



University of Puerto Rico
Mayagüez Campus
College of Business Administration
Syllabus



COURSE INFORMATION	
General Information:	
Course Number:	SICI 4095
Course Title:	DATABASE PROGRAMMING DEVELOPMENT
Credit-Hours:	Three.
Academic Term:	Fall 2010-2011
Course Description:	
Fundamentals of database systems, emphasizing in data modeling and design, basic notation, functional dependencies, normalization, query languages and query processing; database services including concurrency, security and integrity. The laboratory will provide hands-on experience with database applications.	
Pre/Co-requisites:	
SICI 4085 – Information Systems Analysis Methods	
Course General Learning Goals:	
After completing the course, the student should: <ul style="list-style-type: none"> • Describe the characteristics of business databases and the features of database management systems • Utilize database terminology to be able to interact with other professionals in the field. • Design, create, and maintain a relational database application • Develop models to design an efficient database and convert to tables using mapping rules • Normalize tables by detecting violations of normal forms and applying normalization rules • Formulate simple and advanced SQL queries to obtain information from relational tables • Use a database software to implement and manipulate functional databases • Describe the storage level, objectives and inputs/outputs of physical database design 	
Learning Outcomes Addressed in this Course	
This course is intentionally designed to enable students to develop the following competencies: <ul style="list-style-type: none"> • Interpersonal Skills – a group project • Information Technology Skills - in the area of database development • Problem Solving – assignments, projects • Business Major-Related Knowledge, Skills and Abilities 	
Content Outline and Time Distribution	
<ul style="list-style-type: none"> • Introduction to Database Management 1.5 hrs. • Query Formulation with SQL 5 hrs. <ul style="list-style-type: none"> ○ Single table queries ○ Joining tables and grouping ○ Set operators ○ SQL modification statements ➤ Lab practice with database software 2.5 hrs. • The Relational Data Model and Normalization 3hrs. <ul style="list-style-type: none"> ○ Basic elements ○ Integrity rules ○ Operators of relational algebra • Database development and Data Modeling 3hrs. <ul style="list-style-type: none"> ○ Analyzing Business Data Modeling Problems ○ Understanding relationships ○ Entity relationship diagrams (ERD) ○ Development of the ERD ○ Converting ERD to relational tables ➤ Lab Practice with database software 4.5 hrs. • Advanced Query Formulation with SQL 2 hrs. <ul style="list-style-type: none"> ○ Outer Joins ○ Nested queries ○ The division problem ○ Null value considerations ➤ Lab practice with database software 2.5 hrs. • Physical Database Design 7 hrs. ➤ Lab practice with database software 5 hrs. • Current database topics 4.5 hrs. ❖ Exams 4.5 hrs 	
Department/Campus Policies:	
<p>Disabilities: According to Law 51: Students with disabilities, after identifying themselves to the instructor of the course and the Institution, will receive reasonable accommodations in their courses and evaluations. For additional information, contact Services to Students with Disabilities at the Office of the Dean of Students (Q-019), 787-265-3862 or 787-832-4040, Ext. 3250 or 3258.</p> <p>Ethics: Any academic fraud is subject to the disciplinary sanctions described in Articles 14 and 16 of the revised General Student Bylaws of the University of Puerto Rico contained in Certification 018-1997-98 of the Board of Trustees. The professor will follow the norms established in Articles 1-5 of the Bylaws.</p>	

INSTRUCTOR INFORMATION

General Information:

Instructor: Lucyann Fernández Van Cleve
 Office: AE- 326
 Phone: 832-4040 Ext. 5358
 Office Hours: L-W 1:00 – 4:00
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Textbook and Other Resources

***Kroenke, David.(2006) Database Processing: Fundamentals, Design, and Implementation, 11/E
 Prentice Hall, (ISBN-13: 978-0-13-230267-8) (ISBN-10: 0-13-230267-5)***

IT Web sites:

Intelligent Enterprise : http://www.iemagazine.com	InfoWorld : http://www.infoworld.com
Miscrosoft Sql Server: http://www.microsoft.com/sql/default.mspx	PC Week : http://www.zdnet.com/pcweek
Advisor : http://www.advisor.com	PC World : http://www.pcworld.com
Datamation : http://www.datamation.com	Computerworld : http://www.computerworld.com

Instructional Strategies:

Instructional strategies in this class will include lectures, class discussion, and presentations using the computer. This course also includes the design and development of a database case project in groups of two and laboratory exercises where students will apply their skills.

Minimum Required or Available Resources:

No special resources are required.

