<table>
<thead>
<tr>
<th><strong>Meeting Time</strong></th>
<th>Tuesday and Thursday 11:00am – 12:15pm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meeting Place</strong></td>
<td>Virtual through Blackboard</td>
</tr>
<tr>
<td><strong>Term</strong></td>
<td>Fall 2021</td>
</tr>
<tr>
<td><strong>Section</strong></td>
<td>CS 33007 -001 and CS 33007 -002</td>
</tr>
<tr>
<td><strong>Instructor</strong></td>
<td>Saifuddin Mahmud</td>
</tr>
<tr>
<td><strong>Course Website</strong></td>
<td>Blackboard (<a href="https://learn.kent.edu">https://learn.kent.edu</a>)</td>
</tr>
<tr>
<td><strong>Office</strong></td>
<td>Virtual</td>
</tr>
<tr>
<td><strong>Email</strong></td>
<td><a href="mailto:smahmud2@kent.edu">smahmud2@kent.edu</a></td>
</tr>
<tr>
<td><strong>Office Hours</strong></td>
<td>12:30 pm - 01:30 pm Tuesdays and Thursdays or by appointment.</td>
</tr>
<tr>
<td><strong>Grader</strong></td>
<td>Not assigned yet</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>A grade of C (2.0) or better in CS 23001 - Data Structures. Having the idea of object-oriented concept will be helpful.</td>
</tr>
<tr>
<td><strong>Learning Objectives</strong></td>
<td>Explores database technology, data models, query languages, database design, and application program DBMS interface</td>
</tr>
<tr>
<td><strong>In-class Activities</strong></td>
<td>Students listen to lectures and engage in discussions, answer quizzes. One midterm exam and a final exam are required</td>
</tr>
<tr>
<td><strong>Outside Class Activities</strong></td>
<td>Reading the textbook, reading the online notes, reading external material (if any), and completing projects, and homework exercises</td>
</tr>
</tbody>
</table>
Topics

This course is designed to introduce you to basic Database Management System concepts and applications. Topics covered in this course include (or as time permits):

- **(Relational Databases)** Fundamental Concepts, the Relational Model, and SQL.
- **(Database Design)** E-R Model, Relational Database Design and Normalization, and Application Design and Development
- **(Data Storage and Querying)** DBMS File Structures, Indexing, Hashing, Query Processing, and Query Optimization
- **(Transaction Management)** Transactions, Concurrency, and Crash Recovery
- **(Non-Relational DBMS's)**
- **(Advanced Topics)** Big Data, Data Warehousing, Data Mining, Information Retrieval, Object-Based Databases, and XML.

Text Book

*Database System Concepts, Sixth Edition / Seventh Edition*
Avi Silberschatz, Henry F. Korth, S. Sudarshan.

Selected readings, tutorials, guides, and/or possibly videos will be provided by the Instructor - these will be made available on Blackboard.

Related References

- Database Systems: The Complete Book
- NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence Oracle Database 11g
- Database Design and Development: A Visual Approach
- Learning MySQL: Get a Handle on Your Data
- Data Management: Databases & Organizations
**Tentative Schedule**

