California State University, Channel Islands
Computer Science
Fall/2021
COMP 520, Advanced Database Systems

Instructor: Dr. Evren Eryilmaz (Evren or Dr.E)
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Class Meetings: Online on Mondays, 6:00pm – 9:00pm
Office Hours: M 3:00-6:00

COURSE DESCRIPTION

This graduate course covers advanced analysis of Relational Database Management Systems including their design and implementation. Topics include relational algebras, Entity Relation Diagrams, Normalization, Data Integrity Constraints, Triggers, Query Optimization, Indexing, Stored Procedures, Distributed Databases, Database Administration issues, Transaction Processing and Scheduling, Object Oriented Database Modeling, and Data Security.

Prerequisite(s): Admission to the Computer Science or Mathematics Graduate Program

LEARNING OBJECTIVES

Upon completion of the course, students will be able to:
1. Identify components of databases.
2. Model and design database systems.
3. Normalize datasets and databases from unnormalized states.
4. Construct database objects based on the entity relationship model.
5. Analyze and implement SQL queries.
6. Construct database objects based on the NoSQL paradigm.
7. Administer and secure database systems.
8. Integrate a database with a programming language.
9. Synthesize and articulate ideas clearly and convincingly in oral and written forms

TEXTBOOKS

1. Database Processing: Fundamentals, Design, and Implementation, 15th Edition, by David Kroenke, David Auer, RobertYoder, & Scott Vandenberg published by Pearson, 2018. ISBN-13: 978-0134802749. **(Optional)**

STUDENT ATTENDANCE and CLASS WITHDRAWAL POLICY

Please be courteous and arrive ON TIME for class. Students are required to attend all classes for which they are registered. Each student is responsible for fulfilling all course requirements and completion of all course assignments to receive credit for the course. If classes are missed for any reason, the student is not excused for any missed work. It is the student's responsibility to understand when they need to consider disenrolling from a course. Refer to the Channel Islands Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course.

CLASS CANCELLATIONS

Please check email, CI Learn or visit the CSU Channel Islands website (http://www.csuci.edu) to obtain the latest information on university-wide cancellations or delayed openings.

MOBILE DEVICES

It is important that you and your classmates are not distracted from learning. Please be mindful of your classmates and ensure that mobile devices are placed in silent-mode as to not cause a distraction to your classmates and the professor.

COURSE ACCOMMODATIONS

Cal State Channel Islands is committed to equal educational opportunities for qualified students with disabilities in compliance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. The purpose of Disability Resource Program is to assist students with disabilities to realize their academic and personal potential. Students with disabilities needing accommodation are required to contact the Disability Program office at (805) 437-3331. All requests for accommodations need appropriate advance notice by the student to avoid a delay in services. Please discuss approved accommodations with faculty.

ACADEMIC INTEGRITY

1. Academic dishonesty includes but is not limited to such things as cheating, inventing false information or citations, plagiarism, and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show possession of a level of knowledge or skill that he/she does not possess.
2. Course instructors have the initial responsibility for detecting and dealing with academic dishonesty. Instructors who believe that an act of academic dishonesty has occurred are obligated to discuss the matter with the student(s) involved. Instructors should possess reasonable evidence of academic dishonesty. However, if circumstances prevent consultation with student(s), instructors may take whatever action (subject to student appeal) they deem appropriate.
3. Instructors who are convinced by the evidence that a student is guilty of academic dishonesty shall assign an appropriate academic penalty. If the instructors believe that the academic dishonesty reflects on the student's academic performance or the academic integrity in a course, the student's grade should be adversely affected. Suggested guidelines for appropriate actions include an oral reprimand in cases where there is reasonable doubt that the student knew his/her action constituted academic dishonesty; a failing grade on the particular paper, project or examination where the act of dishonesty was unpremeditated or where there were significant mitigating circumstances; or a failing grade in the course when the dishonesty was premeditated or planned. Instructors will file incident reports with the Vice Presidents for Academic Affairs and for Student Affairs or their designees. These reports shall include a description of the alleged incident of academic dishonesty, any relevant documentation, and any recommendations for action that the instructor deems appropriate.
4. The Vice President for Student Affairs shall maintain an Academic Dishonesty File of all cases of academic dishonesty with the appropriate documentation. The Vice President for Student Affairs shall notify Enrollment Management Services whenever a course grade assignment is due to a finding of academic dishonesty.
5. Students may appeal any actions taken on charges of academic dishonesty through the student judicial process detailed in the University Catalog.

GRADING

- Quizzes (10%)
- Assignments (45%)
- Final Exam (20%)
- Course Project and Presentation (25%)

It is the student's responsibility to ensure all documents and assignments are correctly uploaded to CI Learn by the due date. Always check to ensure documents have been uploaded and are visible to the professor. A broken computer is NOT a reason for late submissions. If necessary, use university resources to complete your work.

Letter	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Points	97+	93+	90+	87+	83+	80+	77+	73+	70+	67+	60+	<60

TENTATIVE COURSE SCHEDULE

Week	Topic
Week 1	• Introduction to Databases • Accessing to PhpMyAdmin • Structured Query Language
Week 2	• Structured Query Language
Week 3	• Relational Databases
Week 4	• DB Normalization
Week 5	• DB Normalization
Week 6	• Data Modeling
Week 7	• Data Modeling
Week 8	• Project Updates
Week 9	• Triggers
Week 10	• Triggers
Week 11	• Stored Procedures
Week 12	• Stored Procedures
Week 13	• Project Updates
Week 14	• DB Administration / Security
Week 16	• NoSQL Paradigm
Week 16	• Term Project Presentations • Final Exam Review
Week 17	**Final Exam**