Database Management Systems (COP470)

Course Description – COP4710: **Theory and Structure of Databases (3).** *Prerequisites: COP 3330, MAD 2104*. Theory of relational and object-oriented databases; relational database management systems and SQL; design, developmental, and implementation issues in database systems; analysis of query languages and schema design in the relational model based on discrete math theories; development of a web-based database application using an OO programming language (i.e., Java and JSP).

Instructor:

> Course Director and Instructor: Dr. David A. Gaitros
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> **Office:** Love 105D
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> **Email:** dgaitros@fsu.edu
>
> **Office Hours:** TBD Usually Tuesday and Thursday 1-3:00
>
> **Web Site:** http://www.cs.fsu.edu/~gaitrosd

Attendance: Attendance is required at all lectures and recitations sections. Attendance may be recorded. Failure to attend classes may result in poor performance in the class. Excused absences include documented illness, deaths in the family and other documented crises that are beyond the control of the student. Also, call to active duty military, jury duty, religious holidays, and official University activities are also excused absences. These absences will be accommodated in such a manner as not to penalize the student's grade.

First Day Attendance: Attendance will be taken during the first lecture of this class. Any student registered as of Monday of the first week of class and not present for the first lecture will be dropped from the class as per the guidance of the First Day Attendance policy of the University.

Overview:
Undergraduate-level introduction to database systems and applications using databases. Introduces the ER model and its mapping to the relational data model. Studies the logical language in the relational data model and its relationship to the commercial relational query language: SQL. Examines in depth how to design a database conforming to different normal forms. Understand how various programs are able to connect to the database through ODBC. Briefly covers indexing and hashing. We will also introduce the concept of transactions. Finally, we will cover database integrity and security topics, examples include but not limit to data privacy, encryption and interception of information, and query authentication.
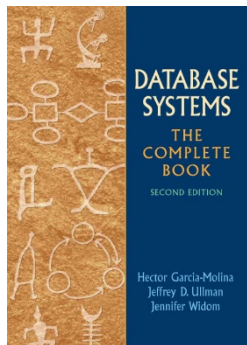
Furthermore, students will participate in a semester-long project and build a web-based database system (e.g., an online bookstore) starting with a customer specification. In summary, this course is about the principles of designing and developing applications using the relational database system.

Course Objectives:

To learn the basic principles of designing and implementing an application using the relational database system. To understand in depth how a relational database application works for designing (the schema for), mapping and querying structured data. To realize the importance of security and privacy issues involved in the data management field.

Text book

Required textbook: *Database Systems: The Complete Book* 2nd edition, by Hector Garcia-Molina, Jeff Ullman and Jennifer Widom. ISBN: 978-0131873254, Prentice Hall, 2008.

• Recommended references:
  o *Database Management Systems* 3rd edition, by Raghu Ramakrishnan and Johannes Gehrke. ISBN: 978-0072465631, McGraw-Hill, 2002
  o *Database System Concepts* 6th edition, by Avi Silberschatz, Henry Korth and S. Sudarshan. ISBN: 978-0073523321, McGraw-Hill, 2010
  o *Fundamentals of Database Systems* 6th edition, by Ramez Elmasri, and Shamkant Navathe. ISBN: 978-0136086208, Addison-Wesley, 2011

Course Communication:

All course materials are available on the Blackboard Site (http://campus.fsu.edu) . There you will find this syllabus, lecture materials, help files, homework assignments, and other materials available to the students. Announcements to students will be posted on the Blackboard site and emailed to all users including Teaching Assistants.   The instructor of this course will use your FSUID (email account) to communicate. Be sure to read your email from this account every day or have it forwarded to an account that you review on a daily basis.

Assignments and Examinations:

Readings.

You may be assigned readings in the textbook and on the Web. I want you to remember that you are responsible for all materials whether they are covered in lectures or not. For the textbook readings, you should try to answer the review questions and attempt as many as you can of the exercises at the end of each chapter, to help you find out whether you have understood the material you have read.

Examinations.

There is one midterm exam and a final exam. The exams are designed to evaluate the student's comprehension of material, rather than just memorization. Questions may include multiple choice, true

false, essay, and examples of problems similar to homework and project deliverables. On exams, you will be responsible for all of the assigned readings, the sample quiz questions, (including those not actually on the quizzes), and the homework and project deliverables up to the date of the examination. All examinations will be "closed book". That is, no books or reference materials or electronic devices will be allowed in the examination room.