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Topics</th>
<th>Chapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1,2 (Aug 26 – Sep 03)</td>
<td>Syllabus and Database Overview</td>
<td>Ch1</td>
</tr>
<tr>
<td>Week 3, 4.5 (Sep 06 – Sep 24)</td>
<td>Intro to Relational Models, SQL</td>
<td>Ch2-Ch5</td>
</tr>
<tr>
<td>Week 6 (Sep 27–Oct 01)</td>
<td>Database Design and ER-Model</td>
<td>Ch7</td>
</tr>
<tr>
<td>Week 7 (Oct 04– Oct 08)</td>
<td>Relational Database Design</td>
<td>Ch8</td>
</tr>
<tr>
<td>Week 8, 9 (Oct 12 – Oct 23)</td>
<td>Midterm (Oct 21th)</td>
<td>Ch9</td>
</tr>
<tr>
<td>Week 10, 11 (Oct 25 – Nov 05)</td>
<td>DBMS File Organization and Indexing</td>
<td>Ch10, Ch11</td>
</tr>
<tr>
<td>Week 12 (Nov 08 – Nov 12)</td>
<td>Query Processing, Query Optimization</td>
<td>Ch12, Ch13</td>
</tr>
<tr>
<td>Week 13, 14, 15 (Nov 15 – Nov 23)</td>
<td>Transaction Management and Introduction to NoSQL.</td>
<td>Ch14-16</td>
</tr>
<tr>
<td>Week 15 (Nov 24 – 28)</td>
<td>Thanksgiving break</td>
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</tr>
<tr>
<td>Week 16 (Nov 29 – Dec 03)</td>
<td>Big Data, Distributed Databases</td>
<td>Ch17, 18,19</td>
</tr>
<tr>
<td>Week 17 (Dec 06 – Dec 10)</td>
<td>Project Presentation</td>
<td></td>
</tr>
<tr>
<td>Week 18 (Final Week)</td>
<td>Final Exam 12:45 - 3:00 p.m. Thursday. Dec. 16</td>
<td></td>
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</tbody>
</table>

**Grading Policy**

Homework and Quizzes: 30%
Projects: 25% (22% for different project tasks and 3% for peer evaluation)
Midterm Exam: 20%
Final Exam: 20%
Class Participation: 5%

The distribution/percentages that will be used in grading is as follows:

<table>
<thead>
<tr>
<th>100-93</th>
<th>92-90</th>
<th>89-87</th>
<th>86-83</th>
<th>82-80</th>
<th>79-77</th>
<th>76-73</th>
<th>72-70</th>
<th>69-67</th>
<th>66-60</th>
<th>59-0</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A-</td>
<td>B+</td>
<td>B</td>
<td>B-</td>
<td>C+</td>
<td>C</td>
<td>C-</td>
<td>D+</td>
<td>D</td>
<td>F</td>
</tr>
</tbody>
</table>

The NF (Never Attended F) grade denotes that the student never attended one class session nor did the student formally withdraw from the course. The NF grade will count as an F (zero quality points) in computing grade point averages.

The SF (Stopped Attending F) grade denotes that the student stopped attending the course and did not formally withdraw from the course. A student who misses more than two consecutive classes without electronic or verbal communication to the instructor will receive a grade of SF for the course. The grade
of SF may be removed by the instructor. The SF grade will count as an F (zero quality points) in computing grade point averages.

**Projects and Homework Exercises**

A number of homework exercises, projects, will be given to support the concepts covered in class.

- Homework exercises and projects are due on a specified day. Your work must be in the repository and blackboard by the end of the day (11:59 PM) on the specified day.
- It is the student's responsibility to make sure assignment files are in the repository. Files not in the repository are not accessible by the instructor and thus are not turned in.
- Homework exercises will be assigned regularly.
- Your submitted work should reflect your understanding of the material. Ask questions if you have trouble with any assigned problem.
- Don’t wait until the last minute to start your homework. Instead, work on it every day after it is assigned until you have completed the assignment.
- It is okay to discuss the problems with others, but you must write up solutions on your own and understand what you are writing. You may not copy any part of someone else’s work.

**Quizzes**

- **Pop up quizzes** – During the lecture, a few questions will be asked based on the current lecture material. This type of quizzes will not be announced in advance. You must attend the class and understand the class lecture to answer the quiz questions. Extended hours might be allowed if required.
- **General Quizzes** – This type of quizzes might be assigned as an alternative to Homework but you will have only a few hours to submit the answers.

**Makeup and Late Policies**

- It is a course requirement for students to take all examinations at the scheduled time. If a missed exam is not excused, your grade for that exam will be zero. To receive an excused absence, either you must contact me in advance and receive permission to be absent or else present documented evidence of illness or of an individual/family emergency situation.
- Late submission of homework exercises will not be accepted one week after the due date. For every late day, 5% of the score will be penalized, up to a maximum penalty of 50%.

