Nanchang University
CS334: Database Management Systems
(Last Updated in Jan. 2024)

Credit: 4

Contact Hours

This course is composed of 24 lecture sessions, 3 tutorial sessions and 9 office contact hours. Each lecture session takes 2 contact hours in length; each tutorial session takes 3 contact hours in length;There will be a Q-A review session(3 contact hours) and Final Exam (3 contact hours)at the end of this term. This course has 72 contact hours in total.

Course Description

The primary goal of this class is to learn principles and practices of database management and database design. Topics will include entity-relationship model, relational model, SQL query language, relational database design, application design and development, storage management, query processing and optimization.

After completion of this course, students will

1. Familiarize themselves with the concepts and theories learned in this course.
2. Have a good understanding of relational model and how to transform Entity-Relationship designs to relations.
3. Construct data retrieval procedures using the Data Manipulation Language.
4. Write SQL commands to create databases, create tables, insert/update/delete/retrieve rows in a common database management system.
5. Apply theoretical knowledge and practical skills to develop database applications using DBMS and SQL language.
6. Work in group settings to design and implement database projects.

Note: This Syllabus is subject to change based on the needs of the class.

Required Textbook

Textbook:
Database System Concepts by Abraham Silberschatz, Henry F. Korth and S. Sudarshan. 7th edition. McGraw Hill.
Fundamentals of Database Systems by Ramez Elmasri and Shamkant B. Navathe. 7th edition. Pearson.

Grading

- Participation   5%
- Assignment   10%
- Project   15%
- Midterm Exam   30%
- Final Exam   40%

A+ 96-100	A 90-95	A- 85-89
B+ 82-84	B 78-81	B- 75-77
C+ 71-74	C 66-70	C- 62-65
D 60-61	F < 60	

Course Schedule

The course has 24 class sessions in total. All sessions are 2 contact hours in length. At the end of this term, there will be a Q-A review session(3 contact hours) and Final Exam (3 contact hours).
Note: the course outline and required readings are subject to change.

Class 1:
Introduction to Database System Management

Class 2:
Database System Concepts and Architecture

Class 3:
Entity–Relationship (ER) Model

Class 4:
The Enhanced Entity–Relationship (EER) Model
Assignment 1

Class 5:
Relational Data Model

Class 6:
Introduction to SQL

Class 7:
Types of SQL Commands

Class 8:
More Complex SQL Retrieval Queries
Assignment 2

Class 9:
Database Design Using the E-R Model

Class 10:
Relational Database Design

Class 11:
Midterm

Class 12:
Complex Data Types

Class 13:
Application Development

Class 14:
Physical Storage Systems

Class 15:
Data Storage Structures

Class 16:
Indexing Structures
Assignment 3

Class 17:
Query Processing

Class 18:
Query Optimization

Class 19:
Distributed Database Concepts

Class 20:
NOSQL Databases
Assignment 4

Class 21:
Document-Based NOSQL Systems

Class 22:
NOSQL Graph Databases and Neo4j

Class 23:
Project Presentation

Class 24:
Review for Final

Attending Policy

Regular and prompt attendance is required. Under ordinary circumstances, you may miss two times without penalty. Each absence over this number will lower your course grade by a third of a letter and missing more than five classes may lead to a failing grade in the course. Arriving late and/or leaving before the end of the class period are equivalent to absences.

Policy on "Late Withdrawals"

In accordance with university policy, appeals for late withdrawal will be approved ONLY in case of medical emergency and similar crises.

Academic Honesty

Nanchang University expects all students to do their own work. Instructors will fail assignments that show evidence of plagiarism or other forms of cheating, and will also report the student's name to the University administration. A student reported to the University for cheating is placed on disciplinary probation; a student reported twice is suspended or expelled.

General Expectations:

Students are expected to:
— Attend all classes and be responsible for all materials covered in class and otherwise assigned;
— Complete the day's required reading and assignments before class;
— Review the previous day's notes before class and make notes about questions you have about the previous class or the day's reading;
— Participate in class discussions and complete required written work on time;
— Refrain from texting, phoning or engaging in computer activities unrelated to class during the class period;
— While class participation is welcome, even required, you are expected to refrain from private conversations during the class period.

Special Needs or Assistance

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.