COSC 6336: Database Management Systems
School of Engineering & Computing Sciences
Fall 2020

A. COURSE INFORMATION

Course number/section: 6336.001
Class meeting time: MWF 08:00-08:50AM
Class location: IH-156
Course Website: Blackboard

B. INSTRUCTOR INFORMATION

Instructor: Dr. Stan Ustymenko
Office location: CI 305
Office hours: MW 9:00-11:30 am
Telephone: 825-3492
e-mail: stanislav.ustymenko@tamucc.edu
Appointments: By email

C. PREREQUISITES AND COREQUISITES

Prerequisites

Prerequisite course required-COSC2437

Corequisites
None

D. COURSE DESCRIPTION

A study of contemporary database management concepts. Performance (indexing, query optimization, update optimization), concurrency, security and recovery issues are discussed. Also includes the study of front-end environments that access the database.

This course is being offered as a hybrid course. Students will be able to attend virtually in a synchronous manner or face-to-face. Face-to-face seating is limited and interested students will be able to attend on a rotational basis dependent upon seat availability. Lectures will be recorded and made available.

Outcomes

Upon successful completion of the class, a student will be able to:

• Use/understand Internet technology that is relevant to database processing
• Apply fundamental concepts to improve performance in large databases
• Use query optimization techniques to improve performance for differing load profiles
• Use research techniques to survey and apply latest techniques and tools

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Optional Textbook(s)

ISBN: 978-1337627900

F. INSTRUCTIONAL METHODS AND ACTIVITIES

This course will be a mixture of lectures and discussions. The student is expected to actively participate in all class activities. The student is also expected to do outside work on assignments and reading.

G. MAJOR COURSE REQUIREMENTS AND GRADING

Grade Scale: A (90-100%) B (80-89%) C (70-79%) D (60-69%) F (<60%)

The course grade will be determined as follows:

Project and term research paper 45%
research paper presentation 15%
exams (2) 30%
class participation 10%

H. TENTATIVE COURSE CONTENT/SCHEDULE

Week  Topic
1    Review the basics of DBMS
2    Concurrency and load balancing
3 - 6    Query optimization techniques
7    NoSQL databases
8    Polyglot querying
10    Analytic processing and big data
11    Data archive techniques
12 – 13    Dataspace
I. COURSE POLICIES

COVID-19
Face Coverings—Face coverings (cloth face covering, surgical mask, etc.) must be properly worn in all non-private spaces including classrooms, teaching laboratories, common spaces such as lobbies and hallways, public study spaces, libraries, academic resource and support offices, and outdoor spaces where 6 feet of physical distancing is difficult to reliably maintain. Extra masks will be made available if needed.

Attendance/Tardiness
You are expected to be in attendance, punctual, and prepared for class. If you are more than 5 minutes late to class, you will be counted as tardy. Please make sure that you will never be tardy to any of your classes or accept the consequences.

Late Work and Make-up Exams
NO makeup exams, assignments, or quizzes will be allowed unless I have agreed prior to the exam, assignment, or quiz time and been provided with official supporting documents.

Cell Phone Use
You are required to turn off your cell phone in class and pay attention to class discussions.

J. COLLEGE AND UNIVERSITY POLICIES

- Academic Integrity (University)
  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior.
  See Full University Policy at http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity

- Classroom/Professional Behavior
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- Deadline for Dropping a Course with a Grade of W (University)
The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must be submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C0.03, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is required to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C0.03, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://academicaffairs.tamucc.edu/rules_procedures/assets/13.02.99.c0.03_student_grade_appeals.pdf. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

  If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

  http://disabilityservices.tamucc.edu/

- **Civil Rights Complaints**
  Texas A&M University-Corpus Christi is committed to fostering a culture of caring and respect that is free from discrimination, relationship violence and sexual misconduct, and ensuring that all affected students have access to services. For information on reporting Civil Rights complaints, options and support resources (including pregnancy support accommodations) or university policies and procedures, please contact the University Title IX Coordinator, Sam
Limits to Confidentiality. Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University’s student record policies. However, students should be aware that University employees, including instructors, are not able to maintain confidentiality when it conflicts with their responsibility to report alleged or suspected civil rights discrimination that is observed by or made known to an employee in the course and scope of their employment. As the instructor, I must report allegations of civil rights discrimination, including sexual assault, relationship violence, stalking, or sexual harassment to the Title IX Coordinator if you share it with me.

These reports will trigger contact with you from the Civil Rights/Title IX Compliance office who will inform you of your options and resources regarding the incident that you have shared. If you would like to talk about these incidents in a confidential setting, you are encouraged to make an appointment with counselors in the University Counseling Center.

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

K. **OTHER INFORMATION**

These guidelines are designed to inform scholars of their responsibilities and of the course requirements in order to make this course a positive experience. The instructor is always available for consultation and discussion with students on any aspect of a course and of these general guidelines.

