



**CHANGE OF ROOM:** Beginning on Th. Sep. 12<sup>th</sup> we will meet in room **LB240**



[Click here for Final Grades](#)

CIS 430 / 530 Messages	
1	<p><b>Registration Instructions - Microsoft Academic Alliance Program</b> Our CSU program administrator has already sent the CIS430/530 list to the MS-Academic Alliance. Each person must register before using the site. The registration process sets the Username and Password for future login. Here are his instructions.</p> <ol style="list-style-type: none"> <li>1. Go to the DreamSpark page (<a href="http://msdn02.e-academy.com/cleveland_cis/">http://msdn02.e-academy.com/cleveland_cis/</a>) and hit the "Sign In" button at the top right.</li> <li>2. On the "SIGN IN" page, hit the "REGISTER" button</li> <li>3. In the box labeled "USERNAME " input your CSU ID number.</li> <li>4. The next page is self explanatory. ( NOTE: The email address that you enter on this page becomes your Username <i>after</i> registration )</li> </ol> <p>If you have difficulties contact Mr. Bill Brock at <a href="mailto:w.brock@csuohio.edu">w.brock@csuohio.edu</a> (Phone: 216 687-4597).</p>
2	<p><b>Homework 1.</b> <a href="#">Creating / Populating a Relational Database Using MySQL</a> <a href="#">Drawing an EER Diagram for the Company Database using MySQL.</a> <a href="#">Converting the conceptual model into a physical design.</a> <b>Due: Th. 19-Sept-2013</b></p>
3	<p><b>SQL Notes.</b> <a href="#">Learning SQL - Using the Company Database</a></p>
4	<p><b>Classroom Changed.</b> Beginning on Thu. Sep 12 classes will be held at <b>LB240</b>. Same time block Tu. &amp; Th. 6:00 - 7:50pm.</p>
5	<p><b>Homework 2.</b> <a href="#">Querying the Company Database</a></p>
6	<p><b>Relational Algebra.</b> <a href="#">Summary Notes</a> <a href="#">Sample test</a></p>
7	<p><b>EER Modeling.</b> <a href="#">Examples</a></p>
8	<p><b>Lecture Notes:</b> <a href="#">Chapter 6 The Relational Algebra and Relational Calculus</a> <b>Homework 3.</b> <a href="#">Predicate Calculus - Querying the Company Database</a> <b>Due: Th. Oct 31<sup>st</sup></b></p>

9	<b>Homework 4.</b> <a href="#">Server-Side Programming Using MySQL</a> <b>Due: Th. Nov. 7<sup>th</sup></b>
10	<del><b>Homework 5.</b> <a href="#">Creating a SQL Server &amp; MS Access Application</a> <b>Due: Th. TBA</b></del>
11	<del><b>MS Access Programming.</b> <a href="#">Data Access Objects and Visual Basic</a></del>
	<b>Client-Side Database Programming</b> <b>MySQL &amp; JDBC Based Applications.</b> <a href="#">Lecture Notes</a>
	<b>Server-Side Database Development:</b> MySQL Stored-Procedures & Triggers. & Web Programming Using PHP Based Applications. <a href="#">(MySQL-PHP) Lecture Notes1</a> , <a href="#">Lecture Notes2</a> , <a href="#">PHP &amp; IIS Installation-Notes</a>
	<b>Homework 5.</b> Create an app using either PHP or Java + mySQL. Use the COMPANY database, retrieve employee assignment data. <b>Due: Th Dec 5.</b> <a href="#">Description</a>
	<b>Chapter15.</b> <a href="#">Lecture Notes: Functional Dependencies and Normalization for Relational Databases</a>
	<b>Chapter17.</b> <a href="#">Lecture Notes: Disk organization, file structures, and hashing</a>
	<b>Final Project.</b> Implement a <b>Linear-Hashing</b> strategy similar to the one described in the notes above (Chapter 17). Test the application using the following records { <b>1, 7, 3, 8, 12, 4, 11, 2, 10, 13, 14, 9</b> }. Only keys are shown, assume each record consists of: [key and dummy data] (such as “data-for-key-1”, and so on). Display the final image of your hashing directory. Show the results obtained when searching key values: <b>14, 5, 11.</b> <a href="#">See additional notes</a>
	<b>This is an optional project.</b> You may do it instead of taking the final exam. Please document your code; clearly show your output (try to match the style used on the example provided in the link above). <b>Due: Th. Dec 5 (no exceptions).</b>