Evaluation/Grade Reporting:

- Two partial exams - **55%**
- Final Exam - **20%**
- Database project - **15%**
- Assignments and quizzes - **10%**

Grade and Point Range:

__ 90 – 100 A __ 80 – 89.99 B __ 70 – 79.99 C __ 60 – 69.99 D __ 0 – 59.99 F

Assessment of Learning:

During the semester we will be using several techniques that will help us determine your level of learning. Our main purpose is to help students identify how much and how well they are learning and to detect areas that may need reinforcement before the final grade is determined. These techniques will also help the professor use more effective teaching strategies. Among others we will use pre and post tests, “the muddiest point”, and “direct paraphrasing”. These activities will no affect the final grade.

Course Policies

- Class attendance is mandatory and will be recorded daily.
- A student is expected to do his or her own work. Assignments should be done individually and not in teams unless otherwise instructed. Submitting the work of another student for evaluation is plagiarism and neither student will be graded. Cheating and plagiarism will not be tolerated.
- Exams may be scheduled after 6:00 pm
- There will be a short quiz at the beginning of each class
- No make-up quizzes will be offered.
- Cellular phones will be kept in sounds-off or vibration mode and will never be answered in class.

Course Outline and Schedule (* may need updating during semester according to class needs*)

Day	Topics	Chapter	Time Allotted
1 - 2	<ul style="list-style-type: none"> • Access basics 		3 hrs.
3	<ul style="list-style-type: none"> • Introduction to Database Management <ul style="list-style-type: none"> ○ Characteristics and features of databases ○ Components of a database system ○ Brief history ○ Design and development process 	1	1.5 hrs.
4-7	<ul style="list-style-type: none"> • Introduction to Structured Query Language <ul style="list-style-type: none"> ○ Background ○ SQL Select/From/Where framework ○ Grouping ○ Querying two or more tables ○ Laboratory practice 	2	6 hrs.

8-10	<ul style="list-style-type: none"> • SQL for Database Construction and Application Processing <ul style="list-style-type: none"> ○ SQL, DDL, DML, and Joins ○ New forms of join ○ Laboratory practice 	7 (pp. 237-274)	4.5 hrs.
11	***** Exam #1 (27/octubre/ 2010) *****		1.5 hrs
12-13	<ul style="list-style-type: none"> • The Relational Data Model and Normalization <ul style="list-style-type: none"> ○ Basic elements and Terminology ○ Normal forms 	3	3 hrs.
14-15	<ul style="list-style-type: none"> • Database Design Using Normalization <ul style="list-style-type: none"> ○ Assess table structure ○ Designing updatable databases ○ Common design problems 	4	3 hrs.
16-19	<ul style="list-style-type: none"> • Data Modeling with the Entity Relationship Model <ul style="list-style-type: none"> ○ Entity relationship model(ERD) ○ Patterns in Forms, Reports, and Entity-Relationship models ○ The data modeling process ○ Laboratory practice 	5	6 hrs.
20-22	<ul style="list-style-type: none"> • Transforming Data Models into Database Designs <ul style="list-style-type: none"> ○ Converting ERD to relational tables ○ Creating relationships ○ Design for minimum cardinality 	6	4.5 hrs.
23	***** Exam #2 (20 diciembre 2010) *****		1.5 hrs
24-25	<ul style="list-style-type: none"> • SQL for Database Construction and Application Processing <ul style="list-style-type: none"> ○ Triggers ○ Stored procedures ○ Laboratory practice 	7	3 hrs.
26-28	<ul style="list-style-type: none"> • Database Redesign <ul style="list-style-type: none"> ○ Analyzing the existing data base ○ Changing tables ○ Changing relationship cardinalities and properties ○ Triggers ○ Laboratory practice 	8	4.5 hrs.
29-30	<ul style="list-style-type: none"> • Managing Multiuser Databases <ul style="list-style-type: none"> ○ Database administration ○ Concurrency control ○ Database security ○ Database recovery ○ Managing the DBMS 	9 & 11	3 hrs.

References

Mannino, M. V. (2007). *Database Design, application development, and administration* (3th ed.). Boston: McGraw-Hill.

Post, G. V. (2005). *Database management systems: designing and building business applications* (3th ed.). Boston, Mass: McGraw-Hill.

Westman, S. R. (2006). *Creating database-backed library Web pages: using open source tools*. Chicago: American Library Association.

Electronic References:

Database in About.com: http://databases.about.com/od/development/Database_Development.htm

Database cycle: <http://openlearn.open.ac.uk/course/view.php?id=2463>