
- Removable storage device such as a USB flash drive.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Review database fundamentals; object-oriented principles; using HTML to build Web pages</td>
</tr>
<tr>
<td>2</td>
<td>Introduction to PHP – variables, conditional expressions, iteration</td>
</tr>
<tr>
<td>3</td>
<td>PHP arrays, strings, functions</td>
</tr>
<tr>
<td>4</td>
<td>Object-oriented concepts; error handling</td>
</tr>
<tr>
<td>5</td>
<td>Designing databases for Web access</td>
</tr>
<tr>
<td>6</td>
<td>Using MySQL to create and access databases</td>
</tr>
<tr>
<td>7</td>
<td>Midterm exam; types and levels of privileges</td>
</tr>
<tr>
<td>8</td>
<td>Grouping and aggregating data; subqueries</td>
</tr>
<tr>
<td>9</td>
<td>Accessing databases from the Web using PHP</td>
</tr>
<tr>
<td>10</td>
<td>Using form interfaces to add data to a database</td>
</tr>
<tr>
<td>11</td>
<td>Database administration: privileges and security</td>
</tr>
</tbody>
</table>
II. Course Goals*:

The course will

A. Guide students to understand the criteria used in making a decision about the products selected to create and maintain database-centric applications. (II, IV)
B. Increase the student’s ability to recognize the language of data definition, data manipulation, and data validation and its importance. (III)
C. Provide hands-on practice with technologies used to build Web-based, database-centric software applications. (II, IV, V)
D. Emphasize the importance of Web site and database security and administration functions and provide the student with skills required to enforce such security. (II, IV, V)
E. Introduce the student to the PHP scripting language to perform server-side processing. (IV, V)
F. Introduce the student to the MySQL database management system and methods of integrating these databases into a dynamic, commercial Web application. (II, IV, V)
G. Provide opportunities for students to work individually and in teams to design and implement problem solutions. (I, V)

*Roman numerals after course objectives reference goals of the Computer Science and Information Technology program (Career Program Goals and General Education Goals are listed http://www.pstcc.edu/departments/curriculum_and_instruction/syllabi/).

III. Expected Student Learning Outcomes*:

Students will be able to:

1. Explain the conditions under which it is appropriate to use specific Web and database technologies to create database-centric applications. (A)*
2. Recognize and use standard relational database and object-oriented terminology. (B)
3. Design and build non-trivial, real-world, dynamic Web sites that can send data to and retrieve data from databases located on remote servers based on client input or case study research. (C, D, E, F, G)
4. Develop data validation processes and integrate them with Web-based forms. (B, E)
5. Demonstrate effective use of HTML, PHP and MySQL to build dynamic Web pages. (E, F)
6. Apply Web site session security and database object privileges to assign appropriate user access to Web application components. (C, D, E, F)
7. Demonstrate effective use of documentation, tutorials, and on-line resources to learn proper syntax and use of Web-based technologies. (C)
8. Effectively review and analyze the work of their peers as a means of providing constructive feedback and improving their own work. (G)

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.
IV. Evaluation:
A. Testing Procedures: 50% of grade
   A minimum of two tests will be administered. These may include multiple choice, true/false, matching, short answer, essay questions, and demonstration of coding skill. Tests will cover material discussed in class, assigned reading and research, and skills practiced during assigned labs. Tests may not be missed without a valid, documented excuse. Each instructor will include details of his/her testing procedures in a syllabus addendum.

B. Laboratory Expectations: 40% of grade
   Lab attendance is required. A minimum of 8 labs will be assigned and must be completed and submitted at the designated date and time. Assignments turned in late will receive a deduction from the total points awarded. Because some labs will be done as a group, students are expected to attend regularly and effectively communicate with peers. Deliverables from each lab are combined to create an integrated prototype of a real world application specified by a client or researched case study.

C. Field Work: N/A

D. Other Evaluation Methods: 10% of grade
   Class participation, research and homework will also comprise a portion of the final grade for the course. Class participation includes elements of a professional work ethic such as regular attendance, arriving on-time, and appropriate interaction with peers during group activities.

E. Grading Scale:

   |
   | 93 – 100 | A |
   | 88 – 92  | B+|
   | 83 – 87  | B |
   | 78 – 82  | C+|
   | 73 – 77  | C |
   | 65 – 72  | D |
   | Below 65 | F |

V. Policies:

A. Attendance Policy:
   Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

B. Academic Dishonesty:
   Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:
   - Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one’s own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

C. Computer Usage Guidelines:
College-owned or -operated computing resources are provided for use students of Pellissippi State Community College. All students are responsible for the use of Pellissippi State's computing resources in an effective, efficient, ethical and lawful manner. It is each individual user's responsibility to abide by the policy available at www.pstcc.edu/ppm/pdf/08-13-05.pdf

D. Accommodation for Disabilities:
Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at http://www.pstcc.edu/sswd/.

E. Other Policies:
1. Make-up exams: All exams are required, and make-ups will be allowed only in the rarest of cases. In the event of an emergency, notification of the instructor must be made in advance.
2. It is the student's responsibility to request help from the instructor prior to an assignment's due date.