Course Description

This course covers the design, implementation, and use of databases for data analytic purposes. Students will learn several database design techniques and be introduced to a commercial-grade database environment for data analytics. (The weekly workload may span 9 to 18 hours approximately and depends on individual students' background.)

Course Time and Room

Online Asynchronous Mode (7-week schedule)

Instructor Information

Dr. Wingyan Chung (wchung@uttyler.edu, office: COB 315.09)
Professor, Computer Science Dept.

Office Hours

Tuesday and Thursday 3:00 - 4:00 pm and by appointment
Emails will normally be answered within 2 business days; emails received during Friday–Sunday will be answered by the following Tuesday.

Textbook Information

The following textbook is required throughout the semester and is available from the university bookstore and the website linked below.

- [H] = Jeffrey A. Hoffer, V. Ramesh, Heikki Topi "Modern Database Management, 13th edition," Pearson (2022).

Course Objectives

Upon successful completion of this course, students should be able to:

- Understand and explain concepts, techniques, and practices related to database analytics,
- Design relational databases to support analytics functions,
- Create and manage databases using a commercial-grade database environment, and
- Apply database analytics in modern business management and operations.

Computer Account Access

Students will need a Patriot account and password for computer access. This information can be found at `https://www.uttyler.edu/technology-support/patriots-account/`

Course Materials

This class will use Canvas for course documents, slides, submission of assessment items, assignments, online discussions, quizzes and other class-related materials. Students should check the Canvas site frequently during the semester to keep up to date about course activities. Submissions are due by 11:59:00 pm on the due date (except otherwise stated). Students should submit their work early to avoid last-minute hassles. Email submission is NOT accepted.

Course Grading

Assessment of student performance will be based on the following:

Assignments (4 × 10 points)	40
Quiz (4 × 2.5 points)	10
Final Exam	50
Total Points	100

Grading Scale

A = 90.0 points or more
B = 80.0 to less than 90.0 points
C = 70.0 to less than 80.0 points
D = 60.0 to less than 70.0 points
F = Less than 60.0 points

Course Policies

1. Assignments (A) – Individual, untimed, open-book, open-notes assignments will contain objective questions, programming exercises, and/or short-answer questions to help students review and practice course concepts and skills. Late submission (within 2 days after due date) will incur a 30% deduction in score. Submission is closed afterward.

2. Quizzes (Q) – Individual, timed, close-book, close-notes quizzes (proctored by ProctorU) will be given periodically. Each quiz will be open for a one-week period and must be submitted by its deadline (and will be closed afterward). Missed quizzes cannot be made up without acceptable emergency-related documentation (sent to the instructor before the quiz or within 1 day after the quiz deadline). No pause is allowed in each quiz.

3. Final Exam (E) – Individual, timed, close-book / close-notes comprehensive final exam (proctored by ProctorU) is scheduled to be done within a 24-hour window. Course handouts and previous assignments will be temporarily unavailable during (and shortly before) the exam. The exam arrangement details will be provided later in the semester.

4. Make-up or Extension for Missed Submissions – Make-up or extension for missed submissions are available ONLY for valid reasons pre-approved by the Office of Student Accessibility and Resources or for serious sickness / emergencies (with doctor's notices / proper documentations submitted prior to or in the same week of the deliverable). To be considered for make-up or a short extension (normally within 2 days after submission is closed), students must email official documentations to the instructor before the due date of the assessment items.

5. Student Responsibility – Students are required to take timely actions according to the course schedule, to check the learning management system and their university email regularly, and to perform all course-related tasks. Students should behave properly to facilitate active class learning.

6. Academic Integrity – Any act or attempt of academic dishonesty, such as (but not limited to) plagiarism, cheating, collusion, falsifying records, and copyright infringement, is strictly prohibited and will be punished according to the university policies (e.g., §8-802).

Course Schedule

Week	Start Date	Topic	Materials	Due
1	1/16	Introduction; The database environment Modeling data in organizations: Entity-relationship model	Syllabus H-1, 2	Q1
2	1/22	The enhanced entity-relationship model Logical database design and the relational model	H-3 H-4	A1
3	1/29	Introduction to SQL (1): Data Definition Language Introduction to SQL (2): Data Manipulation Language	H-5	Q2
4	2/5	Advanced SQL (1): Joining multiple tables Advanced SQL (2): Subquery, view, trigger, procedure	H-6	A2
5	2/12	Databases in applications Database analytics applications: Churn prediction	H-7 Handouts	Q3, A3
6	2/19	Data warehousing and data integration Big data technologies; Business intelligence and analytics	H-9 H-10, 11	Q4, A4
7	2/26	Data and database administration Final Exam (opens 12:00 pm of 3/1 to 11:59 am of 3/2)	H-12 -	E

Remarks:

H – Course textbook chapter(s) by Hoffer et al.
A – Assignment
Q – Quiz
E – Final Exam