# Cleveland State University

## CIS 430/530 Data Base Concepts (4-0-4) – Fall 2013

Class Nbr: 2983 / 2987

**Prerequisites:** CIS265

**Instructor:** Dr. Victor Matos

**Office Location:** BU342

**Phone:** 216 687-3911

**email:** [v.matos@csuohio.edu](mailto:v.matos@csuohio.edu)

**webpage:** <http://grail.cba.csuohio.edu/~matos>

**Office Time:** Tue, Thu 12:00-1:00PM & 4:00-6:00 PM (or by appointment)

**Class Location:** BU-207 Section 50 Tue & Thu 6:00 – 7:50 PM

**Catalog Description:** The course introduces concepts on database management systems and database models. Students are exposed to a detailed study of relational query languages including relational algebra, Structured Query Language (SQL), and Query-by-Example (QBE). Discussion of the data abstraction process and the Entity-Relationship model. Practical introduction to database normalization and its benefits. In a progressive lab experience students will use a commercial DBMS and its associated programming environment.

**Key Concepts:** Database systems, relational data model, conceptual/physical design, relational algebra, SQL, QBE, retrieval and action database queries.

**Expected Outcomes:** After successful completion of the course the students will be able to: (a) effectively use a modern relational database system, (b) know how to represent normalized data views, (c) convert a conceptual data representation to a relational database format, (d) use the relational database language SQL to define relations and to write SQL statements to insert, delete, retrieve and update data stored in a relational database system.

**Text:** **Fundamentals of Database Systems, 6/E** . (2011). Elmasri, R. and Navathe, S. Addison-Wesley Publishing Company, Inc., ISBN-10: 0-13-608620-9 ( <http://www.pearsonhighered.com/elmasri/> ).

**Reference Books:** (1-*Advanced Level*) Mastering Microsoft Office Access 2007 Development, By Alison Balter, Ed. SAMS Publications, ISBN-10: 0-672-32932-8, (2-*Intro Level*) Access 2013 Absolute Beginner's Guide, Alison Balter, Pearson Education Publishing, ISBN-10: 0789748711

**Grading:** The course grade is based on a student's overall performance through the entire Semester. The final grade is distributed among the following components:

Laboratory Assignments	30%	(Completion is required for obtaining a passing grade)
Midterm Examination	35%	
Final Examination	35%	

A	94% +	<b>A:</b> Outstanding (student's performance is genuinely excellent)
A-	90% - 93%	
B	82% - 87%	<b>B:</b> Very Good (student's performance is clearly commendable but not necessarily outstanding)
B-	80% - 82%	
C	75% - 80%	<b>C:</b> Good (student's performance meets every course requirement and is acceptable; not distinguished)
D	65%-75%	<b>D:</b> Below Average (student's performance fails to meet course objectives and standards)
F	<65%	<b>F:</b> Failure (student's performance is unacceptable)

**Examination Policy:** Students are allowed to bring to the tests a summary page (standard letter size) with their own notes. During the exams: (1) the use of books, cell phones, calculators, or any electronic devices is prohibited, and (2) students must not share any materials.

**Make-Up Exam Policy:** No makeup exams will be given unless notified and agreed to in advance. Requests will be considered only in case of exceptional demonstrated need.

