COURSE NAME: DATABASE SYSTEMS

COURSE DEVELOPER: Anxiao Jiang, PhD
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Course Content:
Relational model of data, design theory for relational databases, high-level database models, algebraic and logical query languages, the database language SQL, constraints and triggers, views and indexes, SQL in server environment, XML and semi-structured data, secondary storage management, index structures, coping with system failures.

Course Learning Outcome:
The objective of this course is to study the principles and methods that enable database systems. Students are expected to obtain a comprehensive understanding of database modeling, relational algebra, query languages, transactions, data storage and representation, index structures, XML and semi-structured data, and high-level language interface with database systems.

COURSE OVERVIEW:
Modern databases enable the usage and manipulate large amounts of data. This course will help students grasp the fundamental concepts of databases, and learn the design and application of database systems. The course introduces how to model data in simple and yet powerful ways, how to design a database and optimize its structure, how to achieve both high performance and high reliability, and the mathematical theory that underlie these objectives.

Topics to be covered
• Week 1……..Overview, E/R Model, Relational Model, Functional Dependencies, Normalization
• Week 2……..Relational Algebra, SQL
• Week 3……..Constraints, Combining SQL and Conventional Programming Languages
• Week 4……..Data Storage, Data Representation, Index Structures
• Week 5……..Semi-structured Data
• Week 6……..Failure Recovery
**Evaluation and Understanding**

1 Midterm Exam  
1 Final Exam  
9-11 Homework assignments  
Reading Assignments

Grading: 86 to 100 for A, 70 to 85 for B, 60 to 69 for C, 50 to 59 for D, 0 to 49 for F.

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“An Aggie does not lie, cheat or steal, or to tolerate those who do.” See  
http://aggiehonor.tamu.edu

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