CSCI 5320 - 001
DATABASE MANAGEMENT SYSTEMS
Fall 2020

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468-2508

PREREQUISITE: CSCI 3302; CSCI 3321 or 3331; CSCI 3323 or 3333 or 3341 or 3342
Must have a C or better in each prerequisite course.

CLASS INFO: Meeting time: 11:00 a.m. - 12:15 p.m. T, Th
Location: Cole STEM 405

OFFICE HOURS: All office hours will be held by ZOOM. I will be in my office during the normal office hours times
(not my post 5 pm ones) and if you need to meet in person CONTACT ME THROUGH EMAIL first.
M, W, F 8:00 am – 9:00 am, 10:00 – 11:00 am
T, Th 6:00 pm – 7:00 pm
I will gladly make appointments for other times.

COURSE DESCRIPTION: Study of database management systems. Design and implementation of applications using database
management systems.

COURSE INTENT: The purpose of this course is to provide a broad knowledge of the fundamental concepts of database
processing. This knowledge should enable the student to know enough of the current technology to evaluate the applications of database management systems (DBMS) in given situations, to participate in the
design of databases, to understand how application programs interface with processing, recovery, and
security. Students should acquire a knowledge of relational database models and the usage of relational
languages.


REQUIRED ITEMS: Other articles/reading as assigned.

EXAMINATIONS: (60% of the course grade) – short answer, problems, programs. 600 out of 1000 points

Exam 1 150
Exam 2 150
Exam 3 150
Final Examination – Comprehensive 150

NOTE: There are no exemptions from the final examination and no changes in taking the final examination. Check
the final exam time. If the final exam time is a problem, you need to drop this course.

ASSIGNMENTS: (40% of the course grade)
Homework assignments/Quizzes 100
Individual folder/Group Project 300
Attendance and constructive class participation – expected

RESEARCH PAPER The purpose of this paper is to research a current database topic and report on your findings. At least two
(2) of your sources must be current (2000 or later) journal articles. Journal articles constitute a record of
active research and as such provide a current state of knowledge about a specialized topic. Often, the ideas
that appear in journal articles today will appear in expanded form such as textbooks in the near (1-5 years)
future. In some cases, articles become “classics” that lay the foundation for much future work. Journal
articles may be classified into many types such as tutorial, introductory, detailed, mathematical, etc., based
on the scope of presentation and the target audience.
Write a short (8 – 12 pages) report on your results. Your report should be single-spaced, 1” margins on all sides, and no more than 15 characters per inch. Your report should be well organized and include references (which should be cited within the paper where appropriate), diagrams, and additional supporting material as necessary (appendices). Finally, you should speculate (in your own words) on the future of this topic in a short summary.

The purpose of this exercise is to (1) access the literature, (2) understand the current issues for a DBA, (3) practice short technical material organization/presentation such as you might do at a conference, and (4) improve oral and written communication skills.

You will be expected to present the results of your research to the class during the last week of classes. Your presentation will be evaluated using the following:

Organization – how coherently did you present the material  
Graphics – what tools were used to illustrate your discussion?  
Technical – did you cover the topics?  
Time – did you finish in your allocated period of time?  
Questions – how did you handle questions?  
Participation – how well did you interact with each topic?

COURSE CALENDAR:

