

COMP SCI 5300

Database Systems

Fall 2018 Syllabus

- Section A (76577): MWF 2:00p-2:50p, Fulton 107
- Distance A (77223): MWF 2:00p-2:50p, Online

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Office: Computer Science Building 324

Office Hours: Tu/Th 10-11AM, and also by appointment

Course Outcomes

This course introduces the advanced database concepts of normalization and functional dependencies, transaction models, concurrency and locking, timestamping, serializability, recovery techniques, and query planning and optimization. Students will participate in programming projects.

Intended Course Audience/Prerequisites

The intended audience for this course is Computer Science students who have completed CS 1200 (Discrete Mathematics) and CS 2300 (or an equivalent introductory database course), with a C or better.

Course Materials

Course Text: Fundamentals of Database Systems, 7th Edition (Elmasri and Navathe – Pearson)
ISBN: 0133970779

Canvas: The Canvas “Learning Management System” (LMS) will be used to provide information including administration of homework and grades. This can be accessed through <http://canvas.mst.edu> and additional help can be sought from the IT Helpdesk (<http://it.mst.edu/help-desk/>) or Ed Tech (<https://edtech.mst.edu>).

The tentative topic outline is:

3-4 Weeks

Intro

Review & Basics

Relational Models/Diagrams/Algebra (Ch 5, 8, (9))

SQL Data definition, manipulation, Queries, Views (Ch 6-7)

Normalization & Design Decisions (Ch 14-15)

1-2 Weeks

Query Processing (Ch 18)

Query Optimization (Ch 19)

2-3 Weeks
Transaction Processing (Ch 20)
Concurrency Controls (Ch 21)

1-2 Weeks
Database Recovery (Ch 22)

1-2 Weeks
Security (Ch 30)

2-3 Weeks
Additional Database Paradigms
 Distributed Databases (Ch 23)
 BIG Data (HADOOP) (Ch 25)
 Temporal/Spatial/NOSQL (Ch 26, 24)

Grading

20% - Homework
40% - Project
40% - Exams

Grades are based on the following scale:

90-100 A
80-89 B
70-79 C
60-69 D

Assignments

Homework will consist of problems representative of the material you can expect on the exams. The project will be iterative in nature, unfolding throughout the semester, designed to ground the concepts in a practical DBMS setting.

Course Requirements/Policies

Your learning of the material **is required** and attendance at, and participation in, class show your commitment to learning. If your attendance and grades appear significantly lacking, you will be administratively dropped. Conversely, if you make a strong effort toward attending and participating in class, that may be considered in assessment of final grades.

Late Work

Homework can be submitted for partial credit if it's submitted before that assignment is returned. All deadlines will be entered within Canvas for the given assignments.

Campus Policies

Disability Support Services: <http://dss.mst.edu> Any student inquiring about academic accommodations because of a disability should be contact Disability Support Services so that appropriate and reasonable accommodative services can be determined and recommended. Disability Support Services is located in 204 Norwood Hall. Their phone number is 341-4211 and their email is dss@mst.edu. Instructors may consider including the following statement on their course syllabus as a means of informing students about the services offered:

"If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Services staff send a letter to me verifying your disability and specifying the accommodation you will need before I can arrange your accommodation."

Academic Dishonesty: <http://registrar.mst.edu/academicregs/index.html> Page 30 of the Student Academic Regulations handbook describes the student standard of conduct relative to the System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism or sabotage. Additional guidance for faculty, including a description of the process for dealing with issues related to academic dishonesty, is available on-line at <http://ugs.mst.edu> . In particular, you must work alone on all tests, exams, and individual programming assignments.

If you have any questions about the Campus Policies information listed above, please contact the Office of Undergraduate Studies at 573-341-7276.

Title IX:

Missouri University of Science and Technology is committed to the safety and well-being of all members of its community. US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Furthermore, in accordance with Title IX guidelines from the US Office of Civil Rights, Missouri S&T requires that all faculty and staff members report, to the Missouri S&T Title IX Coordinator, any notice of sexual harassment, abuse, and/or violence (including personal relational abuse, relational/domestic violence, and stalking) disclosed through communication including but not limited to direct conversation, email, social media, classroom papers and homework exercises. Missouri S&T's Title IX Coordinator is Vice Chancellor Shenethia Manuel. Contact her directly (manuel@mst.edu; (573) 341-4920; 113 Centennial Hall) to report Title IX violations. To learn more about Title IX resources and reporting options (confidential and non-confidential) available to Missouri S&T students, staff, and faculty, please visit <http://titleix.mst.edu>.