CPSC5340-48F Database Design
Fall 2017

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Office Hours:

Wed/Fri 10:00 – 11:00 or
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(Or by appointment)

Course Subject Outline: This is an introductory course on database design. It covers the architecture of database systems, logical and physical database system organization; relational models; entity-relationship models; secondary storage; fundamental knowledge required to design and manipulation database; security issues; and design issues emphasizing the normal forms and decomposition theories. Students are expected to learn the design and implementation of database application systems through a small course project.

Student Learning Outcomes: The student who successfully completes the course will be able to:

1. Design and implementation of a working database system for a real-world project.
2. Write data manipulation statements in SQL to query and maintain a database.
3. Use mathematical and theoretical underpinnings of database systems.
4. Determine & handle the major operational issues associated with database management systems, such as issues related to database design and queries.

Prerequisites:

- COSC2336 (Data Structures & Algorithms) or equivalent.
- COSC4301 (Java Programming for Graduate Students) or equivalent.

Textbook (Required):

Fundamentals of Database Systems, 7th Edition, by *Ramez Elmasri and Shamkant B. Navathe*, Addison-Wesley, 2017, ISBN-13: 978-0133970777

References (Optional):

Database Systems Using Oracle, 2nd Edition, by *Nilesh Shah*, Prentice Hall, 2004, ISBN-13: 978-0131018570

Databases Illuminated, 2nd Edition, by *Catherine Ricardo*. Jones & Bartlett 2012, ISBN:978-14496-0600-8.

Assignments:

- There will be a number of homework and one Team project (implemented in several phases).
- Homework assignments and **Team project** must be submitted on time, the date that they are due. Partial marking will be allocated to incomplete assignments, and there will be a reduction of grade for late (less than 2 days) submissions with the following penalties: 10% for 1 hour to 24 hours late, and 20% for 24 hours to 48 hours late. No assignment will be accepted 48 hours after the due time.

Exams:

- There will be two exams. The exams are comprehensive in nature. This is because much of the materials taught at the end of the semester depend heavily on the materials taught at the beginning. However, each exam will focus more on the materials covered since the last exam. This does not mean that there will be no questions focused on "old" materials.
- No makeup exams are given. A student missing an exam due to an excused absence may have the grading weights adjusted, placing more weight in other categories. The second exam can not be replaced by the first

exam and absence of student in the second exam without proper documentation results in failing the course. Whether an absence is "excused" or not is determined by the instructor. Documentation of a valid excuse is required.

- The exams will be conducted on campus or at a local testing center in your area or proctored testing websites all approved by Lamar University Center for Distance Education.

Grads:

- The numerical grades will be based on the following:
  Homework & Lab: 15%
  Project Demo & Report: 10%
  Active Course Participation: 10%
  Exam: 65% (Exam I: 30%, Exam II: 35%)
- The letter grade will be determined by the numerical grades as follows:

CPSC5340	Grade	Note
90%-100%	A	Excellent
80-89.9%	B	Good
70%-79.9%	C	Satisfactory
60%-69.9%	D	Passing
0-59.9%	F	Failure

Students wishing to withdraw from the course may do so up to the withdrawal deadline (this is a student initiated action and must be done by the student). All students not withdrawing by this deadline are assumed to be enrolled in this course through to completion. If a student is failing or wishes to drop for another reason it is the student's responsibility to do so by the deadline.

Academic Honesty

Students are specially warned against all forms of cheating and plagiarism, as described in the Texas State University System Board of Regents handbook, the Lamar University Student Handbook and the Computer Science Departmental Policy on Academic Honesty. The university expects all students to engage in all academic pursuits in a manner that is above reproach.

Plagiarism

The appropriation of another's work or idea and the unacknowledged incorporation of that work or idea into one's own work offered for credit.

Collusion

Collusion is defined as "the unauthorized collaboration with another person in preparing work offered for credit".

"Cheating" includes:

1. Copying from another student's paper, report, computer files, data listings, and/or programs.
2. Using (during an exam), materials not authorized by the faculty giving the exam.
3. Collaborating, without authorization, with another person during an examination or in preparing academic work.
4. Knowingly, and without authorization, using, buying, selling, stealing, transporting, soliciting, copying, or possessing in whole or part, the contents of an un-administered test. Substituting for another student; permitting any other person; or otherwise assisting any other person to substitute for oneself or for another student in the taking of an examination or the preparation of academic work to be submitted for academic credit.
5. Bribing another person to obtain an un-administered exam or information about an un-administered exam.

6. Purchasing, or otherwise acquiring and submitting as one's own work any research paper or other writing assignment prepared by an individual or firm. This section does not apply to the typing of the rough and/or final versions of an assignment by a professional typist.
7. Any copying from library or other resources, including the Internet/WWW, without the instructor's prior knowledge and approval, or without giving (clearly and conspicuously) the proper credit reference.