Tentative course outline:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic(s)</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to DBMS functions</td>
<td></td>
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<tr>
<td>2</td>
<td>ER Model</td>
<td>Homework 1</td>
</tr>
<tr>
<td>3</td>
<td>Relational Model</td>
<td>Project 1</td>
</tr>
<tr>
<td>4</td>
<td>Relational Algebra</td>
<td>Homework 2</td>
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<tr>
<td>5</td>
<td>Tuple Calculus</td>
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<tr>
<td>6</td>
<td>ER to Relational Mapping</td>
<td>Homework 3 and Exam 1</td>
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<tr>
<td>7</td>
<td>Functional Dependencies and Normalization</td>
<td>Project 2</td>
</tr>
<tr>
<td>8</td>
<td>Basic SQL</td>
<td>Homework 4</td>
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<tr>
<td>9</td>
<td>Advanced SQL</td>
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<tr>
<td>10</td>
<td>MYSQL</td>
<td>Exam 2</td>
</tr>
<tr>
<td>11</td>
<td>MySQL</td>
<td>Project 3</td>
</tr>
<tr>
<td>12</td>
<td>Security Concerns</td>
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<tr>
<td>13</td>
<td>Modern Topics</td>
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<tr>
<td>14</td>
<td>Group Presentations</td>
<td>Exam 3, Final Project documents and source delivery</td>
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</table>
Final Exam will be: Thursday 10 December 2020 at 10:45 am

EDUCATIONAL OBJECTIVES: Upon successful completion of the course, students should be able to:
1. Demonstrate a broad knowledge of the fundamental concepts of database technology.
2. Evaluate the applications of database management systems, and to participate in the design of databases.
3. Describe the main issues of database administration and control.
4. Identify current trends of database management systems.
5. Design and implement a functional limited-aspect database management system.
6. Demonstrate an understanding of database systems and database system management issues through programs and projects.
7. Develop skills in research literature reviews and research presentations.

CONTENT: The following topics with estimated hours spent on each is listed below:
- Databases, Files Overview (4)
- The Relational model (13)
- Normalization (3)
- Database design (12)
- Database administration and control (4)
- Current topics (6)
- Exams (plus final) (3)

PROGRAM LEARNING OUTCOMES: Program learning outcomes define the knowledge, skills, and abilities students are expected to demonstrate upon completion of an academic program. These learning outcomes are regularly assessed to determine student learning and to evaluate overall program effectiveness.

CLASS INFORMATION AND POLICIES
Department of Computer Science, McKibben 304, 468-2508

Attendance: Seating assignments will be made and roll will be taken regularly. Attendance may be taken into consideration for your final grade. If you come to class, you are expected to be present and awake the entire class period unless you have been given permission to leave early. If you are absent from class, please make sure to get notes from a classmate. Please remember there is no smoking, no chewing of tobacco, no eating or drinking, no bare feet, and no cell phone use during class. Cell phones and other electronic communication devices must be turned off during class. Possession of a cell phone or other electronic communication device during an exam will result in an examination grade of zero. No disruptive behavior including offensive language will be tolerated in a computer science facility or related activity. Such behavior may result in administrative removal from class. Only students officially registered for the course and approved assistants may attend class.

At the beginning of the semester, each student will be asked if they will be attending class in person or via livestream (Zoom). If a student opts for Zoom/Livestream, then they forfeit their option to show up to class in person for the entire semester. However, if a student decides to attend class in person, they may change their modality to Zoom. Our classroom can only fit 11 students, so if more than 11 students opt for the face-to-face option, they will be put on a rotation. Students who opt in for face-to-face lectures are expected to show up to class and abide by social distancing policies.

Masks (cloth face coverings) must be worn over the nose and mouth at all times in this class and appropriate physical distancing must be observed. Students not wearing a mask and/or not observing appropriate physical distancing will be asked to leave the class. All incidents of not wearing a mask and/or not observing appropriate physical distancing will be reported to the Office of Student Rights and Responsibilities. Students who are reported for multiple infractions of not wearing a mask and/or not observing appropriate physical distancing may be subject to disciplinary actions.

Examination Policy: All class examinations are considered to be a major part of the course work upon which a large part of the course grade depends. There are NO make-up exams! Class examinations will be announced at least two classes prior to the examination. If you have a conflict with another university event, you must contact me well in advance of the examination. In case of an extreme emergency, contact me before the scheduled examination. Failure to do so may result in an examination grade of zero. There are no exemptions for the final examination and no changes in taking the final examination. All students must take the final exam. A zero on the final exam will result in an F in the course. Check the final examination time. If the final examination time is a problem, you need to drop this course. Once the first person has left the room on the day of an examination, no one else will be permitted to begin the exam.