**Student Accessibility Policy**

University policy 3342-3-18 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for
these through Student Disability Services (contact 330-672-3391 or visit Student Disability Services at www.kent.edu/sas for more information on registration procedures)

**Plagiarism**

Copying or plagiarism of any type will not be tolerated and will be dealt with in accordance to Kent State University's policy on cheating and plagiarism described in the student handbook.

**ADMINISTRATIVE POLICY AND PROCEDURES REGARDING STUDENT CHEATING AND PLAGIARISM** (Condensed Version)

For complete policy and procedure go to: https://www.kent.edu/policyreg/administrative-policy-regarding-student-cheating-and-plagiarism

Cheating and plagiarism constitute fraudulent misrepresentation for which no credit can be given and for which appropriate sanctions are warranted and will be applied.

The university affirms that acts of cheating and plagiarism by students constitute a subversion of the goals of the institution, have no place in the university and are serious offenses to academic goals and objectives, as well as to the rights of fellow students.

"Cheat" means to intentionally misrepresent the source, nature, or other conditions of academic work so as to accrue undeserved credit, or to cooperate with someone else in such mis-representation. Cheating includes, but is not limited to:

1. Obtaining or retaining partial or whole copies of examinations, tests or quizzes before these are distributed for student use; Using notes, textbooks or other information in examinations, tests and quizzes, except as expressly permitted;
2. Obtaining confidential information about examinations, tests or quizzes other than that released by the instructor;
3. Securing, giving or exchanging information during examinations;
4. Presenting data or other material gathered by another person or group as one's own;
5. Falsifying experimental data or information;
6. Having another person take one's place for any academic performance without the specific knowledge and permission of the instructor;
7. Cooperating with another to do one or more of the above;
8. Using a substantial portion of a piece of work previously submitted for another course or program to meet the requirements of the present course or program without notifying the instructor to whom the work is presented; and
9. Presenting falsified information in order to postpone or avoid examinations, tests, quizzes, or other academic work.
"Plagiarize" means to take and present as one's own a material portion of the ideas or words of another or to present as one's own an idea or work derived from an existing source without full and proper credit to the source of the ideas, words, or works. As defined, plagiarize includes, but is not limited to:

a. The copying of words, sentences, and paragraphs directly from the work of another without proper credit;
b. The copying of illustrations, figures, photographs, drawings, models, or other visual and nonverbal materials, including recordings of another without proper credit; and
c. The presentation of work prepared by another in final or draft form as one's own without citing the source, such as the use of purchased research papers.

IMPORTANT PLAGIARISM SPECIFICS FOR THIS COURSE

All homework and programs must be your own work. Any violation means that the work will not be accepted, and a score of 0 will be given.

- All sources of referenced material must be cited.
- Students may discuss the programming assignments with each other.
- Students may look at each other's code.
- Each student must write her/his own program.
- Group programming is NOT permitted.
- It is not permitted to copy, in any manner, assignment related material (except material provided by the instructor).
  - You are not permitted to give a file to another student.
  - You are not permitted to accept a file from another student.
- It is each student's responsibility to not leave his/her files on public computers. If shared files are discovered each person with a copy of the shared file will receive a 0 for the assignment. The student who created the original is responsible for not allowing access to the file and the student with the copy should not be using another person's file.
- Copy and paste of more than a line or two from another source is NOT permitted.
- You should understand and be able to explain any part of any assignment you turn in. The instructor may ask you to do this.

**Academic Sanctions**

The following academic sanctions are provided by this rule for offenses of cheating or plagiarism. Kent campus instructors shall notify the department chairperson and the student conduct office each time a sanction is imposed. Regional campus instructors shall notify the regional campus dean and the student conduct officer each time a sanction is imposed. Regional campus student conduct officer shall notify the Kent student
conduct office each time a sanction is imposed by a regional campus Instructor. The following academic sanctions are provided by this rule for offenses of cheating or plagiarism. In those cases, the instructor may:

1. Refuse to accept the work for credit; or
2. Assign a grade of "F" or zero for the project, test, paper, examination or other work in which the cheating or plagiarism took place; or
3. Assign a grade of "F" for the course in which the cheating or plagiarism took place; and/or;
4. Recommend to the department chair or regional campus dean that further action specified in the rule be taken. The department chairperson or regional campus dean shall determine whether or not to forward to the academic dean or to the vice president for the extended university a recommendation for further sanction under this rule.

