

5330.004: Database Systems I Fall 2015

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Office Hours: Monday-Wednesday 1.00pm-2.30pm

Section Information: 5330.004

Time and Place of Class Meetings: Monday-Wednesday 11:00AM - 12:20AM, NH 202

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, 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 the main principles of database security. Successful completion of this course will provide students a solid theoretical foundation of computer science and enable the student analyze many practical problems.

Student Learning Outcomes: Students will be able to understand the database theory, the relational model and its characteristics. Relational algebra 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, Seventh Edition, by Elmasri/Navathe, published by Pearson Education, 2015.
Lecture slides will be uploaded on Blackboard weekly.

Descriptions of major assignments and examinations: There will be two tests during the semester. The schedule for the tests will be posted on Blackboard.
There is no final exam. In addition, two projects will be given. The final grade will be calculated based on the two tests (60% of grade) and projects (40% of grade). The grade cutoffs are generally as follows: 86-100 A, 72-85 B, 60-71 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 Blackboard.

Attendance: As an instructor of this course, I have decided that attendance at class meetings is not required but strongly encouraged. It is important to stress 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 **two tests (60% of grade)** and **projects (40% of grade)**. The grade cutoffs are generally as follows: 86-100 A, 72-85 B, 60-71 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.

Students need to carefully review the following important considerations:

- Students who are, for a health related reason, unable to take a test, should inform the instructor BEFORE the exam. Requests for **repeating** an exam will not be considered, for any reason.
- The reported cut-off points will be announced to students via the Blackboard platform before the official final grading. The thresholds are FIRM and will not be negotiated.

- Students will be able to review their graded papers after the exams. If any student believes that there has been a mistake in his/her grade, the process to be followed is this: The student **sends an email** specifying his/her concern to the instructor. Then, the instructor evaluates the student request and replies to the student with either a 'no grade change' or a 'grade amendment' decision and explanation.
- ANY different ways for students to individually 'bargain' extra marks with the TA and/or the Instructor, are not allowed and such requests will be ignored.
- No individual extra coursework will be given to any student for extra credit, and any such request will not be considered by the instructor of the course.

Make up exams: make up exams will be allowed only in the case a student missed an exam for health/family reasons. In any case, no make-up exams can be arranged on top of the two official tests, to improve a student's grade. Students who are, for a health related reason, unable to take a test, should inform the instructor BEFORE the exam. Requests for **repeating** an exam will not be considered, for any reason.

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 five (5) 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://www.uta.edu/aao/fao/>).

Disability Accommodations: UT 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)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. 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 disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD)**. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364.
Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671.

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.

Title IX: The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos. For information regarding Title IX, visit www.uta.edu/titleIX.

Academic Integrity: Students enrolled all UT Arlington courses 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.

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 of this building, as indicated by the instructor in the case of such an event. 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.

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 <http://www.uta.edu/universitycollege/resources/index.php>

The English Writing Center (411LIBR): Hours are 9 am to 8 pm Mondays-Thursdays, 9 am to 3 pm Fridays and Noon to 5 pm Saturdays and Sundays. Walk In Quick Hits sessions during all open hours Mon-Thurs. Register and make appointments online at <http://uta.mywconline.com>. Classroom Visits, Workshops, and advanced services for graduate students and faculty are also available. Please see www.uta.edu/owl for detailed information.

Course Schedule

Sept. 2- Information about the course and review of syllabus
Sept. 7- Databases and Database Users
Sept. 9- Database concepts and architecture
Sept. 14- The relational data model (lecture 1)
Sept. 16- The relational data model (lecture 2)
Sept. 21- The SQL Database Language (lecture 1)
Sept. 23- The SQL Database Language (lecture 2)
Sept. 28- Advanced SQL Commands
Sept. 30- in-class practice with SQL
Oct. 5- Relational Algebra (lecture 1)
Oct. 7- Relational Algebra (lecture 2)
Oct. 12- Midterm Exam
Oct. 14- Conceptual Database Design-the ERD Model
Oct. 19- Extended ERD
Oct. 21- Conceptual Design-in class example
Oct. 26- Mapping of ERD to relational model
Oct. 28- Relational Database theory and functional dependencies
Nov. 2- Normalization
Nov. 4- Normalization- in-class practice
Nov. 9- Introduction to Database Security (lecture 1)
Nov. 11- Introduction to Database Security (lecture 2)
Nov. 16- Discussion about Project II
Nov. 18- Database programming techniques
Nov. 23- Fundamentals of File Structures
Nov. 25- Indexing
Nov. 30- Overview and discussion about exams
Dec. 2- Project II Presentation
Dec. 7- Project II Presentation (cont.)
Dec. 9- Second Exam

Lecture meetings for overview and exam preparation will also be scheduled.

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.

<p>Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911. Non-emergency number 817-272-3381.</p>
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Useful Links

Faculty members should feel free to incorporate any of the following information into your course syllabus or other course materials.

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
Course Reserves.....	http://pulse.uta.edu/vwebv/enterCourseReserve.do
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 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> .