
COSC 332: Data Base Concepts

Class Schedule:

Tuesdays and Thursdays, 11:55 a.m. – 1:10 p.m.; Frey 250

Instructor: D. Scott Weaver

Office: Frey 127 Office Hours: See my website or by appointment
Phone: Ext 3785
Email: sweaver<AT>messiah.edu
Course Home Page: home.messiah.edu/~sweaver/COSC332

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Course Description

An introduction to the theory and practice of database management systems (DBMSs) covering conceptual database modeling from both entity-relationship and object-oriented perspectives. For logical and physical database design and implementation, the focus will be on the relational database model and the SQL database query language. Students will get exposure to both Microsoft Access and MySQL, an open source database. We will also discuss the management of databases. Students will examine the integration of database applications with the Internet. The sequel to this course, COSC 333 Database Applications, gives field experience in applying these concepts to a real-world database project.

PREREQUISITE: COSC 182 Computer Programming II

Course Objectives

Upon completion of this course, successful students will have a significant appreciation for the important role database management systems (DBMSs) play in computer systems. This course will prepare students to:

1. Describe and apply the concepts of data modeling, using the ER modeling approach and to develop sound data models.
 2. Design new and re-design existing databases using normalization techniques, or to defend a decision to de-normalize a database.
 3. Create database queries using SQL.
 4. Demonstrate understanding in the use of an open source relational database (MySQL).
 5. Compare and contrast the methods for connecting to databases (ODBC, JDBC).
 6. Integrate database applications with the Internet.
 7. Define, design, implement and deploy a database application.
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Topics Covered

1. Entity-relationship modeling.
 2. Relational databases, normalization, and SQL.
 3. Embedded SQL in Java and other ODBC or JDBC client-server environments.
 4. Solving business problems as individual homework or laboratory assignments.
 5. Conceptual overview of the place of databases in the project life cycle and in corporate decision-making.
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Text & References

Text and materials are available in the College Bookstore.

Required Text:

Jeffrey A. Hoffer, Mary B. Prescott, and Heikki Topi. Modern Database Management, Ninth Edition. Pearson Education, Inc., 2009. (ISBN: 0-13-600391-5)

Articles and web sites referenced throughout lecture notes with links to articles when available.

Software –MS Office, Visio, Access (all loaded in labs), MySQL

Attendance and Class Participation

Though attendance is not specifically graded, being on-time and prepared for this course is a factor in your success in and enjoyment of the course. It is appreciated when you notify the instructor before class if you are unable to attend or will be late. Assignments are due on the date regardless of your presence. It is your responsibility to obtain material distributed or discussed during the missed class from other students (not the instructor) and to turn in any assignments through proxy if necessary. Classes will usually discuss the readings for the day. You are expected to participate.

Course Model

The course will consist of a series of classroom lectures and discussions with student participation highly encouraged. Labs may be held in lieu of class on occasion. Exercises may be used during class to facilitate a deeper understanding of course materials and concepts. Students will be expected to come prepared to work on these exercises in class by reading the appropriate portions of the book or assigned articles ahead of time. At the end of class, students may be called on to present their solutions to the class. You should take careful class notes as you are responsible for materials covered in class regardless of whether or not they are covered in the textbook, articles, etc. Copies of any prepared PowerPoint slides may be made available for download from Sakai, but will still require additional note taking on the student's part. In addition to the reading assignments in the Course Outline, homework and lab assignments will be assigned throughout the semester. There will be a mid-term examination and a comprehensive final examination. All exams will be closed book.

Expectations

- All students are required to check their Messiah College email and the course home page every day.
 - Any email sent to me should have “[COS332]” starting the subject line with a succinct and appropriate subject text following.
 - Good faith effort, on-time, is expected on homework assignments rather than perfection.
 - All assignments are due by the beginning of the class period as specified in the Course Outline or as announced in class. No credit will be given for late submissions.
 - Students are expected to read the assigned chapters, articles and any other materials in advance of class and actively participate in class discussions.
 - Some students may be assigned to facilitate class discussions, including a presentation of their solution to class assignments.
 - Any files turned in for an assignment will be virus-free (at a minimum this means no viruses that manual use of the anti-virus software in the computer labs would catch). Penalty for infected files is 100% cut for that assignment.
 - Academic integrity guidelines are in your student handbook.
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Grading Policy and Course Requirements

Assignments (15%)

- Periodically throughout the semester, students will be assigned homework, labs and projects. These assignments may be individual or in small groups.
- All homework assignments must be done electronically and printed.
- When assignments are turned in they must be completely printed and placed in red folders. Folders should be labeled clearly and neatly with your name and course number in the upper right hand corner (when held in portrait view). The first page of every assignment should have your name, course number and section, Lab or Lesson #, clearly and neatly printed in the upper right hand corner, when held in portrait view.
- Assignments other than book problems must also be uploaded to Sakai. See the link on my home page or go to <http://sakai.messiah.edu>.

Mid-Term Exam (25%)

- The first in-class, closed book exam will cover all material from lectures, readings and assignments from Lessons 1 through 13.

Final Exams (25%)

- The final, closed book exam will be a comprehensive exam covering all lectures, readings, and assignments from the entire course. This exam will occur during the regularly scheduled final exam week.

Final Project (35%)

- The final project is a single project the whole class will be working on.
 - Group assignments will be made and group presentations throughout the semester will bring the whole project team up-to-date.
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Americans with Disabilities Act

Any student whose disability falls within ADA guidelines should inform the instructor within the first two weeks of any special accommodations or equipment needs necessary to complete the requirements for this course. Students must register documentation with the Office of Disability Services (Hoffman 101). If you have questions, call extension 5387.

Academic Integrity

Plagiarism representing another's work as your own will surely result in a lower grade in this course, and may result in failing the course depending on its severity. You must document any sources that you use, whether from the Internet, another person, or printed materials. This includes especially the work of other students who are currently taking this course or who have taken this course before. Academic integrity is broader than plagiarism. It includes such things as returning library materials promptly so that you are not keeping another student from completing his or her work.

All students at Messiah College must read and abide by the College's policy on academic integrity, which is found in your Student Handbook and on the Internet at:

http://www.messiah.edu/academics/advising_handbook/academic_policies/integrity.pdf

Acknowledgements

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