

IT 240 Introduction to Databases

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Course homepage: <https://d2l.depaul.edu>

Summary

This course will introduce students to the design, implementation and use of desktop databases. Major topics include: modeling using ER diagrams, creating and maintaining a database using a PC based application, compose and use queries in Structured Query Language, create and customize forms and reports, and integrate databases with other sources of data and applications.

This is a lecture-based class. This is not a self-paced class. There are weekly deadlines for readings, video lecture viewings, assignments and quizzes. If you have questions, please contact me at jdebettencourt@cdm.depaul.edu.

Learning domain description

IT 240 Introduction to Databases is included in the Liberal Studies program as a course with credit in the Scientific Inquiry domain. Courses in the Scientific Inquiry domain are designed to provide students with an opportunity to learn the methods of modern science and its impact on the world around us. Courses are designed to help students develop a more complete perspective about science and the scientific process, including: an understanding of the major principles guiding modern scientific thought; a comprehension of the varying approaches and aspects of science; an appreciation of the connection among the sciences; the fundamental role of mathematics in practicing science; an awareness of the roles and limitations of theories and models in interpreting, understanding, and predicting natural phenomena; and a realization of how these theories and models change or are supplanted as our knowledge increases.

Learning outcomes

1. Students will understand the major principles guiding modern scientific thought. Students will demonstrate a mastery of the science content knowledge of their SID courses.
2. Students will know that science, technology, and math serve as mechanisms for inquiry into the nature of the universe. Students will:
 - a. identify questions that can be answered through scientific investigations;
 - b. design and conduct a scientific investigation to test a scientific hypothesis;
 - c. use appropriate tools and techniques together, analyze, and interpret data to support or refute a scientific hypothesis;
 - d. develop descriptions, explanations, predictions, and models using evidence;
 - e. describe relationships between evidence and explanations using critical and logical thinking;
 - f. recognize and analyze alternative explanations and predictions;
 - g. communicate scientific procedures and explanations;
 - h. use mathematics in all aspects of scientific inquiry.
3. Students will understand and appreciate the interrelationships among science, technology and math. Students will:
 - a. use technology and mathematics to identify a problem or design a solution to a problem;
 - b. give examples of how science and technology inform and influence each other.

4. Students will understand and appreciate the role of science in society and in their lives. Students will:
 - a. Provide examples of how science and technology impact our lives, and how social needs and concerns impact our development of technology and scientific investigation;
 - b. develop positive attitudes towards science, technology, and mathematics;
 - c. establish an ongoing experiential/service-learning interest in science, technology, and mathematics.
5. Students will understand the nature of science, technology, and mathematics. Students will:
 - a. provide examples of the abuse of science, including the representation of unfalsifiable claims as science and other forms of pseudoscience;
 - b. explain the strengths and limits of scientific inquiry;
 - c. explain the difference between evidence and inference, and the provisional nature of scientific explanations by providing examples of how our understanding of the workings of the world has changed in the past;
 - d. explain the difference between probability and certainty, and describe what is meant by uncertainty in the context of science, technology, and mathematics.

How learning outcomes will be met

By the end of this course, students will be able to:

- identify the ubiquitous use of databases in everyday life
- demonstrate the effects of redundancy, inconsistencies and lack of integrity when databases are poorly designed
- apply Boolean logic, set theory, and relational algebra concepts in the construction of Structured Query Language (SQL) requests for retrieval of data
- predict and confirm results using empirical evidence from publicly accessible data
- create an Entity Relationship Diagram to graphically model user database requirements
- construct and maintain a database within a domain that implements the constraints of the relational database model.

Writing expectations

Writing is integral for communicating ideas and progress in science, mathematics and technology. The form of writing in these disciplines is different from most other fields and includes, for example, mathematical equations, computer code, figures and graphs, lab reports and journals. Courses in the SI domain must include a writing component where that component takes on the form appropriate for that course (e.g. lab reports, technical reports, etc.)

Students are required to submit a paper describing a business or organizational situation that would benefit from a database implementation to store and retrieve data. They must apply their knowledge of relational databases to define the business constraints, design considerations and implementation techniques. Also, throughout the course writing is emphasized in terms of using entity-relationship diagrams in the database design phase, translating the design into relational schema, and writing queries to retrieve data, create the database and populate the database with data.

TEXTBOOK



Database Concepts, David M. Kroenke and David J. Auer, 7th edition, Prentice Hall, 2015
ISBN-10: 0133544621, ISBN-13: 9780133544626
(Preferred Edition; older texts may generally be suitable as well)

eTextbook: Database Concepts, CourseSmart eTextbook, 7th Edition
ISBN-13: 978-0-13-274443-0

Publishers website:

<http://www.mypearsonstore.com/bookstore/database-concepts-9780133544626>

REQUIRED SOFTWARE Microsoft Access 2013 is available in all DePaul PC labs. If you want to install on your PC, it is available at [MSDN Academic Alliance](https://www.cdm.depaul.edu/CurrentStudents/Pages/MSDNAA.aspx). (<https://www.cdm.depaul.edu/CurrentStudents/Pages/MSDNAA.aspx>). Please read/follow instructions carefully..

TECHNICAL SKILLS

If you do not have access to a DePaul lab/PC with Microsoft Access 2013 installed, if not it is expected you have the necessary skills to download/install the appropriate software your PC or Mac.

