

COMP 3115 - Database Process and Design – Fall 2018

Fatih Şen, PhD

Contact Information:

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Class Location: Engr Science Bldg 220	Class Days/Time: Tue, Thu/2.40pm-4.05pm
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Office Hours:

Monday and Wednesday, 3:30pm – 4:30pm; or by appointment.

Course Description:

COMP 3115 – 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. Design high-level programs to access databases.
8. Understand current big-data technologies such as MapReduce and Hadoop.

Requirement

Students must bring their laptop to the class.

Required Textbook:

Fundamentals of Database Systems, R. Elmasri and S. Navathe, 7th edition, Addison-Wesley Inc.

Evaluation:

Grading Scale:

A+	≥ 96%
A	90–95%
B+	87–89%
B	81–86%
B–	79–80%
C+	77–78%
C	71–76%
C–	69–70%
D+	67–68%
D	60–66%
F	≤ 59%

Grading:

1. Midterm – Thursday, Oct 18th, 2.40pm-4.05pm: 20%
2. Assignments: 15%
3. Project: 15%
4. Final Exam – Tuesday, Dec 11th, 1.00pm-3.00pm: 25%
5. Quiz: 15%
6. Attendance: 10%

Course Policies:

Late Policy: Without prior request, no late work will be accepted. All late submission maybe accepted at a penalty of 15% per day for no more than THREE days.

Testing Policy: All the midterm exams given are closed book/note/laptop/neighbor. But students are allowed to bring one cheat sheet (one piece of letter-size paper) for quick reference. Midterm exams are not cumulative. There will NOT be any makeup exams unless there is a documented emergency.

Homework Assignment and Project Report Policy: It is recommended that students use a word processing software (e.g., Word or LaTeX) to type their homework solutions or project report, then submit well-formatted PDF files.

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.

Topics

- Week 1. Overview of Database Systems
- Week 2. Database System Concepts and Architecture
- Week 3. Conceptual Data Modeling and Database Design
- Week 4-5-6. The Relational Data Model and SQL
- Week 7. Overview of Data Warehouses and OLAP
- Week 8. NOSQL Databases and Big Data Storage Systems
- Week 9-10. Neo4j Graph Database
- Week 11. Distributed Database Concepts
- Week 12. Big Data Technologies Based on MapReduce and Hadoop
- Week 13-14. Class Project Sessions and Presentation