COMP 7115 - Database Systems

Instructor- Purnakumar Thota

Contact Information:

Email: pthota@memphis.edu

Office Hours: By Email and Teams by appointment

Class Timings- 6:00 pm - 7:25 pm, Tuesday and Thursday

Classroom – Refer to university course catalog

Semester dates - Refer to university course catalog

Course Description:

COMP 7115– Database Systems

This course covers fundamentals of database systems and includes principles and methodologies of database design, and techniques for database application development.

Learning Outcomes

1. Understand conceptual data modeling.
2. Understand concepts of databases.
3. Design relational databases.
4. Design queries for relational databases.
5. Understand concepts of non-relational databases.
6. Design queries for non-relational databases.
7. Understand current big-data technologies.
8. Data warehouse and Data Lake concepts
9. Hands-on experience developing database backend.

Tentative Course Outline-

Week1/2	Overview of Database Systems
Week 3/4	Database System Concepts and Architecture
Week 5/6	Conceptual Data Modeling and Database Design
Week 7/8	SQL Programming, In class hands on exercises.
Week 9/10	Research Paper Presentations (Oct21 and 23rd). Mid Term Exam (Oct 28)
Week 11/12	NO SQL Databases - Neo4j, MongoDB
Week 13/14	Data Warehousing and Data Lake Concepts
Week 15/16	Final Project Submission and Presentations

University Holidays and Calendar - https://www.memphis.edu/registrar/calendars/

- **Fall Break - October 11 - 14, 2025**
- **Thanksgiving - November 26 - 30, 2025**
- **Classes end - December 3, 2025**
- **Study Day (Classes do not meet): December 4, 2025**

Optional Textbooks

1. Fundamentals of Database Systems, R. Elmasri and S. Navathe, 7th edition, Addison-Wesley Inc.
2. Murch's MYSQL 3rd Edition – Joel Murach

Technical Requirement

Students must have their own computers or laptops.

Must be able to install MYSQL server and other database software required for the course

Must be able to create GCP or Azure Free account, with credit/debit card.

Grading Scale:

A - 90–100%

B− 80–89%

C− 70–79%

D - 60–69%

F ≤ 59%

Grading:

1. Midterm – 25%

2. Individual Research Paper - 25%

4. Group Final Project – 30%

5. Class Participation (Class Discussions, Group discussions, Presentation, Attendance, Late submissions, Excuses) – 15%

Grading Procedures:

1. All assessments such as exams, assignments, research paper and the term project will be published on canvas (https://memphis.instructure.com/). **The instructor will be strict about enforcing submission deadlines**. Students will have to submit them before the deadline. PLEASE DON'T ASK FOR ADDITIONAL OR LATE CREDIT!
2. There won't be any final exam in this class. You will have only a term project which will be counted as your final exam.

Course Policies:

Late Policy: Without prior request, no late work will be accepted.

Testing Policy: Your midterm will be a timed in-class exam. There will NOT be any makeup exams either. The term project will be counted as your final exam. More information about the term project will be shared later.

Homework Assignment and Project Report Policy: It is required that students use a word

processing software to type their homework solutions or project report, then submit well-formatted PDF files only.

Plagiarism/Cheating Policy:

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and will not be tolerated. All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but appropriate references must be included for the materials consulted, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor's discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the Office of Student Conduct for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to:

http://www.memphis.edu/studentconduct/misconduct.htm

Your written work may be submitted to Turnitin.com, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all.

Student Disabilities

If you have a disability that may require assistance or accommodations, or if you have any questions related to any accommodation for testing, note taking, reading, etc., please contact me as soon as possible.

You must contact the Disability Resources for Students office (901.678.2880, drs@memphis.edu, https://www.memphis.edu/drs/) to officially request such accommodations / services.

Guidelines for Communication

Email:

§ Always include a subject line.

§ Remember without facial expressions some comments may be taken the wrong way. Be careful in wording your emails. Use of emoticons might be helpful in some cases.

§ Do not send large attachments without permission.

§ Special formatting such as centering, audio messages, tables, html, etc. should be avoided unless necessary to complete an assignment or other communication.

§ Respect the privacy of other class members.

Discussion Groups:

§ Review the discussion threads thoroughly before entering the discussion. Be a lurker then a discussant.

§ Try to maintain threads by using the "Reply" button rather starting a new topic.

§ Do not make insulting or inflammatory statements to other members of the discussion group. Be respectful of others' ideas.

§ Be patient and read the comments of other group members thoroughly before entering your remarks.

§ Be cooperative with group leaders in completing assigned tasks.

§ Be positive and constructive in group discussions.

§ Respond in a thoughtful and timely manner.