

# CSE 5241 (Approved): Introduction to Database Systems

## Course Description

Database systems use; logical design; entity-relationship model; normalization; query languages and SQL; relational algebra and calculus; object relational databases; XML; active databases; database design project.

**Prior Course Number:** CSE 670

**Transcript Abbreviation:** Intr Database Sys

**Grading Plan:** Letter Grade

**Course Deliveries:** Classroom

**Course Levels:** Undergrad, Graduate

**Student Ranks:** Senior, Masters, Doctoral

**Course Offerings:** Autumn, Spring

**Flex Scheduled Course:** Never

**Course Frequency:** Every Year

**Course Length:** 14 Week

**Credits:** 2.0

**Repeatable:** No

**Time Distribution:** 3.0 hr Lec

**Expected out-of-class hours per week:** 3.0

**Graded Component:** Lecture

**Credit by Examination:** No

**Admission Condition:** No

**Off Campus:** Never

**Campus Locations:** Columbus

**Prerequisites and Co-requisites:** (CSE 2231 or CSE 321) and (CSE 2321 or Math 366)

**Exclusions:** Not open to students with credit for CSE 3241 or CSE 670

**Cross-Listings:**

**The course is required for this unit's degrees, majors, and/or minors:** No

**The course is a GEC:** No

**The course is an elective (for this or other units) or is a service course for other units:** Yes

**Subject/CIP Code:** 14.0901

**Subsidy Level:** Doctoral Course

## Programs

Abbreviation	Description
MS CSE	MS Computer Science and Engineering
PhD CSE	PhD Computer Science and Engineering

## Course Goals

Master using relational databases.
Master writing queries in relational data languages including SQL and relational algebra.
Master using mechanisms for data independence, including data models, languages and views.
Be competent with logical database design.
Be competent with conceptual database design.
Be familiar with object relational database technology.
Be exposed to XML and active databases.

## Course Topics

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Introduction; Entity-Relationship (ER) Model	4.0							
The Structure of the Relational Data Model	2.0							
Relational Algebra and Relational Calculus	6.0							
Functional Dependencies and Normalization	8.0							
ER-to-Relational Data Model	1.0							
SQL	6.0							
Graphical User Interfaces	2.0							
Embedded SQL	2.0							
Object Relational Databases	4.0							
XML	3.0							
Active Databases	2.0							

## Representative Assignments

Provide SQL code which declares, populates, and queries a database
Define and use a database using a database management systems software
Write a Java program with embedded SQL code

## Grades

Aspect	Percent
Homework	30%
Project	20%
Midterm Exam	20%
Final Exam	30%

## Representative Textbooks and Other Course Materials

Title	Author
<i>Fundamentals of Database Systems, Addison-Wesley, 5th edition</i>	Ramez Elmasri and Shamkant Navathe

## ABET-EAC Criterion 3 Outcomes

Course Contribution		College Outcome
***	a	An ability to apply knowledge of mathematics, science, and engineering.
*	b	An ability to design and conduct experiments, as well as to analyze and interpret data.
**	c	An ability to design a system, component, or process to meet desired needs.
***	d	An ability to function on multi-disciplinary teams.
**	e	An ability to identify, formulate, and solve engineering problems.
	f	An understanding of professional and ethical responsibility.
*	g	An ability to communicate effectively.
	h	The broad education necessary to understand the impact of engineering solutions in a global and societal context.

Course Contribution		College Outcome
*	i	A recognition of the need for, and an ability to engage in life-long learning.
	j	A knowledge of contemporary issues.
***	k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

### Additional Notes or Comments

\* Moved exclusion from General Information to Exclusions. --rowland

**Prepared by:** Bruce Weide