**Academic Appeals**

The general principle that applies to the following procedures is that an appeal is directed to the administrative level immediately above the unit from which the appeal emanates.

Appeals are limited to the following reasons:

a. The decision is arbitrary or unreasonable,
b. The decision resulted from a procedural error,
c. The decision is not in accordance with the facts presented,
d. New information is available which may suggest modification of the decision.

**Registration**

University policy requires all students to be officially registered in each class they are attending. Students who are not officially registered for a course by published deadlines should not be attending classes and will not receive credit or a grade for the course. Each student must confirm enrollment by checking his/her class schedule (using Student Tools in FlashLine) prior to the deadline indicated. Registration errors must be corrected prior to the deadline.

Registration dates may be found on the registrar's calendar.
Policies

Attendance Policy: Students are required to attend each and every lecture. Attendance and active participation during lectures will help you learn the material and succeed in class. Missed lectures will negatively impact your ability to make sense of the materials covered in subsequent lectures.

The instructor may sometimes take attendance. When an attendance sheet is passed around put your name only on the attendance sheet.

Absence Policy: It is the student’s responsibility to promptly notify the instructor about an absence prior to the missed class session and discuss with the instructor how to fulfill academic responsibilities. Notification should be provided in writing or e-mail.

While classes are conducted on the premise that regular attendance is expected, the university recognizes certain activities and events as legitimate reasons for absence from class.

- **Illness or Injury** - In the event of an absence due to illness or injury, verification from the medical professional treating the illness or injury preventing the student from attendance during class time should be presented to the instructor when the student returns to class. Dates in which the student was diagnosed and may return to class should be present on the verification. Students should discuss with the faculty member how to fulfill their academic responsibilities while coping with their illness or injury.
- **University Health Services (UHS) does not provide excuses for students who miss a class, exam, presentation or other academic responsibility due to illness or injury. UHS Walk-Out Statements are not accepted as verification.**
- **School Sponsored Event** - Students who anticipate absences due to a school sponsored event or participation in an approved concert or athletic event should present a "Class Absence Authorization Form" identifying absences and identifying the event sponsor’s name and contact information to instructor before the end of the second week of the semester.
- **Other** - Other legitimate reasons for class absence include death in the immediate family, or religious observance. Students should provide legitimate verification of participation in/attendance at the aforementioned events.
Missed Class Policy: It is up to the student to make up any missed material. If class is missed it is best to get notes from a fellow student (who has taken good notes). This will be the best record of what transpired during the class meeting.

Sometimes, in response to questions or as seems beneficial, further explanation will spontaneously be created by the instructor and written on the board. The instructor may retain no written record of this.

Handwriting Policy: All handwritten work must be legible to the instructor and grader. This includes not writing using tiny characters. Unreadable (by the instructor) work will not be graded and the points will be lost.

Miscellaneous

Please remember that personal conversation during lecture time is distracting to the instructor and to your fellow students. Leave the class if you wish to converse (on the phone). Discussions with your instructor regarding individual matters may be conducted after the class, but NOT before or DURING class time, please. If you must leave class early or arrive late - Please do so discreetly. Please silence all phones, beepers, pagers, radios, laptops and any other noise-making devices. Laptops are acceptable for taking notes; however, please ensure that your sound is turned off and that the screen does not distract/block other students. Using e-cigarettes in class is not permitted.

Read the text. Only general reading assignments will be given. The class will mostly cover material in the same order as the textbook, there may be exceptions however. It is the student's responsibility to maintain an awareness of the material in the text that is currently being covered. Ask the instructor if you are unsure of the text material currently being covered.

The instructor may occasionally address a student in class by her/his first name. If you do not want this for yourself notify the instructor in person AND by email.

The syllabus can be modified during the semester if it is necessary. The changes will be added in blue, and pointed out in class. Any changes will be for clarification.

If you have any problems, including understanding the material that we cover in class or using the computer, please talk to me as soon as possible.