CECS323 Midterm 1 Study Guide

The test will cover:

Course Introduction  
[Models](http://web.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=models.html); [Classes and Schemes](http://web.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=class.php)

[Rows and Tables](http://web.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=tables.php)  
[SQL and RA](http://web.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=sql/queries.php)

[DML and DDL](http://www.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=sql/ddldml.php)

[Associations](http://web.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=association.php)  
[Keys](http://web.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=keys.php)

[Join](http://web.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=sql/join.php)  
[Multiple Joins](http://web.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=sql/multijoin.php)  
[Join Types](http://web.csulb.edu/colleges/coe/cecs/dbdesign/dbdesign.php?page=sql/jointypes.php)

The test will be given in two parts, you will have two hours total for both parts. You will not be able to start Part 2 until you have completed (submitted) Part 1

Part 1 – All objective questions (matching terminology, multiple choice, true/false). You will not be writing any Relational Algebra or SQL statements, but you will be answering questions about them.

Part 2 – One modeling problem concerning one-to-many relationships. This will include:

Drawing a class diagram

Defining classes

Defining associations

Drawing a Relation Scheme

You may either use a drawing tool or draw the model by hand. Just make sure you upload everything to Dropbox and that it is legible.

Items to study:

What is a database?

Why do we need one?

Avoid redundancy

Data integrity

Referential Integrity

Deletion Anomalies

What is a relational database?

Use of Unified Modeling Language (UML)

Entity-Relationship (ER) model

Relational Model (RM)

Relational Algebra (RA)

The table model

Structured Query Language (SQL)

UML class (ER term: entity)

Attribute (properties) is a piece of information that characterizes each member of a class

Descriptive attributes (natural attribute)

Three views of a database, what they are, what they contain, what tools are used:

* Conceptual
* Logical
* Physical

Row

Column

Tuple

Assignment rule

Relation

UML association (ER term: relationship)

UML multiplicity (ER term: cardinality)

Identifying vs. non-identifying relationships

Parent class/child class

Unique index

Primary Key constraint

Foreign Key constraint

Relational Algebra

DDL/DML

Distinct

Natural Join/Inner Join on/Inner Join Using/Left Outer Join/Right Outer Join/Full Outer Join/Cross Join

How a Natural Join works

Super Key/Candidate Key/Primary Key/Foreign Key/Surrogate Key/Substitute Key/External Key

Rules for generating a Surrogate or Substitute Key