Course URL: [http://people.cs.clemson.edu/~srimani/4620_6620_F20/index.html](http://people.cs.clemson.edu/~srimani/4620_6620_F20/index.html)

Instructor: Pradip K Srimani
116 McAdams Hall
656-5886, srimani@clemson.edu

Teaching Assistant: TBA

Office Hours: TBA

Objectives & Outcomes:

The objective in this class is for students to become familiar with [Database Management](http://people.cs.clemson.edu/~srimani/4620_6620_F20/index.html) Systems concepts. The student who completes this course:

- shall understand conceptual modeling concepts and be able to use ER Model to design database applications.
- shall be familiar with relational data models and be able to design relational database schemas from ER diagrams.
- shall be able to use a query language (SQL) to query the relational databases.
- shall understand the basic concepts of query optimization and learn simple query optimization techniques.
- shall gain experience in designing and implementing database systems.

Prerequisites: CPSC 2120 and CPSC 2150, each with a C or better.

Class Meeting times: Online course (asynchronous)

Above all, stay well, safe and calm. If you have a specific question (or your opinion or feedback about the class), write an email (via Canvas or by email). I’ll respond as quickly as possible.

Office Hours: Ask questions as often as you need. The subject header of your email must mention CpSc 4620/6620 along with a brief heading. **Do not use chain emails; do not reply to group emails.** I’ll respond as quickly as possible.

Textbook:
Tentative Outline of Topics:

1. Database Design Specification: Learning database concepts; discussing the database architecture and design considerations.
2. Conceptual model and ER diagram: ER Model; introducing EER diagram; studying how to use ER model to design a database system.
3. Relational data model and database schema: Learning the relational data model and studying how to convert ER model to relational database schema.
4. Database normalization: Introducing the functional dependency concepts; discussing the normal forms of relations, and the techniques used to perform the database normalization and the associated performance tradeoffs.
5. SQL language through MySQL: Studying SQL language using MySQL DBMS system; learning how to install and manage the MySQL database; writing SQL queries for retrieving information from the database.
6. Index, key, and other constraints: Discussing the concepts of indexing, key constraints, and integrity of the database.
7. Query Optimization: Introducing the query processing and query optimization techniques. We will discuss how a DBMS system processes queries and introduce the options for query optimization. Normalization will also be revisited with the emphasis on the performance tradeoffs associated to normalization.

Tentative Grading (subject to change):

The final grade for the course will be computed based upon the following distribution (tentative):

- Project — 30%
- Home works— 10%
- 2 Tests – 30%
- Comprehensive Final Exam – 30%

For 6620 Students: There will be additional special topics in the Projects and additional questions in tests.

Class Policy on submission: You cannot turn in work that has been turned in for credit in another course.

Grade Appeal:
Any grade challenges regarding exams, quizzes, exercises, or programs must be emailed to the instructor, with detailed justifications, within one week of the date the grades are posted. No exceptions.

**Attendance**

*Attendance is expected, but not required.* We may cover material in an order different than any textbook. You are responsible for any material covered in class. You are responsible for any announcements, assignments or assignment modifications that are announced in class whether you are present or not. This also applies to arriving late to class or leaving early. **We will have unannounced quizzes during class; 5 to 10 quizzes are expected during the semester. No make-ups will be given.**

**Projects**

We will do a semester long project (using MYSQL and web portals); you'll be working in groups of two, unless otherwise approved; details will be provided in class. **You should be reasonably proficient in using C on UNIX platforms; programming help may not be available.**

**Deadlines**

Work is due at the specified deadline. If a project (homework, programming assignment, etc.) is only partially completed you should submit what you have by the deadline. You should expect very little to no credit for projects that still generate syntax errors.

**Academic Integrity**

As members of the Clemson University Community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning". Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. Read the university academic integrity statement (along with other important information). Unless otherwise specified in an assignment, you are expected to work independently on projects, assignments, tests and labs. **If you are in doubt about the type of help you may give or receive on a project: ASK!**

**University Accessibility Statement:**

Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of
facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to this class should let the professor know, and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848, by emailing studentaccess@lists.clemson.edu, or by visiting Suite 239 in the Academic Success Center building. Appointments are strongly encouraged – drop-ins will be seen if at all possible, but there could be a significant wait due to scheduled appointments. Students who receive Academic Access Letters are strongly encouraged to request, obtain and present these to their professors as early in the semester as possible so that accommodations can be made in a timely manner. It is the student’s responsibility to follow this process each semester. You can access further information here: https://www.clemson.edu/academics/studentaccess/

The Clemson University Title IX (Sexual Harassment) Statement

Title IX Policy: Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran’s status, genetic information or protected activity (e.g., opposition to prohibited discrimination or participation in any complaint process, etc.) in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. The University is committed to combating sexual harassment and sexual violence. As a result, you should know that University faculty and staff members who work directly with students are required to report any instances of sexual harassment and sexual violence, to the University’s Title IX Coordinator. What this means is that as your professor, I am required to report any incidents of sexual harassment, sexual violence or misconduct, stalking, domestic and/or relationship violence that are directly reported to me, or of which I am somehow made aware. This policy is located at http://www.clemson.edu/campus-life/campus-services/access/title-ix/. Ms. Alesia Smith is the Executive Director for Equity Compliance and the Title IX Coordinator. Her office is located at 223 Holtzendorff Hall, phone number is 864.656.3181, and email address is alesias@clemson.edu.

Fall 2020 Academic Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>Aug 17, 18</td>
<td>Late Enrollment</td>
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<tr>
<td>Aug 19</td>
<td>Classes begin</td>
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<tr>
<td>Aug 25</td>
<td>Last day to register or add a class or declare Audit</td>
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<tr>
<td>Sep 1</td>
<td>Last day to drop a class or withdraw from the University without a W grade</td>
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<tr>
<td>Sep 8</td>
<td>Last day to apply for December graduation</td>
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<tr>
<td>Oct 9</td>
<td>Last day for instructors to issue midterm evaluations</td>
</tr>
<tr>
<td>Oct 23</td>
<td>Last day to drop a class or withdraw from the University without final grades</td>
</tr>
<tr>
<td>Nov 2, 3</td>
<td>Fall break</td>
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</table>
Nov 4  Registration for spring and summer terms begins

**Nov 25 – 27**  Thanksgiving Holidays

Dec 3, 4  Classes meet; exams permitted in labs and one-hour courses only

**Dec 7 – 11**  Final Examinations

Dec 14  9am  Deadline to submit candidate grades
Dec 16, Wed  9:00 A.M.--Deadline to submit other grades
Dec 16, Wed  Candidates for graduation may access grades, Doctoral Hooding at the Brooks Center

**Dec 17**  Graduation