**Homework Policy:** The students are expected to attend all classes. The students are responsible for collecting the notes, handouts and any other course material distributed during the class period. All assignments must be individually and independently completed and must represent the effort of the student turning in the assignment. Should two or more students turn in *substantially the same solution* or output, in the judgment of the instructor, the solution will be considered group effort. All involved in group effort homework will receive a zero grade for that assignment. A student turning in a group effort assignment more than once will automatically receive an “F” grade for the course.

**Late Assignment:** All lab assignments are due at the beginning of class on the date specified. Laboratory Assignments handed in after the class has begun will be accepted with a 25% grade penalty for up to a week and then not accepted at all. All laboratory assignments must be completed. *Failure to do so will lower your course grade one additional letter grade.*

**Student Conduct:** Students are expected to do their own work. Academic misconduct, student misconduct, cheating and plagiarism will not be tolerated. Violations will be subject to disciplinary action as specified in the [CSU Student Conduct Code](http://www.csuohio.edu/student-life/student_handbook/index.html). A copy can be obtained on the web page at: [http://www.csuohio.edu/student-life/student\\_handbook/index.html](http://www.csuohio.edu/student-life/student_handbook/index.html) or by contacting Valerie Hinton Hannah, Judicial Affairs Officer in the Department of Student Life.

**Course Schedule:** The schedule of topics and their order of coverage is given below. Every effort will be made to follow the schedule, but topics covered may vary depending upon the progress made.

Week of	Topic
1	<u><a href="#">Chapter 1 Databases and Database Users</a></u> 1.3 Characteristics of the Database Approach 1.4 Actors on the Scene 1.5 Workers behind the Scene 1.6 Advantages of Using the DBMS Approach 1.7 A Brief History of Database Applications 1.8 When Not to Use a DBMS
2	<u><a href="#">Chapter 2 Database System Concepts and Architecture</a></u> 2.1 Data Models, <u><a href="#">Schemas</a></u> , and Instances 2.2 Three-Schema Architecture and Data Independence 2.3 Database Languages and Interfaces 2.4 The Database System Environment 2.5 Centralized and Client/Server Architectures for DBMSs 2.6 Classification of Database Management Systems
3	<u><a href="#">Chapter 3 The Relational Data Model and Relational Database Constraints</a></u> 3.1 Relational Model Concepts 3.2 Relational Model Constraints and Relational Database Schemas 3.3 Update Operations, Transactions, and Dealing with Constraint Violations
4-5	<u><a href="#">Chapter 4 Basic SQL</a></u> 4.1 SQL Data Definition and Data Types 4.2 Specifying Constraints in SQL 4.3 Basic Retrieval Queries in SQL 4.4 INSERT, DELETE, and UPDATE Statements in SQL 4.5 Additional Features of SQL
6-7	<u><a href="#">Chapter 5 More SQL: Complex Queries, Triggers, Views, and Schema Modification</a></u> 5.1 More Complex SQL Retrieval Queries 5.2 Specifying Constraints as Assertions and Actions as Triggers 5.3 Views (Virtual Tables) in SQL 5.4 Schema Change Statements in SQL
8-9	<u><a href="#">Chapter 6 The Relational Algebra and Relational Calculus</a></u> 6.1 Unary Relational Operations: SELECT and PROJECT 6.2 Relational Algebra Operations from Set Theory 6.3 Binary Relational Operations: JOIN and DIVISION 6.4 Additional Relational Operations 6.5 Examples of Queries in Relational Algebra 6.6 The Tuple Relational Calculus

