

CIS 5725 – Database Management Systems

Course Syllabus – Fall 2012

1. General Info

Credits: Three

Section: 1094

Prerequisite: Data structures and algorithms; web programming skills (e.g., PHP)

Instructor: Prof. Daisy Zhe Wang (“Daisy”)

Meeting Times: T 1:55-2:45PM (7th period), Th 1:55-3:50PM (7th & 8th period)

Where: NEB 0100

2. Course Objectives and Outcome

The goal of this course is to teach the fundamentals of the database systems at a master student level. A variety of topics will be covered that are important for modern databases (see below) in order to prepare the students for real life applications of databases. No prerequisite knowledge of databases is required but basic understanding of data-structures and algorithms is assumed. The class will probably have a significant overlap with an undergraduate database class but will cover the topics in more details and at a faster pace. A project will be assigned in order to expose the students to real database applications. One of the main the themes of the class will be establishing a connection and relationships between databases and other computer science topics like business intelligence, statistical analysis, machine learning and natural language processing.

In the class we will cover most of the following topics (the number in parenthesis is the corresponding chapter in the textbook).

- Introduction (1)
- ER Model and Conceptual Design (2)
- The Relational Model and SQL DDL (3)
- Relational Algebra and Relational Calculus (4)
- SQL (5)
- Overview of Storage and Indexing (8)
- Data Storage (9)
- Tree Indexes (10)
- Hash Indexes (11)
- Overview of Query Evaluation (12)
- External Sorting (13)

- Evaluation of Relational Operators (14)
- A Typical Relational Optimizer (15)
- Overview of Transaction Management (16)
- Concurrency Control (17)
- Recovery (18)
- Schema Refinement, Functional Dependencies, Normalization (19)
- Physical Database Design, Database Tuning (20)
- Security and Authorization (21)
- Other advanced topics (time permitting)

3. Other Vital Info

Required Textbook:

Database Management Systems, Third Edition

Raghu Ramakrishnan, Johannes Gehrke

ISBN: 0-07-246563-8

Publisher: McGraw-Hill Higher Education

Pub. Date: 2003

Daisy's office hours and location:

When: Tuesday 3-4PM and Thursday 4-5PM or by appointment

Where: CSE Building, room E456 or E457 (check both)

Contact Info: phone (352) 562-8936, email: daisyw@cise.ufl.edu

Class mailing list:

There is a Yahoo! mailing list associated with the class that you are obligated to sign up for and monitor regularly. This will be the primary way that vital information is disseminated in the class. For whatever reason, a handful of people will not sign up for the list. I don't know why, but it always happens. Since so much important information is sent to the list, failing to sign up will make it very hard to earn a top grade in the class. On and around due dates, I would expect you to check the group at least every day (fortunately, this can be easy since you can have all new messages to the group sent to your email address).

The web address for the group is <http://groups.yahoo.com/group/cop5725fa12/>. You should go to this web page and sign up for the group immediately.

Class web page:

This will be at <https://sites.google.com/site/cop5725fall2012/home/files>. You should check the web page at least once a week for important announcements and updates. All assignments will be

posted to the web page for download, and the due dates for assignments and dates for the quizzes will also be posted as they approach.

Teaching Assistants:

We will have one TA for this class: Chen Yang. His contact info and office hours will be posted to the web page as soon as this information is available.

4. Class Attendance

Class attendance is not required in the sense that I will not take role and will not make attendance an explicit part of the class grade. However, attending class is the single most important thing that you can do to earn a good grade in 5725. The material that will appear on our exams and assignments comes exclusively from class lectures. The textbook is there only to reinforce material covered in class. Furthermore, I may cover material that is not in the textbook. Thus, if you do not attend class you are at a serious disadvantage. Make the effort and show up every lecture!

5. Evaluation

Your grade in 5725 is determined as a combination of 3 homeworks (15%), 1 midterm (25%), 1 final (30%) and 1 project (30%).

