COP 3540-002
Introduction to Database Structures
WF 9:30 – 10:50
3 credits

Fall, 2024
Prof. Chang-Hwan Lee
Office: Engineering East 521, Boca Raton
Office hours: Tu/Th 12:20-1:50
Classroom: Engineering Each 106 (Boca)
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Course Description

An introduction to the design, implementation, and use of relational database systems. Topics include DBMS design, relational model, SQL language, indexing techniques, etc. Programming projects will be done in SQL in the Mysql database.

Instructional Method

This class is designated as "Live stream from Boca Raton Campus w/ Recorded/Zoom Lecture".

*** Students in Jupiter and Davie can attend Boca classes, but are asked to take mid/final exams in their associated campuses.

Prerequisites/Corequisites

None

Course Objectives/Student Learning Outcomes

In-depth understanding of the theory, operation, and application of modern database systems. Students will use Mysql and MongoDB database system to design and develop database applications.

Homework/Assignments

1. Term project: Two people work as a team and implement a small part of the company's work as a DB system. Your team is to submit the following reports
    1) Report 1: ER Diagram of your project
    2) Report 2: Construct your DB using Mysql and run multiple SQLs
    3) Report 3: Implement the company work using Python, MySql and your DB.
2. Nosql/Mongodb homework

Course Evaluation Method

Midterm Exam	25%
Final Exam	25%
Homework/Project	50%

Course Grading Scale

Each homework, midterm, and final will be graded on a standard scale:

90-100 for "A" and "A-"
80-89 for "B+", "B", or "B-"
70-79 for "C+", "C", or "C-"
60-69 for "D+", "D", or "D-"
50 and below: "F"

Policy on Makeup Tests, Late Work, and Incompletes (if applicable)

Assignments are to be submitted by 11:59PM on the due date. There are 15% penalties per day for late submissions. In no case will an assignment be accepted after the graded papers for that assignment have been returned to the students. However, appropriate accommodations will be made for students having a valid medical excuse for being unable to work on an assignment during its period. Unless there is solid evidence of medical or otherwise serious emergency, incomplete grades will not be given.

Special Course Requirements (if applicable)

None

Classroom Etiquette Policy (if applicable)

University policy requires that to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in-class sessions

Policy on the Recording of Lectures (optional)

Students enrolled in this course may record video or audio of class lectures for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.

Attendance Policy

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Counseling and Psychological Services (CAPS) Center
Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

Disability Policy
In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Code of Academic Integrity
Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high-quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001.

If your college has particular policies relating to cheating and plagiarism, state so here or provide a link to the full policy—but be sure the college policy does not conflict with the University Regulation.

Textbook/Readings (recommended, not mandatory)

Avi Silberschatz, Henry F. Korth, and S. Sudarshan, Database System Concepts, 7th Edition, 2019

Supplementary/Recommended Readings

Database Management Systems, Third Edition. Raghu Ramakrishnan and Johannes Gehrke. McGraw-Hill Higher Education, 2002

Course Topical Outline

1) Introduction
2) Relational Model
3) ER
4) SQL-basic
5) SQL-intermediate
6) SQL-advanced
7) Normalization
8) Nosql/MongoDB
9) Indexing
10) Query processing/optimization
11) Transaction management
12) Concurrency control