

CS 4400 Introduction to Database Systems Spring 2016

CS4400 A Klaus 1443 TR 3:05 - 4:25 pm Monica Sweat
CS4400 B CULC 152 TR 1:35 - 2:55 pm Chris Simpkins/Monica Sweat

Instructors:

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Office Hours: TBA

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Chris Simpkins cs257@gatech.edu
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Head TA

Jingyuan "Alier" Hu djyhu@gatech.edu

Teaching Assistants: Listed on T-Square

Text, Notes, Resources:

- Required Text: Fundamentals of Database Systems, 7th (or 6th) edition, Elmasri & Navathe, Addison-Wesley, 2016.
- Chapter by Chapter Slides on T-Square
- Database Design Methodology Notes on T-Square
- Sample Quizzes on T-Square

Class Project: Will be released on T-Square (coming soon – we will announce it)

Prerequisite: Basic programming skills.

Grading:

Quiz 1-4: 15% each

Project : Phase I 10%, Phase II 10%, Phase III 5% (non GUI based) or 20% (GUI based)

Final Exam: 15% (Only for students doing the Lightweight (non GUI) version of the project).

If you do the heavyweight version then there is NO final exam

Regrade Deadline: Once graded phases and/or quizzes are returned, there is a one week deadline during which you can contest your grade. This clock starts not when you personally get your returned paper, but when the papers are returned to the class.

Project: You will design and implement a database application using the MySQL/PHP relational database system available via CoC (College of Computing). The Project must be done in groups of 3-4 students. You are allowed to form groups across the two sections of the class. We will follow a typical database design methodology for this project. Notes describing the methodology will be available via the class web page on T-square. The project will consist of 3 phases (deliverables) as well as a final demonstration to the TA. Phase I and Phase II of the project are each worth 10% credit. **Phase III of the project is worth 5% credit without /GUI and 20% credit with/GUI.** All contributing members of a group get the same grade for each phase of the project. If a member of a group does not carry his/her weight, then the group may kick out that member at the end of phase I or Phase II, only. The course professors and head TA should be notified of this.

You are to form self-selecting groups by the end of week two. Anyone not in a group at that time will be assigned a group. The required group size is 3-4. There are no exceptions.

Project Peer Evaluation:

For each phase of the project, each group member will submit a peer evaluation of the other group members. This evaluation will be taken into account when determining the grade for each group member. If all group members do an equal amount of work, then each will receive the same grade. On the other hand, if one group member does not do an equal share of the work, then that member's grade will be adjusted (lowered) as a percentage of the group's overall grade. More details about the peer evaluation will be made available with the project.

Project Collaboration:

Students within a project group should split each phase of the project into smaller tasks and should collaborate closely with each other to accomplish each phase. No collaboration of any kind whatsoever is allowed between students in different project groups. Any violation of this policy will be reported to the Dean of Students without exception.

Course Content:

We introduce the fundamental concepts necessary for the design and use of modern database systems in today's large scale enterprise applications. We examine the concepts in the order that we typically encounter them in the actual database design process. We start with the problem of conceptually representing data that is to be stored in a database. From there, we see how the data in a conceptual data model can be converted to a database specific model (e.g., the relational data model). We also discuss various forms for relations that possess good properties. We see how to use the relational database language SQL to define the relations and to write SQL statements to insert, delete, retrieve and update the data. We also examine some of the fundamental storage structures that are used in relational database systems. We end the course with a discussion of some advanced topics in the database management area.

Topic	Chapters 7th Edition	Chapters 6th Edition	Chapters 5th Edition
Basic concepts - data independence, 3 level database architecture, database system components	1, 2	1, 2	1, 2
Conceptual database level - Entity-Relationship Model	3, 4	7, 8	3, 4
DBMS Design Methodology	notes	notes	notes
Relational Data Model, Algebra and Calculus	5, 8	3, 6	5, 6
SQL Query Language	6, 7	4, 5	8
Mapping from ER Model to Relational Model	9	9	7
Relational database design - Normal Forms, Functional Dependencies	14, 15	15, 16	10, 11
Internal database level - storage structures	16, 17	17, 18	13, 14

IMPORTANT DATES:

Quiz & Topics	Date	7th Ed. Reading	6th Ed. Reading
1 DB Concepts & ER/EER Model	Sept 15	1, 2, 3, 4	1, 2, 7, 8
2 Relations, Algebra & Calculus	Oct 13	5, 8	3, 6
3 SQL and ER to Relational Mapping	Nov 8	6, 7, 9	4, 5, 9
4 Normalization, FDs, Algos	Nov 29	14, 15	15, 16

Project	Due Date
Phase I	Sept 29
Phase II	Oct 27
Phase III	Dec 4

Project Demo Dates: Dec 5 and Dec 6.

Final Exam Dates:

Section A (Sweat) - Dec 13 (Tue) 2:50pm - 5:40pm

Section B (Simpkins/Sweat) - Dec 15 (Thu) 2:50pm - 5:40pm