1. All exams are closed-book and closed-notes. You are allowed to bring a two sided, letter size, hand written piece of paper to the exam. A student with a proper excuse of being absent from the examination must inform and get a permission from the instructor prior to the time of an examination. Any students who do not take the examination at the scheduled time will receive a zero score.
2. All homework must be submitted using Sakai before the due date. No credit will be given to any late submission. Handwritten solution will not be considered. Either individual and/or team-based homework / project may be given. Details will be announced.
3. You should try to be as clear and precise as possible in your answers of homework assignments, project and exams. Correctness of a solution will be determined solely by the information on the exam or the homework paper.
4. Any request for a **regrade** must be made in writing within one week of the time that the paper is returned, with no exceptions. All regrade requests must be prepared using a word processing program; a hard copy should then be submitted to me, along with the original graded work. On your regrade request, carefully describe why you feel that you were scored unfairly and/or incorrectly. Even if you discussed the grading issue orally with someone, the written discussion must be self-contained and be able to be evaluated based only on what is written on the paper.
5. Attending lectures and viewing the lecture tapes are the responsibility of students. All homework, projects and exams will be from the material covered in the lectures.
6. FEEDS/NTU students are given three extra days comparing with on-campus students to finish the midterm and final exams. Homeworks and the project will be posted well ahead of

time, and I expect FEEDS/NTU students to respect the same deadline as the on-campus students.

There is no curve in this class, and the grading scale is pre-defined: 90% is an A, 80% is a B, 70% is a C, 60% is a D, and anything lower than that is a failing grade. Also note that in general, I do not give "plus" grades, except in exceptional circumstances. In case you are wondering how tough a grader I am, based on past experience, I will give out more B's than C's, more C's than A's, more A's than D's, and the only people who fail the class are those who don't put in much effort (in a class of 100 students, there will be several of those!). I'm not sure if that makes me a tough grader or not, but the one thing that I can tell you is that I strive to be a fair grader. If you master the material taught in the class, you will earn an A. It's that simple!

7. Policy on Missed Exams and Late Homework/Project

I am extremely sympathetic if you have some conflict that will make it difficult for you to attend a quiz or get an assignment completed on time. However, I don't like people to take advantage of my sympathy. So I have a very strict and explicit set of rules governing missed quizzes and late assignments. To be fair to everyone in the class, these rules are always followed to the letter and without exception, so don't even ask!

1. If you have some conflict and feel like you may need an extra day on the assignment or need to take the quiz a day or two later, it must be cleared with me no fewer than one week (seven days) before the assignment is due or the quiz will be held. I am generally sympathetic to the standard excuses, if you sound credible ("I have three exams that day", "My brother's bar mitzvah is the day before the assignment is due", are the usual type of excuses that I hear). However, if you do not clear it a week in advance, you will receive a zero, with only a two exceptions, given below.
2. If you are ill at the time of a quiz or right before an assignment is due and so you miss the one week window, or if there is a death in your immediate family, I will allow a late assignment or a make-up provided (a) you can give me proof of the circumstances, and (b) you let me know before the quiz is held or the assignment is due.
3. If you simply don't turn in the assignment or don't show up for the quiz, the only valid excuse is a note from a doctor given as proof that you were injured or ill at the due date to such an extent that it would be unreasonable for you to send me an email or leave a message letting me know of your illness or injury. In any other case, the result is a zero on the assignment.

8. Policy on Academic Honesty

An academic honesty offense is defined as the act of lying, cheating, or stealing academic information so that one gains academic advantage. As a University of Florida student, one is expected to neither commit nor assist another in committing an academic honesty violation. Additionally, it is the student's duty to report observed academic honesty violations. In this class, unless otherwise stated, it is expected that all work will be your own and will not be taken from

any outside source without my explicit approval. All incidents of academic dishonesty will be pulled prosecuted.

9. Students with Disabilities

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Your documentation and specific needs must be given as soon as possible, so that appropriate arrangements are made.