	6.7 The Domain Relational Calculus
10-11	<p><b><u>Chapter 7 Data Modeling Using the Entity-Relationship (ER) Model</u></b></p> <p>7.1 Using High-Level Conceptual Data Models for Database Design  7.2 A Sample Database Application  7.3 Entity Types, Entity Sets, Attributes, and Keys  7.4 Relationship Types, Relationship Sets, Roles, and Structural Constraints  7.5 Weak Entity Types  7.6 Refining the ER Design for the COMPANY Database  7.7 ER Diagrams, Naming Conventions, and Design Issues  7.8 Example of Other Notation: UML Class Diagrams  7.9 Relationship Types of Degree Higher than Two</p>
12	<p><b>Database Programming: Server-side &amp; Client-side Techniques</b></p> <p>8.1 <a href="#">Server-Side: Stored Procedures and Triggers (MySQL Platform)</a>  8.2 <a href="#">Client-Side: Java Database Connectivity (JDBC).</a></p>
10-11	<p><b><u>Chapter 17 Disk Storage, Basic File Structures, and Hashing</u></b></p> <p>17.1 Introduction  17.2 Secondary Storage Devices  17.3 Buffering of Blocks  17.4 Placing File Records on Disk  17.5 Operations on Files  17.6 Files of Unordered Records (Heap Files)  17.7 Files of Ordered Records (Sorted Files)  17.8 Hashing Techniques  17.9 Other Primary File Organizations  17.10 Parallelizing Disk Access Using RAID Technology  17.11 New Storage Systems</p>
12-15	<p><b><u>Chapter 18 Indexing Structures for Files</u></b></p> <p>18.1 Types of Single-Level Ordered Indexes  18.2 Multilevel Indexes  18.3 Dynamic Multilevel Indexes Using B-Trees and B+-Trees  18.4 Indexes on Multiple Keys  18.5 Other Types of Indexes  18.6 Some General Issues Concerning Indexing</p>

**NOTE:** The instructor reserves the right to retain, for pedagogical reasons, either the original or a copy of your work submitted either individually or as a group project for this class. Students' names will be deleted from any retained items.

**Official Calendar** Please consult the page <http://www.csuohio.edu/enrollmentservices/registrar/calendar/index.html>  
**Final exam:** Thu. Dec 12<sup>th</sup> 6:00 – 8:00 PM

Important Dates	
Priority Registration Begins	March 25, 2013
Open Enrollment Begins	April 29, 2013
Term Begins (Saturday)	August 24, 2013
First Weekday Class	August 26, 2013
Last Day to Join a Course Waitlist	August 30, 2013
Last Day to Drop with Full Refund	August 30, 2013
Last Day to Add (CampusNet Registration)	September 1, 2013

<u>Last Day to Drop</u>	September 6, 2013
Course Withdrawal Period Begins - 'W' Grade Assigned	September 7, 2013
Last Day to Withdraw from Courses	November 1, 2013
Midterm Grades	October 14-21, 2013
Last Day of Classes	December 6, 2013
Final Exams	December 9-14, 2013
Commencement (Sunday)	December 15, 2013
Fall Semester Student Incomplete Work Deadline	May 2, 2014
Labor Day (University Holiday)	September 2, 2013
Columbus Day (University Holiday)	October 14, 2013
Veterans Day (Tuesday no classes - offices open)	November 12, 2013
Thanksgiving Recess (no classes on Saturday)	November 28-December 1, 2013

#### List of Assignments:

- Lab 1.** Conceptual Designs. Entity-Relationship R Modeling << Due on TBA  
Source: <http://grail.cba.csuohio.edu/~matos/notes/cis-610/Homeworks/Homework1-CIS430-Summer06.doc>
- Lab 2.** Physical Designs. SQL Queries Using MS-Access << Due on TBA.  
Source: <http://grail.cba.csuohio.edu/~matos/notes/cis-610/Homeworks/Homework2-CIS430-Summer06.doc>
- Lab 3.** Implementation. Database Application Programming Using MS-Access << Due on TBA.  
Source: <http://grail.cba.csuohio.edu/~matos/notes/cis-610/Homeworks/Homework3-CIS430-Summer06.doc>
- Lab 4.** File Systems & Indexing. << Due on TBA.  
Source: TBA

#### Software Resources

1. [MS Access - Microsoft Academic Alliance Program \(allows you to download Microsoft products\)](#)
2. [MySQL Community Server \(Enterprise level DBMS – Open Source Project\)](#)