Capital University of Economics and Business
Overseas Chinese College
Course Syllabus

Year and Semester	2026 Spring					
Course Name	Advanced Database Management					
Course Code	MIS237					
Course Type	☐ General Education (Required) ☐ General Education (Elective) ☐ Basic Disciplinary Course ☐ Professional Course (Required) ☐ Professional Course (Elective) ☐ Professional Course (Expanded) ☑ Professional Course (Advanced)					
Course Credits	3					
Course Hours	Total Class Hours	48	Lecture Hours	16	Experiment (Computer) Hours	32
Applicable object	☐ Freshman ☑ Sophomore ☐ Junior ☐ Senior					
	☐ Business Administration (Accounting)					
	☑ Information Management and Information Systems (Data Governance)					
Prerequisites	MIS227					
Instructor	Changjun Ru					
Contact Information	Office: C217					
	Tele: (010)83951082					
	Email: ruchangjun@cueb.edu.cn					
Office Hour	Mon/Tue/Fri: 8:00-9:35					
Learning Centre	M: 18:00-20:00 (online), W: 9:55-11:30					
Grade/Section	2024 IT					
Course Time/Place	Wed.: 9:55-12:20 (C320B)					
Textbook	The textbook and reference book mainly cover the knowledge that instructor introduced in the class, but not limited to these books, students should have the ability to search and expose to the resources to support your study.					

Reference Book

Database system concepts

Hands-on Real-Time Data Warehouse with Doris

ClickHouse: Beginner's Guide, Hands-on Practice, and Advanced Techniques

Course Description

This course is for students to obtain principles of database systems. We will focus mainly on relational data models and relational query operations, together with SQL for data definitions and queries. The course will also involve a multi-part project using Sql Server. Students undertake a semester project that includes the query design using Sql Server.

Student Learning Outcomes

On successful completion of this course, candidates should be able to:

Knowledge	• apply the major objectives of database technology; • apply the relational model for databases and competing models; • apply the techniques and tools to design and implement a database suitable for an • information system; • apply a database retrieval and manipulation language
Capability	• apply time management to self-study before or during lecture time • analyze and solve database problems • apply scientific thinking skills on database
Mindset	• establish the integrity and objectivity in database • be logical, ethical, methodical, consistent and accurate • apply critical thinking in the process of decision making

Website Source

Teaching Methods

This course contains lectures, class discussions, homework, quizzes, presentation and exams. Textbook content will be introduced first. Then real case and practice questions will be delivered to students as a way to test their understanding of the knowledge. This will require individual or group assignment in class.

Grade Criterion

Component	Weight	Description
Final Exam	20%	A cumulative final examination will be given based on all of the contents of the class. The exam paper may be composed of computer operation questions and case analysis questions. Students should rely primarily on homework assignments to give them a sense of what they may see for material on exams.
Mid-Term Test	20%	A cumulative midterm test will be given based on all of the contents that have been taught in class. The test paper may be mainly composed of multiple-choice questions and it should be completed in class.
Homework	10%	Most of the assigned homework is taken from the Exercises in the textbook. Assignments will be collected at the clearly stated date. Late assignments will not be accepted. The graded assignments may be kept by the tutor for reference and won't be returned to students.
Quizzes	10%	There will be at least 2 quizzes during the semester. Quizzes may or may not be announced in advance. It may also be used as a way to check the attendance. Quizzes will test your knowledge of both concepts and the application of those concepts.
Presentation	20%	The students will be divided into several groups to prepare a presentation. Each student is required to be involved in the presentation. The topics can be selected from the textbook or lectures. Each group

		need to finish a PPT related to the topic which is given and hand in the related resources to the teacher before the presentation.
Participation	10%	Individuals will be asked to participate individually in a question and answer at least 5 times during the semester. The performances should be counted in their participation.
Attendance	10%	Refer to attendance policy listed below
Total	100%	

Detailed Grade Computation

	Before Midterm	After Midterm
Attendance	5%	5%
Participation	5%	5%
Homework	5%	5%
Quizzes	5%	5%
Presentation		20%
Midterm test	20%	
Final exam		20%
Total	40%	60%

Assessment of Student Performance

☞ ***Self-Study and Reading ability Practice***

Instructor will give out the chapters or the reference books to read and use class hours to have discussion; students should be able to show a proactive attitude and ability for self-study and reading. Knowledge and oral English will be elements of homework or presentation score.

☞ ***Homework***

Students should finish their homework by themselves. Copying from others will be treated as cheating and the homework scores will be lowered. Students should hand in all assignments on time. Late assignments will be accepted at the discretion of the instructor (i.e., when the student was ill or had an excused absence). Late assignments without reasonable proof will be reduced in score by 50%.

☞ ***Attendance***

Because the course covers a great deal of material, attending every class session is very important for performing well.

- Being late for 15 minutes or more is considered an absence.
- Five hours or above of unexcused absences will result in the lower level of the final grade by one grade band (e.g. from C – to D +). Any excused absence must be discussed directly with the teacher.
- Absence which is more than 1/3 of the total teaching hours will cause an F (a failing grade) directly. but students are welcome to continue attending classes.
- An incomplete grade (I) will be considered in case of medical or family emergencies.

☞ ***Participation***

- Students should participate in classes actively. Half of participation grade is determined by their presentation in class. They are encouraged to ask questions relevant to the subject and express their own opinions. Every student should respect the ideas, opinions, and questions of their classmates.