If you know in advance of a reason you will not be able to take a scheduled examination within the scheduled window of time, you are responsible for making arrangements in advance with the instructor. If you make prior arrangements, or have a documented last-minute emergency conflict -- such as a medical emergency or your employer requires you to make an out-of-town trip -- the instructor will attempt to accommodate you. However, under no circumstances will a student be allowed to take an examination before the rest of the class. A make-up examination may have an entirely different format from the examination given in class, and may be an oral examination. If a student misses one midterm examination, the instructor may choose to compute the grade using final examination score in place of the missed midterm examination score.

Homework:

To assess the progress of student's homework will be periodically assigned that examines the students understanding of the topics presented in class.   They are individual assignments and collaboration is not allowed.   Assignments will be submitted through the appropriate Blackboard portal.

Quizzes

There may be quizzes given during the course of the term during class. They will not be announced and students must have a valid excuse for missing the class when the quizzes were given.

Teams:

The target size for a project team will be from 1 to 2 people. All members of the team will receive the same grade. If one person drops out the other person picks up the project.

UNIVERSITY ATTENDANCE POLICY:

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Collaboration

All course participants must adhere to the academic honor code of FSU which is available in the student handbook. All instances of academic dishonesty will be reported to the university. Every student must write his/her homework/code (unless you are in the same group for the programming project). Showing your code or homework solutions to others is a violation of academic honesty. It is your responsibility to ensure that others cannot access your work. Consulting related text books, papers and information available on the internet for your coding assignments and homework is fine provided that you give credit by citing the sources.

Exam Makeup Policy:

An exam missed without an acceptable excuse will be recorded as a grade of zero (0). The following are the only acceptable excuses:

- If submitted *prior to* the scheduled exam: Evidence from a University official that you will miss the exam due to University sanctioned travel or extracurricular activity
- A note from a physician, University dean, or parent indicating an illness or other extraordinary circumstance that prevented you from taking the exam
- An emergency of unexpected origin

All excuses must be submitted in writing, must be signed by the excusing authority, and must include complete contact information for the authority, including telephone numbers and address.

Missed exams with acceptable excuse will be made up.

Missed, and acceptably excused, final exams will result in the course grade of 'I' and must be made up in the first two weeks of the following semester.

Grades

Grade assignments will be based upon the points earned on three tests, homework assignment, quizzes, and group project. Use the following tables to determine your grade:

Grade Assignment Table

Grade	Lower Bound %	Upper Bound %
A	90%	100%
A-	85%	89.9%
B+	80%	84.9%
B	70%	79.9%
B-	65%	69.9%
C	60%	64.9%
D	50%	59.9%
F	0%	49.9%

Graded Material Weights

Graded Work	Weight
Midterm	15%
Final Exam	35%
Assignments	20%
Team Project	25%
Quizzes	5%

Late Assignment Policy:

- An assignment will be penalized 10% of the total grade (10 points) for every 24 hours after the due date/time. The policy covers weekends and holidays.
- However, all assignments must be turned in to obtain full credit for the course.
- Students wishing to be exempt from late assignments points must show why they did not have a reasonable amount of time to complete the assignment. Since assignments are made available to the students on the 1st day of class a crisis at the last moment will not excuse a late submission.

Grade of 'I' Policy:

The grade of 'I' is given to a student who, for circumstances beyond their control, missed the opportunity to cover course materials. Under the conditions stated by the University, the grade of 'I' means that a student is allowed the next semester of their enrollment to make up all remaining course materials. It does not allow a student the opportunity to hand in additional work or improve their grade on previous assignments. The grade of 'I' will be assigned only under the following exceptional circumstances:

- The final exam is missed with an accepted excuse for the absence. In this case, the final exam must be made up during the first two weeks of the following semester.
- Due to an extended illness or other extraordinary circumstance, with appropriate documentation, the student is unable to participate in class for an extended period. In this case, arrangements must be made to make up the missed portion of the course prior to the end of the next semester.

Academic Honor Policy

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to ". . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at *http://dof.fsu.edu/honorpolicy.htm*.)

Communication

Success in the course depends heavily on students checking email and announcements posted on the class Web site. Most communication between teacher and student occurs online. Students are expected to check email, and announcements on the class Web site daily Monday - Friday. The class agenda and grade book should be checked at least once a week to stay current on what needs to be done and what has been graded. Failure to do so may result in missed opportunities and poor grades.

Americans with Disabilities Act

Students with disabilities needing academic accommodation should:

(1) register with and provide documentation to the Student Disability Resource Center; and

(2) bring a letter to the instructor indicating the need for accommodation and what type.

Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Student Disability Resource Center has been provided.

This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact the:

Student Disability Resource Center
874 Traditions Way

108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
sdrc@admin.fsu.edu
http://www.disabilitycenter.fsu.edu/

and is subject to change with advance notice.