SYLLABUS

CSC 263 Database Systems
Prerequisite(s): CSC 202J

Instructor: Bo J. Hatfield Office: MH 207B Phone: (978) 542-6979
Email: bhatfield@salemstate.edu
Office Hours: Tuesday, Wednesday and Thursday 1:30PM to 3:00PM
Wednesday and Friday 10:50AM to 11:50AM or by appointment

Web Site: http://cs.salemstate.edu/hatfield/teaching/courses/csc263/home.htm

Section Time Room Final Exam
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01 Tue. Thurs. 12:15PM – 1:30PM MH 206 Friday, May 8
L21 Tue. Thurs. 10:50AM – 12:05PM MH 209 8:00 AM – 10:00 AM

Catalog description:
This course is an in-depth study of the underlying principles of database systems. Topics include data modeling and reduction, physical representations of data and access paths, and the semantics and theory of several major approaches to database organization, including relational and object-relational. Extensive discussion of query generation and optimization is included for at least one database system. Three lecture hours and three hours of scheduled laboratory per week, plus programming work outside of class.

Course Goals:
CG01: to develop an understanding of data and database modeling methodologies and techniques
CG02: to develop the skills necessary to interact with a modern DBMS in a software development environment

Course Objectives:
Upon successful completion of the course, student will be able to:
CO01: explain and justify the benefits and costs associated with modern, robust DBMSs;
CO02: properly utilize database modeling methodologies and techniques;
CO03: utilize standard SQL;
CO04: use a modern database system to implement and test a database design.

In addition, students will have:
CO05: practiced database design and implementation;
CO06: gained significant experience with query generation and analysis;
CO07: participated in at least one group project involving: problem analysis; solution modeling, design and selection; and implementation, testing and evaluation of a database.

Course Topics:
The department-standard list of topics and a general course bibliography can be found on the Computer Science Department website at http://cs.salemstate.edu/dept/uploads/2_CSC263withBoK1.pdf
- Databases and Database Users
- Database Environment
- Database Systems Concepts and Architecture

- Conceptual Modeling
  - Data Modeling Using the Entity-Relationship (ER) Model
  - The Relational Data Model and Relational Database Constraints
  - The Enhanced Entity-Relationship (EER) Model
  - Relational Database Design by ER- and EER-to-Relational Mapping

- Relational Data Model and SQL
  - Basic SQL
  - Practical Database Design Methodology and Use of UML Diagrams
  - More SQL: Complex Queries, Triggers, Views, and Schema Modification
  - The Relational Algebra and Relational Calculus

- Design Theory and Methodology
  - Functional Dependencies and Normalization

- Database Programming Techniques
  - SQL Programming
  - Web Database Programming

- Overview of Storage, Indexing and Query Processing
- Overview of Transaction Processing, Concurrency Control, and Recovery
- Overview of Advanced Topics (Security, Distributed Databases, Spatial Databases, Multimedia Databases, Data Mining, Data Warehousing and OLAP)

Text(s): (Required)  
*Database Systems: Design, Implementation, & Management*  
11th Edition  
Carlos Coronel, Steven Morris, Cengage Learning,  2014  

Software:
- MySQL
- LAMP stack
- phpMyAdmin
- Oracle DBMS
- Oracle SQL Developer

Cell phones:
Turn the ringer off, or, better yet, *turn the phone off.*

Class Attendance: (required)  
Students are expected to attend all lecture sections and lab sections. Each student is responsible for all information; all course requirements, assignments and announcements missed (whether or not the student is present).