- Students should also use office hours to ask questions or talk with the instructor for good communication and effective learning.
- Frequent visiting the instructor and chatting in English during office hours is highly recommended.
- Any misbehavior and non-class related activities in class will result in the lower level of the participation grade, including ringing cell phones.
- All above behaviors will be solely evaluated by the instructor for scoring.

☞ ***Textbook***

Students must bring the textbook to class.

Topic Course Outline (original)

Week	Content	Homework
1	Course Introduction and Syllabus • Review of database • E-R diagram • Introduction of SQL Server • Installation and configuration of Microsoft SQL Server 2022	• Installation and configuration of Microsoft SQL Server 2022
2	**Chapter 1: Create and Manage database** • Create, alter, drop, rename database • Practice: create and drop database	• create database students, diannaoxs EXEC sp_helpdb students
3	**Chapter 2: Create and manage tables** • Design tables • Create,drop tables • Alter table (add, alter, drop column) • add constraint (primary key, unique, foreign key, check, default) **Data Storage and Operations** **Chapter 3：Insert and edit the records of table** Practice: Insert, update, delete record	• Tables: 1)Yuangongbiao, • 2)Shangpinyilanbiao, • 3)gonghuoshangbiao, • 4)jinhuobiao2024, • 5)xiaoshoubiao2025 • insert into shangpinyilanbiao (huohao, huoming, guige, danwei, cankaojiage) values ('1003', 'compuer', • 'FZ', 'set', 5500)
4	**Tomb-sweeping Day**	
5	**Chapter 4：Select** • Select from table where • All, distinct, top 5 • Select from multiple tables (join) • Select Avg/sum/max/min/count column from table • Group by	• Select age of employee • Select average price of product
6	**Chapter 5: Create and manage view** • Create view as select • alter, drop view **Data governance VS Data Management**	
7	**Midterm Test**	
8	● **Data Architecture** ● **Chapter 6: Stored Procedure**	USE diannaoxs

	• Create procedure • Execute • Alter procedure • Drop procedure ● **Chapter 7: Trigger** • Create, alter, drop trigger • Disable trigger • Enable trigger • sp_help trigger	IF exists(SELECT name FROM sysobjects WHERE name='shagnpin_pro1' AND type='p') DROP procedure shangpin_pro1 GO CREATE procedure shangpin_pro1 @shangpinming nvarchar(8) EXECUTE shangpin_pro1 'computer' Create trigger for yuangongbiao
9	Labour Day	
10	**Data Modeling and Design**	
11	● **Chapter 8: Security mechanism** • Identification and Authentication: Windows/SQL Server • create/alter/drop login • create/alter/drop user • create role, sp_addrole • sp_grantdbaccess, sp_revokedbaccess, sp_helpuser • grant, revoke, deny • sp_addsrvrolemember, sp_dropsrvrrolemember • sp_addrole, sp_droprole, sp_helprole	Exec sp_addlogin 'user1','user1','diannaoxs','us_english' exec sp_grantdbaccess 'RUCHANGJUN\user', 'XJ' exec sp_grantdbaccess 'user1', 'AA' deny create database, create table to user1
12	● **Chapter 9: Doris** (Real-Time DW in Practice) • Use cases: real-time detail + aggregation, dashboards, near-real-time DW • Architecture: FE/BE, distributed execution • Data layout: partition / bucket, replication (why fast & stable) • Modeling: detail vs aggregate tables (key/aggregate trade-offs) • Partition strategy: by day / month	✓ Complete environment check (Doris client/connection ready) ✓ Orders mini-lab: create detail table (partition by dt) ✓ Draft daily summary table design (aggregate by dt + city) ✓ Submit: DDL draft + aggregation logic
13	● **Chapter 10: ClickHouse** • Positioning: OLAP for high concurrency, wide tables, aggregations • Core concepts: columnar storage • MergeTree family (table engine basics) • Performance keys: ORDER BY (sorting key) + partitioning • Basics: create table / ingest / aggregation queries	✓Orders mini-lab: create MergeTree table (partition by dt) ✓ Provide ORDER BY (dt, city, user_id) design rationale ✓ Write 2 aggregation SQL queries (by day / by city) ✓ Submit: DDL + SQL + rationale
14	● Presentation	
15	● Final Exam Review & Presentation	
16	● Mock Exam, Q&A Time	

Note: *Some chapters or sections may leave for self-study, this is the students' duty to learn and understand, they may also be included in the quizzes or exams.A review in Chinese may be held during L.C. and O.H. in the semester.*

Teacher's Office Hour

- The instructor's office hour is shown in the front of the office door.
- Students are suggested to use the instructor's office hour and learning center to ask questions or talk with the instructor once at least per week for good communication and effective learning, which is recorded in the students' participation.
- The time can be scheduled by instructors or students, or both.

Cheating and Plagiarism

Cheating is not tolerated. Any student caught cheating on a quiz; test or exam will be given a mark of zero (0) for the particular work. At the beginning of the semester the definition of plagiarism will be carefully explained, when any thoughts or writings of another person are used, they must be clearly identified (usually one uses quotation marks) and the source notes. **If any student is caught cheating on any homework assignment, the highest score the student can earn in that course is a "C".**

Important Dates

Midterm Test	**Week 7**
Final Exam	**Refer to the notice of the Academic Affairs Office**

Note: *This syllabus is tentative and may be changed or modified throughout the semester. All students will be notified and a new syllabus will be given.*

Instructor: Changjun Ru **Department Head: Jingning Li**