While studying together is encouraged, all work in this course must be your own and violation of academic integrity is not acceptable. Therefore, anyone caught cheating or plagiarizing on a homework assignment (including copying of whole program or portions of a program) or quiz or exam will get a **zero** on that homework or quiz or exam. Anyone caught cheating or plagiarizing on the final exam or the project will get an **F** in the course. Also, anyone caught cheating or plagiarizing on more than one occasion will get an **F** in the course. The same applies to those who allow their materials to be copied.

Course Attendance Policy

- This is an **online course** and it is essential that students login to Blackboard regularly to check course announcement and participate in assigned learning activities and finish all the required course work (assignments) based on the course schedule available on blackboard in time. Poor course participation will ultimately be reflected in the course grade. Therefore, an "A" student must read and submit assignments for all classes in time and actively engage with the course.
- It is the student's responsibility to make sure that she/he is officially enrolled in this course. If at any point, you decide to drop this course, it is your responsibility to officially drop the course. Any student who stops actively participating in the course (e.g. does not login to check the course materials on Blackboard regularly, does not submit on time assigned homework, etc.,) and does not officially drop the course will be given an "F" as the semester grade.

University Drop/Withdrawal Policy:

If at any point, a student decides to drop the course, it is the student's responsibility to officially drop the course. The drop dates enforced by the University can be found from the University Academic Calendar "**http://www.lamar.edu/academics/index.html**", or "**http://events.lamar.edu/academic-calendar-listing.html**". Any student who stops actively participating in the course (e.g. not checking course on Blackboard, submitting homework, etc.,) and does not officially drop the course will be given an "F" as the semester grade. The drop dates enforced by the university can be found from the university Academic Calendar "http://events.lamar.edu/academic-calendar-listing.html".

Online Course Support & Blackboard:

- The course materials are being offered on-line via Blackboard. Students may access Blackboard either from http://luonline.blackboard.com, or from the Lamar website at http://www.lamar.edu . Regardless of how you enter:
  - Your "*username"* is the same as your myLamar username (see http://my.lamar.edu for details)
  - Your *password* is your student id number.

  *View the Blackboard overview, located on the homepage, for more information about this system. The Center for Distance Education will provide technical support for the course. There is 24 hour access for help through voice mail through this Center. The Center can assist you with any technical problems that you may develop; the phone number is (409) 880-7849.
- Please use these resources to assist you with any technical problems that may develop.

Special Accommodations:

It is the policy of Lamar University to accommodate students with disabilities pursuant to federal and state law, and the University's commitment to equal educational opportunities. Any student with a disability, who needs accommodation, should inform the instructor at the beginning of the course.

Students with Disabilities:

It is the policy of Lamar University to accommodate students with disabilities, pursuant to federal and state law and to the University's commitment to equal educational opportunities. Students with a documented disability should contact the Director of the Office of Services for Students with Disabilities (SFSWD) which is located in 105 Communication Building. Students may write to P.O. Box 10087, Beaumont, Texas 77710, call 409.880.8347, fax 409.880.2225 or e-mail SFSWD@lamar.edu. The Director will arrange to meet with the student to determine reasonable academic adjustments and/or accommodations. Additional information is available at http://dept.lamar.edu/sfswd.

Email and Discussions:

- Adhere to the same standards of behavior online that you follow in real life when writing emails or posting on the discussion board.

Library Services:

Library services can be accessed at http://library.lamar.edu/

Emergency Procedures:

Many types of emergencies can occur on campus; instructions for severe weather or violence/active shooter, fire, or chemical release can be found at: http://www.lamar.edu/about-lu/administration/risk-management/index.html. Following are procedures for the first two:

Severe Weather:

- Follow the directions of the instructor or emergency personnel.
- Seek shelter in an interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside.
- If you are in a multi-story building, and you cannot get to the lowest floor, pick a hallway in the center of the building.
- Stay in the center of the room, away from exterior walls, windows, and doors.

Violence/Active Shooter (CADD):

- **CALL** - 8-3-1-1 from a campus phone (880-8311 from a cell phone). Note: Calling 9-1-1 from either a campus phone or cell phone will contact Beaumont City Police Dispatch rather than University Police.
- **AVOID**- If possible, self-evacuate to a safe area outside the building. Follow directions of police officers.
- **DENY**- Barricade the door with desks, chairs, bookcases or any other items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it is safe.
- **DEFEND**- Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.

Topics Outline:

- Introduction to Data base Systems
- Indexing Structures and Disk Storage
- Database Concepts and Architecture
- Relational Data Model
- Entity Relationship Model
- Enhanced Entity Relational Model
- Introduction to Structural Query languages
- Advance Structural Query Languages
- Functional Dependencies
- Normal Forms

Last Modified: July, 2017