IMPORTANT DATES: BE SURE TO TRACK THE FOLLOWING DATES (AND ALL COURSE DUE-DATES AS WELL),

All Classes begin week of	April 2, 2019
First assignment due date	April 11, 2019
Last day to drop class with no penalty	April 12, 2019
Midterm Exam	May 9, 2019
Last day to withdraw* from class	May 17, 2019
Final Exam (Comprehensive)**	June 13, 2019

*** STUDENTS WHO WITHDRAW FROM THE COURSE MAY DO SO BY USING THE CAMPUS CONNECTION SYSTEM ([HTTP://CAMPUSCONNECT.DEPAUL.EDU](http://campusconnect.depaul.edu)). WITHDRAWALS VIA THIS SYSTEM ARE EFFECTIVE THE DAY THEY ARE MADE. SIMPLY CEASING TO ATTEND, OR NOTIFYING THE INSTRUCTOR, OR NONPAYMENT OF TUITION IS NOT AN OFFICIAL WITHDRAWAL FROM CLASS AND CAN RESULT IN ACADEMIC AS WELL AS FINANCIAL PENALTY.**

GRADING

- There will be up to eight to ten assignments, including a mid-quarter proficiency project and a final database development project.

Possible Grading Categories	Number of points
Assignments (includes database project)	330
Quizzes	70
Attendance	101
Midterm	100
Final Exam	100

Grading comments:

- Exam dates are tentative and subject to change.
- There are no excused absences. Points are earned through attendance.
- The maximum amount of points is 700.
- All assignment descriptions and requirements will be posted only on the course web pages on D2L.
- Each assignment will have a specific due date and time. Check D2L frequently for assignments and announcements.
- Be sure to read the assignment carefully, including the directions on how to submit the assignment. All assignment submissions should be done in D2L.
- **Late submissions of assignments will not be accepted.**
- If you want to receive partial credit for an assignment, you must submit the work completed by the due date deadline.
- Make-up examinations of any kind will not be given. If there is an extreme emergency you have to contact me before the examination takes place.
- The following grading scale is used:

Grade	Percent	Grade	Percent	Grade	Percent	Grade	Percent
A	100-93	B+	89-87	C+	79-77	D+	69-67
A-	92-90	B	86-83	C	76-73	D	66-60
		B-	82-80	C-	72-70	F	59-0

Prerequisites

None.

Course Management Web Site

Desire2Learn <https://d2l.depaul.edu>

Changes to Syllabus

This syllabus is subject to changes as necessary during the quarter. If a change occurs, it will be addressed in D2L.(last updated: 9/10/2014)

TENTATIVE SCHEDULE

Week	Readings	Topics	Assignments
0		<ul style="list-style-type: none"> Syllabus and course overview (see Getting Started module in D2L) 	
1	Ch. 1 pp 3 – 24	<ul style="list-style-type: none"> Why use a database What is a database system 	
2	Ch.2 pp. 62 – 89	<ul style="list-style-type: none"> Review HW 1 Relational Model Types of Keys & Functional Dependencies Null Values Relational Algebra Concepts: Selection, Projection, Join Set Theory Concepts Using the ACCESS SQL Editor 	HW 1
3	Ch. 3 pp. 143 – 159	<ul style="list-style-type: none"> Review HW2 SQL: SELECT Single / Multiple tables Boolean & Comparison Operators Aggregate Functions & Calculations Wildcards & Nulls 	HW 2
4	Ch. 3 pp 149 – 160, 165 - 167	<ul style="list-style-type: none"> Review HW 3 SQL: Select statement Aggregate functions & calculations Grouping Sorting 	HW 3
5	Ch. 4 pp 245 - 260	<ul style="list-style-type: none"> Review HW 4 Review Midterm Study Suggestions Entity Relationship Data Model 	HW 4
6	Ch. 4 pp 262 - 270	<ul style="list-style-type: none"> Midterm Exam Entity Relationship Diagram Examples 	Midterm
7	Ch. 5 pp 287 - 317	<ul style="list-style-type: none"> Transforming ERD to database design 	DB Project Part I
8	Ch. 3 pp 119– 143, 176 – 182	<ul style="list-style-type: none"> Review DB Project Part I SQL: Data Definition SQL: Populating Tables SQL: Data Modification and Deletion SQL: Table Modification and Deletion 	DB Project Part II
9	Ch. 3 pp 161 – 163, 168 - 175	<ul style="list-style-type: none"> Review DB Project Part II Advance SQL <ul style="list-style-type: none"> Left / Right Joins Subqueries Parameter Queries Importing Data (notes) 	DB Project Part III

10	Ch. 8 pp 400 - 470	<ul style="list-style-type: none"> • Review DB Project Part III • Big Data & NoSQL Databases • Review Final Exam Study Suggestions • Review DB Project Part IV 	DB Project Part IV HW 5
11		Final Exam	

School policies:

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in [CampusConnect](#).

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/> If you have any questions be sure to consult with your professor.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the [University Academic Calendar](#). Information on enrollment, withdrawal, grading and incompletes can be found at <http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.

To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at:

Lewis Center 1420, 25 East Jackson Blvd.

Phone number: (312)362-8002

Fax: (312)362-6544

TTY: (773)325.7296