5330.002: Database Systems I
Fall 2013

Instructor: Dimitrios Zikos

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Office Hours: every Monday and Wednesday 11.00am to 01.00pm

Section Information: 5330.002

Time and Place of Class Meetings: Geoscience (GS) 109, Tuesday-Thursday 11:00am - 12:20pm

Description of Course Content: This is a first course in database systems. The prerequisites are knowledge of programming and data structures. The course will provide students a good understanding of the database theory, the relational model and its characteristics. Relational algebra, relational calculus principles and the SQL database language and some programming techniques will also be part of the course content. The conceptual database design using the Entity-Relationship model and Extended Entity-Relationship modeling, and mapping to relational model and the file and index structures and search methods for database storage will also be covered in class. Finally the course content covers the relational database theory the functional dependencies, normalization and database security.

Student Learning Outcomes: Students will be able to understand the database theory, the relational model and its characteristics. Relational algebra, relational calculus principles and the SQL database language and some programming techniques will also help students build their fundamental knowledge in databases.

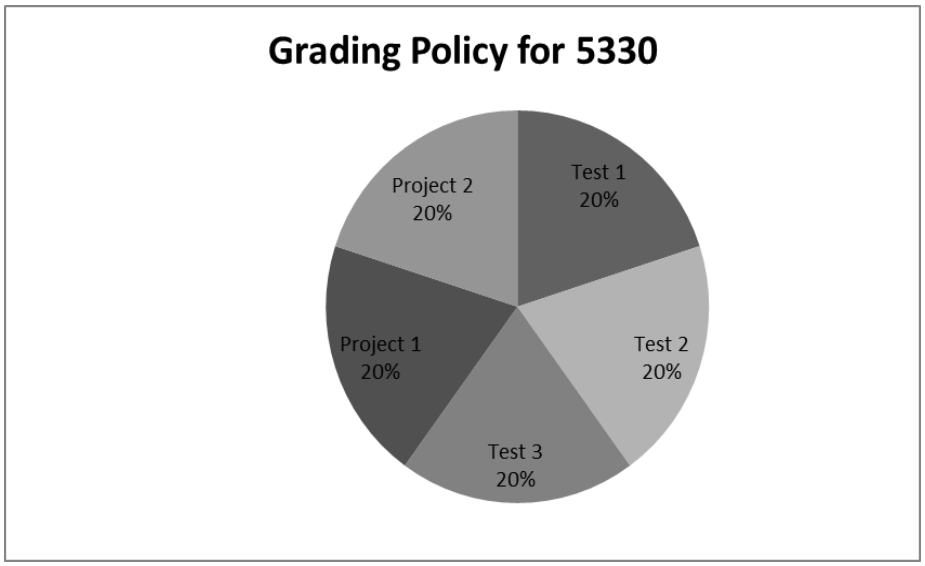
Required Textbooks and Other Course Materials: Fundamentals of Database Systems, Sixth Edition, by Elmasri/Navathe, published by Addison-Wesley, 2012.

Lecture slides will be uploaded on http://ranger.uta.edu/~zikos/5330/5330.htm weekly.

Descriptions of major assignments and examinations: There will be three tests during the semester, each one approximately every 4-5 weeks. The schedule for the tests will be posted on the course Web site (http://ranger.uta.edu/~zikos/5330/index.html)
There is no final exam. In addition, two projects will be given. The final grade will be calculated based on the three tests (60% of grade) and projects (40% of grade). The grade cutoffs are generally as follows: 90-100 A, 75-89 B, 60-74 C.
Projects will require JAVA programming using JDBC and Oracle or MySQL, or C/C++/C# programming with ODBC/Oracle or MySQL. References to the documentation will be provided on the course Web site.

Attendance: Each student is expected to attend at least 50% of the lectures. Students, who fail to attend the above mentioned percentage of classes, will be dropped. It is important to stress the fact that missing many lectures will make it difficult for students to understand important concepts of the course and the follow-up of new knowledge will become problematic.

Grading: The final grade will be calculated based on the three tests (60% of grade) and projects (40% of grade). The grade cutoffs are generally as follows: 90-100 A, 75-89 B, 60-74 C.



Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 3 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity: Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System ***Regents' Rule*** 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

Course Schedule.

Parts or all of items 8 through 10 (below) may be omitted if time does not permit to cover all the topics.

1. Chapters 1, 2: Introduction to database concepts and architecture.

2. Chapter 3: The relational data model.

3. Chapters 4, 5: The SQL database language.

4. Chapter 6 (Sections 6.1-6.5): The relational algebra

5. Chapters 7, 8, 9: Conceptual database design using the Entity-Relationship model and Extended Entity-Relationship modeling, and mapping to relational model.

6. Chapters 13, 14: Database programming techniques.

7. Chapters 17, 18: File and index structures and search methods for database storage.

8. Chapters 15, 16 (Sections 16.1-16.4): Introduction to relational database theory, functional dependencies, and normalization.

9. Sections 24.1, 24.2: Introduction to database security.

10. Sections 6.6, 6.7: Relational calculus.

11. Sections 19.1, 21.1: Overview of some of the material covered in the second database course (CSE5331).

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –Dimitrios Zikos.

Useful Links

Library Home Page..... http://www.uta.edu/library
Subject Guides ..... http://libguides.uta.edu
Subject Librarians..... http://www.uta.edu/library/help/subject-librarians.php
Database List..... http://www.uta.edu/library/databases/index.php
Course Reserves..... http://pulse.uta.edu/vwebv/enterCourseReserve.do
Library Catalog ..... http://discover.uta.edu/
E-Journals..... http://liblink.uta.edu/UTAlink/az
Library Tutorials ..... http://www.uta.edu/library/help/tutorials.php
Connecting from Off- Campus..... http://libguides.uta.edu/offcampus
Ask A Librarian ..... http://ask.uta.edu

The following URL houses a page where we have gathered many commonly used resources needed by students in online courses: http://www.uta.edu/library/services/distance.php Finally, the subject librarian for your area can work with you to build a customized course page to support your class if you wish. For examples, visit http://libguides.uta.edu/os and http://libguides.uta.edu/pols2311fm . If you have any questions, please feel free to contact the Coordinator for Information Services, Suzanne Beckett, at sbeckett@uta.edu or at 817.272.0923.