Assignment Policy: All assignments are due at the announced time on the specified due date. Assignments will not be accepted late. If you have a conflict, please contact me in advance. You should turn in your homework assignments done neatly, clearly, and to the best of your ability. Follow all the instructions given. You will lose points for failure to follow instructions. Any work turned in to my box should be dated and timed by the CSC department staff. Please ask nicely. DO NOT slide any work under my office door or under the door to the Computer Science offices. PLEASE NOTE: You may be given assignments during the last five class days of the semester.

IMPORTANT: Every programming assignment MUST be turned in. Failure to turn in a programming assignment may result in the reduction of one (1) letter grade from the final course grade.

Software Policy: Disciplinary action will be taken against individuals who perform unauthorized duplication of software or who are involved in the unauthorized use of duplicated software. Such action may make it impossible for you to successfully complete this course.

Computer Laboratory Usage: Students utilizing equipment in university computing laboratories are expected to read and abide by all posted policies for the laboratories. Please note that no children and no pets are permitted in university computing laboratories.

Drop Policy (Univ.): The official university add/drop policy is located at: http://www.sfasu.edu/policies/add_drop.asp. If you have questions concerning registration, add/drop or the withdraw process, contact the Registrar at (936) 468-2501 or E-mail: REGISTRAR@SFASU.EDU The Registrar is located on the 2nd floor of the Rusk building.

Special Accommodation Requests: To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/ Students with special accommodation requests have the responsibility to immediately initiate a meeting with the instructor to discuss how the special accommodations will be provided. Students who are aware of these special needs at the beginning of the semester must inform the instructor in person before the twelfth class day about any class activity, which will require special accommodations.

Computer Account Policy: All assignments that require the use of the University Computer must be done under the computer account that is assigned to you in this class. You should NOT do other class assignments in this account, and you should NOT do assignments from this class in other accounts. Failure to abide by the above statements will mean that you will received a grade of F in this course.

Academic Integrity (A-9.1): Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism. Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one’s paper without giving the author due credit. All instances of academic dishonesty will be reported to Office of the Dean of the student’s major. This report shall be made part of the student’s record and shall remain on file with the Dean’s office for at least four years. Instances of academic dishonesty may also be reported to the University Committee on Academic Integrity. A student who wishes to appeal decisions related to academic integrity follows procedures outlined in University policy A-2.

If in my judgment an instance of academic dishonesty on an examination has occurred, a grade of zero will be assigned as the examination
grade and a minimum of one (1) letter grade will be lost in the course grade. **Possession of a cell phone or other electronic communication device during an exam will result in an examination grade of zero.** A course grade of F may be assigned depending on the situation. A student found cheating on an examination may not drop the course. If in my judgment a student is found cheating on any part of a homework assignment or quiz, the student will receive negative points equal to the value of the entire homework/quiz. A negative grade will not be replaced by any possible bonus assignment. I consider the person who did the work (homework, quiz, test) and the person copying the work as both cheating. A recurrence of this by any individual will result in a grade of F in the course. DO YOUR OWN WORK!!!!!! Do NOT show your code to other students!!!

**Withheld Grades Semester Grades Policy (A-54):** ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Acceptable Student Behavior:** Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic, or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

**Identification:** Valid SFA student I.D. cards must be presented on each examination day. (No I.D...No exam...Grade of zero)

**Syllabus Addendum**

**Program Learning Outcomes:**

Program learning outcomes define the knowledge, skills, and abilities students are expected to demonstrate upon completion of an academic program. These learning outcomes are regularly assessed to determine student learning and to evaluate overall program effectiveness. You may access the program learning outcomes for your major and particular courses at [http://www.sfasu.edu/academics/colleges/sciences-math/computer-science/about/accreditations](http://www.sfasu.edu/academics/colleges/sciences-math/computer-science/about/accreditations)

**General Student Policies:**

**Academic Integrity (A-9.1)**

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**Definition of Academic Dishonesty**

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