1. Consider yourself as a scholar rather than a student. The term “student” may imply some passivity, whereas the term “scholar” implies active participation, understanding and searching. We will use these terms interchangeably with the meaning of “scholar” implied. Osmosis does not work in a learning environment!
2. Further, define yourself as a “thinking explorer”. You are responsible for your education; an instructor can only be a guide and a facilitator. An instructor cannot learn for you. If you come across something that really interests you, explore it further.
3. Your experience at this University should not consist of passing a series of courses to earn a degree. Your experience should rather be a series of activities that will give you an education.
4. Concentrate on “learning to learn”. You will have to be a life-long learner to survive in your chosen career.
5. There is no such thing as a stupid question; there is such a thing as a stupid answer.
So ask questions, the instructor is taking all the risks! Ask questions of your instructor and of your fellow scholars. Many times questions are more important than answers.

6. The Internet is a tremendous resource and also a great danger. When you find information on the Internet, you have no idea if it is correct. View such information with caution. But, use the Internet to explore topics that interest you. Do not only prepare for the exam in a course – learn as much as you can on the topics introduced to you by the course material. You are responsible for the extent of your education!

READ MINDFULLY !!!!

7. In addition to details of the syllabus given in class, the syllabus for the course includes all the chapters of the required textbook/s unless indicated otherwise by the instructor.

8. The final letter grade for the class will be based on the raw composite numerical score obtained from the weighted average of the tests, quizzes, exams, labs, etc. as indicated by the instructor. The raw composite numerical score may be adjusted (curved) based on the highest score, the statistical profile of the scores and other academic standards or other considerations. Generally the letter grade of A is 90% and over of the adjusted score, a B is between 80% and 89% (inclusive) of the adjusted score, a C is between 70% and 79% (inclusive) of the adjusted score, a D is below 70% of the adjusted score and an F is below 65% of the adjusted score. An incomplete (I) will only be given in very unusual circumstances. The University regulations on incomplete grades state: “An incomplete notation may be given to a student who is passing but has not completed a term paper, examination, or other required work for reasons beyond the student’s control other than the lack of time”. Students are expected to take ALL tests, quizzes, exams, etc., and to complete and hand in all labs and other assignments. There is no provision for “extra credit”. No final grades will be given via the telephone, e-mail, etc.

9. All University rules, regulations and expected student conduct apply to this course. Students are held responsible for the information given in the current Catalog and Student Handbook.

10. All labs, assignments, etc. must be handed in on the assigned due date. Scholars having problems must notify the instructor well before the due date. Marks will be deducted for poor and sloppily presented work.

11. Labs, etc. handed in after the due date may be subject to a penalty of loss of marks. Labs, etc. handed in after the graded labs, etc. have been returned to students will get zero marks but must be handed in to the instructor.

12. Scholars are asked to take special note of the penalties, which the University attaches to Academic Dishonesty. Consult the Student Handbook.

13. All work handed in to the instructor must be the student's own work. Extracts, excerpts, etc. from the work of others must be suitably noted, acknowledged and properly referenced. Any Group Work will be judged in the same way. That is, it is the work of the group and the extracts, excerpts, etc. of others must be acknowledged.

14. All written and graphical work handed in must be presented neatly printed. Student’s written work will be judged on written communication skills, critical thinking and problem solving ability.

15. There are NO provisions for making up missed exams except in cases where
prior arrangements have been made and agreed to by the instructor.
16. Students must keep their given university e-mail address
(i.e. firstname.lastname@islander.tamucc.edu). This will be the means of the
instructor communicating with students.
17. All work submitted to the instructor (via e-mail or other means) must be
clearly marked with the student’s name and the name and number of the
course – this is especially important when work is submitted as an attachment
to an e-mail.
18. The instructor reserves the right to make changes to the above with due
notice to the students. These changes will be announced to the class (see 16
above) and each student is responsible for keeping herself/himself informed
of such changes.

GENERAL DISCLAIMER
I reserve the right to modify the information, schedule, assignments, deadlines,
and course policies in this syllabus if and when necessary. I will announce such
changes in a timely manner during regularly scheduled lecture periods.
• Client/Server Systems
• Database Performance Tuning and Query Optimization

**Required Text:**
Database Systems Design, Implementation, & Management, by Bob & Coronel,
13th edition,
ISBN: 978-1337627900

**Grading Policy**

<table>
<thead>
<tr>
<th># Exams</th>
<th>50% (25% each)</th>
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<tbody>
<tr>
<td># Assignments and Project</td>
<td>45% (assignments 20%, final project 25%)</td>
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</tbody>
</table>

**Grade Ranges**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
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<tbody>
<tr>
<td>A</td>
<td>90 - 100%</td>
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<tr>
<td>B</td>
<td>80 - 89%</td>
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<tr>
<td>C</td>
<td>70 - 79%</td>
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<tr>
<td>D</td>
<td>60 - 69%</td>
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<tr>
<td>F</td>
<td>Less than 60%</td>
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**Expectations from students**

The students are expected to come to class on time every day the class meets. Read the chapter to be discussed before coming to class. Ask questions of material you do not understand. If I cannot explain the answers to your satisfaction, make an appointment with me to discuss the question. Demonstrate integrity, maturity, and ethical behavior.

**Penalties for Lateness**

Assignments are accepted until MIDNIGHT on the due date. Every homework assignment will list a due date for full credit. Late assignments will lose 10% of the maximum score per day.

**Academic Dishonesty**

Academic honesty is fundamental to the activities and principles of a university. Cheating will not be tolerated and will be severely punished. For the first offense, you will receive a substantial negative score for that assignment. Any additional offense may result in failure for the course.