CSC 4710
Introduction to Database Management Systems
Fall 2017

Course: CSC 4710 (3 Credits)
Time: T Th (4:00 pm– 5:15 pm)
Location: Tech. Edu. Center, Warren - 0150

Pre-requisite: CSC 2200 and CSC 2201

Instructor:
Name: Dr. Joseph D. Ramsey (ramsey@wayne.edu)
Office: Telephone: 313-999-2785 (cell)
Office hours: T, TH (3:00pm – 4:00pm) An hour before class

Course Description:
The goal of the course is to present a basic introduction to database management systems, with an emphasis on database design methodologies (ER diagrams), the relational model, and database query languages (relational algebra and SQL). Students will design and implement a web-based database system to deepen their understanding of the basic database concepts and theories. After taking this course, students will have the capability for developing various database systems such as enterprise information systems, e-commerce web sites, business and big data management systems.

Textbook:

Online supplementary source:
Course Contents:

A tentative series of lectures are given in the following which is subject to change. Lecture slides will be made available after lectures.

1. Class Introduction
2. Ch1: Overview of Databases and Transactions
3. Ch2: The Big Picture
4. Ch3: The Relational Data Model
5. Ch4: Conceptual Modeling (E-R Model/Unified Modeling Language)
6. Ch5: Relational Algebra and SQL
7. Ch6: Normalization Techniques
8. Ch7: Triggers and Active Databases
9. Ch10: The Basics of Query Processing
10. Ch11: An Overview of Query Optimization
11. Big Data (Introduction to the Apache Hadoop Framework)

Course Objectives:

Students will gain an initial ability to understand, analyze and solve problems in database systems. At the completion of this course, students should be able to do the following:

1. Understand the role of a database management system in an organization.
2. Understand basic database concepts, including the structure and operation of the relational data model.
3. Construct simple and moderately advanced database queries using Structured Query Language (SQL).
4. Understand and successfully apply logical database design principles, including E-R diagrams and database normalization.
5. Design and implement a small database project using Oracle and MySQL.
6. Understand the concept of a database transaction and related database facilities, including concurrency control, journaling, backup and recovery, and data object locking and related protocols.
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7. Describe and discuss selected advanced database topics, such as distributed database systems and the data warehouse.
8. Understand the role of the database administrator.

Homework, Project and Exams

The course will require the following work:

1. (20%) 4 Assignments.
2. (30%) One project, parts 1, 2 & 3. Both will be graded together as the final project.
3. (20%) Midterm Exam
4. (30%) Final Exam

All the above work is expected to be done individually except the projects which will be completed by a group of at most two students. No late assignments will be accepted, and failing grade will be possible to anyone turning in 50% or less of their homework assignment.

There will be a midterm and a final. The midterm will be based on the material covered to the point and date of the midterm. The exams will be closed - No books, notes or neighbors.

Feedback Policy

If you have any feedback, suggestion, concern, or complaint about any aspect of the class, you should either meet the instructor during his office hours or make an appointment with him to discuss them. You will not discuss them with other students in public either in class or outside the class, even you have a good intention for finding whether your concern is a common concern or not. It is the instructor’s job to find out how many students might have the same concern, not your job. You are only allowed to express your own feedback, concern, suggestion, or complaint, not those of others. The instructor has the final authority for all aspects of the class.
Grading Scale:

The grades for the course will be based upon the percentages given below

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<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
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<tbody>
<tr>
<td>A</td>
<td>90 - 100%</td>
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<tr>
<td>A-</td>
<td>87 - 89%</td>
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<td>B+</td>
<td>84 - 86%</td>
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<tr>
<td>B</td>
<td>80 - 83%</td>
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<tr>
<td>B-</td>
<td>77 - 79%</td>
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<td>C+</td>
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<td>C</td>
<td>70 - 73%</td>
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<tr>
<td>C-</td>
<td>67 - 69%</td>
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<td>D+</td>
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<td>D</td>
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<td>F</td>
<td>0 - 56%</td>
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Grading Policies:

- The lab section is associated with the lecture, but both are graded separately. If you fail the laboratory you need to repeat only the laboratory part.
- Late submission for assignment will be penalized per the following table:
  1. Next Day - 05 points
  2. 2-3 Days - 10 points
  3. 5+ Days - 40 points
- Grades will be posted on Blackboard.
- You are responsible to check your grades after each assignment, and report an inconsistent grade to the instructor no later than a week after the grade was assigned. After 2 weeks from posting it on Blackboard, the grade will become final.

Religious Holidays:

Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.
Student Disabilities Services:

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is in the Adamany Undergraduate Library. The SDS telephone number is 313-577-1851 or 313-202-4216 (Videophone use only). Once your accommodation is in place, someone can meet with you privately to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University. Students who are registered with Student Disability Services and who are eligible for alternate testing accommodations such as extended test time and/or a distraction-reduced environment should present the required test permit to the professor at least one week in advance of the exam. Federal law requires that a student registered with SDS is entitled to the reasonable accommodations specified in the student’s accommodation letter, which might include allowing the student to take the final exam on a day different than the rest of the class.

Academic Dishonesty - Plagiarism and Cheating:

Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct (http://www.doso.wayne.edu/student-conduct-services.html). Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.

Cheating:

Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic
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exercise. Examples include: (a) copying from another student’s test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material such as a "cheat sheet" during an exam.

Fabrication:

Intentional and unauthorized falsification of any information or citation. Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.

Plagiarism:

To take and use another’s words or ideas as one’s own. Examples include: (a) failure to use appropriate referencing when using the words or ideas of other persons; (b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words to make the thoughts of another appear as your own. Other forms of academic misbehavior include, but are not limited to: (a) unauthorized use of resources, or any attempt to limit another student’s access to educational resources, or any attempt to alter equipment so as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.

Course Drops and Withdrawals:

There will be no incomplete grade given for this course.
In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Pipeline. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at:
Student services:

The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit www.success.wayne.edu for schedules and information on study skills workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses). The Writing Center is located on the 2nd floor of the Undergraduate Library and provides individual tutoring consultations free of charge. Visit http://clasweb.clas.wayne.edu/writing to obtain information on tutors, appointments, and the type of help they can provide.

Class recordings:

Students need prior written permission from the instructor before recording any portion of this class. If permission is granted, the audio and/or video recording is to be used only for the student’s personal instructional use. Such recordings are not intended for a wider public audience, such as postings to the internet or sharing with others. Students registered with Student Disabilities Services (SDS) who wish to record class materials must present their specific accommodation to the instructor, who will subsequently comply with the request unless there is some specific reason why s/he cannot, such as discussion of confidential or protected information.

Other issues:

Foods and drinks are not allowed during the lab hours. Cell phones and other two-way communication devices: Students are expected to turn off their devices or turn them to the silent mode when they come to the lecture or to the lab. If a device is used in any way in the lab, you will receive a verbal warning first and then you will be asked to leave immediately.