Syllabus for CSC 4480: Principles of Database Systems

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Phone: (610)519-7414

Office Hours  
T 10:00 am – 11:20 am  
W 1:00 pm – 2:20 pm

Course Meets  
TR 2:30 am – 3:45 am in Mendel Science Center G88

Prerequisites  
CSC 1051 – Algorithms and Data Structures I  
CSC 1300 – Discrete Structures

Course Description

This course is an introduction to the design and use of database systems --- systems that manage very large amounts of data. It covers the major concepts and theories involved in the design and implementation of database systems and applications.

Catalog description: Concepts and technology of database management systems and data modeling, with an emphasis on the relational model; database querying and normalization; physical data organization.

Student Learning Outcomes

1. Students will establish an understanding of database principles and technologies underlying database management systems.
2. Students will establish an understanding of data models, physical data organization, data design, normalization, and querying.
3. Students will become literate in one or more of the important commercial database systems, such as Oracle, MySQL and Microsoft Access.
4. Students will be able to apply the concepts learned in class by developing a working prototype based on a medium size database.

Learning Resources

The textbook for this class is

Jeffrey A. Hoffer, Ramesh Venkataraman and Heikki Topi
Modern Database Management, 10/E

Companion website for the textbook:
http://wps.prenhall.com/bp_hoffer_mdm_10/

Other course-related materials will be posted online on the class website:
http://www.csc.villanova.edu/~mdamian/database/

Please make sure you check the class website regularly.
Course Requirements

Students are expected to read ahead sections and watch video tutorials that accompany the textbook. Pop quizzes may be given to summarize the assigned readings and video.

1. **Homework**: weekly written assignments.

2. **Project**: one term project, to be completed in stages. The project will involve designing and implementing a database system for an organization.

3. **Tests**: one midterm and one comprehensive final exam. Tests will be closed books, closed notes. However, you are allowed to bring one sheet of paper (letter size) with any information you think will help you during the exam. *Please note that notes may not be shared during the exam.*

4. **Class Attendance**: Regular attendance is expected of all students. Each student is responsible for all material, announcements, and assignments covered during any class missed.

5. **Late Policy**: All assignments are due at the beginning of the class on the due date. Late submissions will receive penalties on this scale:

   - 90% for work submitted up to 3 hours late,
   - 80% for work submitted up to 6 hours late,
   - 65% for work submitted up to 12 hours late,
   - 50% for work submitted up to 24 hours late,
   - 0% for work submitted more than 24 hours late.

Tentative Grading Procedure

The following allocation of points is tentative and may change during the semester:

- **Exams**: 40%
- **Project**: 25%
- **Assignments**: 25%
- **Other (pop quizzes, class participation)**: 10%

Academic Integrity

I encourage you to collaborate on assignments and learn from your fellow students. However, there is a fine line between collaboration and cheating. Collaboration means discussing problems and solution approaches with other students and independently writing your own answers; cheating means copying solutions from someone else or giving someone else your solutions. If you have questions about what is acceptable, please bring them to me before submitting your work.

Cheating, plagiarism and helping others commit these acts are all forms of academic dishonesty, and will not be tolerated. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the entire Code on Academic Integrity, consult

[http://www.villanova.edu/vpaa/office/facultyservices/policies/integrity/code.htm](http://www.villanova.edu/vpaa/office/facultyservices/policies/integrity/code.htm)
**Special Arrangements**

If anyone has a disability or other problems that warrant the need for special accommodation to complete the course work, please contact me at your earliest convenience.

**Tentative Course Schedule**

The course schedule below is approximate and subject to change as the semester progresses. It is the responsibility of the student to learn and adjust to changes. Students are expected to read chapter material to be covered prior to each session.

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<th>Date</th>
<th>Topic</th>
<th>References</th>
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<td>Introduction to Databases.</td>
<td>Ch. 1, Video</td>
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<td>Wk 2: Aug. 30, Sep. 1</td>
<td>The Database Environment.</td>
<td>Ch. 1</td>
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<td>Wk 3: Sep. 6, 8</td>
<td>The Entity-Relationship Model.</td>
<td>Ch. 2</td>
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<td>Wk 4: Sep. 13, 15</td>
<td>The Entity-Relationship Model.</td>
<td>Ch. 2</td>
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<td>Wk 5: Sep. 20, 22</td>
<td>The Enhanced Entity-Relationship Model.</td>
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<td>Wk 6: Sep. 27, 29</td>
<td>The Relational Model: Logical Design</td>
<td>Ch. 4</td>
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<td>Wk 7: Oct. 4, 6</td>
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<td>Oct. 10 – 16</td>
<td>Fall Break – ENJOY !</td>
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<td>Wk 8: Oct. 18, 20</td>
<td>The Relational Model: Logical Design.</td>
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<td>Wk 9: Oct. 25, 27</td>
<td>Relational Algebra. Basic SQL.</td>
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<td>Wk 10: Nov. 1, 3</td>
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<td>Wk 11: Nov. 8, 10</td>
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<td>Nov. 22</td>
<td>Catching up.</td>
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<td>Nov. 23 – 27</td>
<td>Thanksgiving Recess – ENJOY !</td>
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<td>Wk 13: Nov. 29, Dec. 1</td>
<td>Distributed Databases</td>
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<td>Wk 14: Dec. 6, 8</td>
<td>Project Presentations.</td>
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**Final Exam Tuesday, Dec. 20, 8:30 – 11:00 am**