

CS432/CS532 Database Systems Syllabus

Fall 2012

Department of Computer Science
T.J. Watson School of Engineering
State University of New York at Binghamton

Class Time and Place

- Time: 4:25PM - 5:50 PM Tuesday & Thursday
- Classroom: FA 212

Instructor

- Name: KD Kang
- Office: EB T16
- Office Hours: 1:30PM - 3:30PM Friday
- Phone: (607) 777-4368
- Email: kang@binghamton.edu
- Web: <http://www.cs.binghamton.edu/~kang>

TA

- Name: Guangyu (Gary) Liu
- Email: gliu10@binghamton.edu
- Office Hours: 6:30 - 7:30PM Monday & Wednesday in EB T7

Course Description

Database systems are a backbone for information systems. Many information systems such as financial/banking systems, web servers, and e-commerce systems rely on database systems. This course will cover fundamental topics in database systems: (1) association between data elements and data models, (2) entity-relationship, relational, and object-relational database design techniques, (3) formal and commercial query languages, and (4) introduction to query processing, transaction management, and concurrency control.

Prerequisite

CS333 or equivalent

Textbook

No textbook is required but the following books will be used as the primary reference books.

- Fundamentals of Database Systems by R. Elmasri, and S. Navathe, 5th edition (Theory)
- Database Systems: An Application-Oriented Approach, Introductory Version, M. Kifer, A. Bernstein, P. M. Lewis, 2nd edition (Theory)
- Oracle10g Programming - A Primer by R. Sunderraman (SQL Programming in Oracle)
- Free Database e-Book from IBM
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The instruction will be primarily based on the CS532 Lecture Notes that will be uploaded to Blackboard.

Planned topics

The topics are arranged according to the lecture notes, not according to the textbook.

- Chapter 1: Introduction
- Chapter 2: ER Model
- Chapter 3: Relational Model
- Chapter 4: Transform ER Schema to Relational Schema
- Chapter 5: Table Normalization
- Chapter 6: Relational Algebra
- Chapter 7: SQL
- Chapter 8: PL/SQL
- Chapter 9: ORDB Features
- Chapter 10: Index Structures and Index Creation
- Chapter 11: Query Processing
- Chapter 12: Transaction Management
- Chapter 13: Concurrency Control

Projects

Two projects will be assigned during the semester. Some knowledge of Java programming language is required for the second project.

- Project 1: You will write SQL queries using Oracle's SQL*Plus.
- Project 2: You will write an application program using PL/SQL and JDBC.
- Project 3 on stream data management if time permits.

Grading policy

- Homework: 25%
- Midterm: 20% (in the 8th week)
- Projects: 30%
- Final: 25%
- You can smell A if your total is 90 or higher. (absolute grading with no rounding)
- A late homework or project will be penalized 10% per day (including weekends and holidays) and no assignment will be accepted, if it is more than 3 days late.
- If regrading is requested, the entire homework, project, or exam will be regraded. As a result, it is possible for your grade to decrease, increase, or stay the same. Even if the grade decreases, it is final. Further, no regrading request will be accepted after two weeks since the grade is assigned.

Academic Honesty

Academic honesty and integrity are expected of every student. Dishonesty and cheating in all academic work related to this course, when discovered, will be punished. Specifically, you will get zero for the corresponding homework, assignment, or exam. Further, you have to fill in and sign the academic honesty form, which will be submitted to Watson School. Please read the [Watson School Academic Honesty Code](#).

Attendance and Other Classroom Policies

- Attendance is mandatory. The instructor will take attendance at random. One point (from 100 that will be used for letter grade assignment) will be deducted per absence.
- No cell phone usage is allowed except for emergency.
- No usage of a laptop or tablet (e.g., an iPad) is allowed.

Additional Readings

The following are some of the leading database journals and conferences:

- ACM Transactions on Database Systems (ACM TODS)
- IEEE Transactions on Knowledge and Data Engineering (IEEE TKDE)
- International Conference on Very Large Data Bases (VLDB)
- International Conference on the Management of Data (ACM SIGMOD)
- IEEE International Conference on Data Engineering (ICDE)

This course is also offered under the articulation agreement between Binghamton University and SUNYIT. It is available to qualified students at Binghamton University via the distance learning system Enginet.