Final Grade:  
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<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework Assignments</td>
<td>20%</td>
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<tr>
<td>Lab Assignments</td>
<td>20%</td>
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<tr>
<td>Semester Team Project</td>
<td>20%</td>
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<tr>
<td>Midterm Exam (Date and Time will be announced in advance)</td>
<td>20%</td>
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<tr>
<td>Final Exam (Friday, May 8, 8:00AM to 10:00AM, MH 202)</td>
<td>20%</td>
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Grading Criteria

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<th>SCORE</th>
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<tr>
<td>93-100</td>
<td>A</td>
<td>73-76</td>
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<td>80-82</td>
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<tr>
<td>77-79</td>
<td>C+</td>
<td>0-59</td>
<td>F</td>
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Homework Assignments:
Homework Assignments count 20% towards your final grade. Your written assignments are to be prepared on a text- or document-processing application software and turned in electronically via the eLearning system (Canvas).

Lab Assignments:
This course includes laboratory exercises either done in the lab section of the class or outside class lab section. Lab exercises are intended to help students to understand what they learn in the lectures. More importantly, students gain hands-on experiences through lab exercises. Lab exercises will be performed in the form of individual work. Detailed information of lab assignments can be found on the Laboratory pages of the class website.

Lab Exercises counts 30% towards your final grade. Failing to complete at least 70% of lab exercises will result in a grade of “F” for the course. Your written lab exercise reports are to be prepared on a text- or document-processing system and turned in electronically via the eLearning system.

Submission Deadlines / Late Penalties:
Given a deadline for each homework assignment or each lab assignment, late submissions will be graded according to the following policy.

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<tr>
<th>On time</th>
<th>1 day late</th>
<th>2 days late</th>
<th>After the assignment is graded</th>
<th>After the solution is given out</th>
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<tr>
<td>100% of the earned scores</td>
<td>90% of the earned scores</td>
<td>80% of the earned scores</td>
<td>▪ will not be graded ▪ 50% of the graded lowest scores in class</td>
<td>0 (not acceptable)</td>
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Exams:
There will be a mid-term examination and a comprehensive two-hour final examination. The mid-term examination will be given about week 7 or week 8 and counted as 20% of your final grade. The actual date will be posted on class website at least two weeks in advance. The final examination will be taken on Friday, May 6, from 11:00AM to 1:00PM in room MH 209. The final exam counts 20% toward your final grade.

Missed Tests:
Unless arrangements are made in advance, there will be NO opportunity for making up a missed exam. Please do not arrange any other activities on the posted exam dates.

Study Groups:
Although consulting with other students about homework assignments is permitted, you are to work alone on all assignments and lab exercises except team projects. For a non-team assignment, any submitted work must be yours alone. This means that answers that you turn in for grading must be written in your own words, formulated from your own understanding of the material. Copying or paraphrasing the work of another student, or allowing another to copy or paraphrase your work, is unacceptable and will result in zero credit for all parties. This includes the situation when your solutions resemble those of another student’s too closely.

Academic Integrity:
Academic Integrity Policy and Regulations can be found in the College Catalog and on the College's website (http://catalog.salemstate.edu/content.php?catoid=1&navoid=16#Academic_Integrity). The formal regulations are extensive and detailed - familiarize yourself with them if you have not previously done so. A concise summary of and direct quote from the regulations: "Materials (written or otherwise) submitted to fulfill academic requirements must represent a student's own efforts". Submission of other's work as one's own without proper attribution is in direct violation of the College's Policy and will be dealt with according to the College's formal Procedures.

"Salem State College is committed to providing equal access to the educational experience for all students in compliance with
Section 504 of The Rehabilitation Act and The Americans with Disabilities Act and to providing all reasonable academic accommodations, aids and adjustments. *Any student who has a documented disability requiring an accommodation, aid or adjustment should speak with the instructor immediately.* Students with Disabilities who have not previously done so should provide documentation to and schedule an appointment with the Office for Students with Disabilities and obtain appropriate services."

Please remember that if, for any reason, you decide to drop this course, you **MUST** do so officially through the Registrar's office. The last day to withdraw from a course this semester is April 17, 2015.

**Note:** This syllabus represents the intended structure of the course for the semester. If changes are necessary, students will be notified in writing and via all regular class communication mechanisms – email and the class website.