Syllabus: COSC 6380 - Advanced Database Systems (Spring 2021)

Course Instructor  Dr. Praveen Madiraju

Office  377 Cudahy(CU) Hall, 1313 W. Wisconsin Avenue, Milwaukee WI 53233

Contact Information  praveen.madiraju@marquette.edu; 414-288-6340

Office Hours  MW 3-4:30PM and by appointment through e-mail

Course Details  Class meets Mondays 6:30 pm - 9:10 PM in CU 417 and online.


Course Textbook  Materials from reference books and internet, Papers from IEEE digital library and ACM digital library will be used.

Reference Textbook:
We do not have a required course textbook for this course. However, I found this book to be useful. Seven Databases in Seven Weeks: A Guide to Modern Databases and the NoSQL Movement, Luc Perkins, Eric Redmond, Jim Wilson, 2nd edition.

Prerequisites: COSC 4800/5800 – Principles of Database Systems or equivalent course

Topics to be covered:
NoSQL Systems, MongoDB, HBase, Cassandra, Hadoop, MapReduce, Apache Spark, and Data Analytics (as time permits)

Learning Outcomes: Upon completion of this course, the student will:
1. Become familiar with concepts of JSON and JavaScript, which are used frequently with NoSQL database systems.
2. Understand NoSQL concepts and technologies.
3. Learn document database system - MongoDB and Columnar databases such as HBase and Cassandra.
4. Learn advanced database related technologies such as: Hadoop, MapReduce, Apache Spark, and data analytic tools.

Grading Basis:
Programming/Written Assignments: 55%; Class Participation and In-Class Exercises: 15%; Technology/Paper Review Discussions: 30%;

The final grades will be based on:
A: 95 – 100; A- : 89 - 94; B+: 83 – 88; B: 77 – 82; B- : 71 – 76; C+: 65 – 70; C : 57 – 64; F : 0 - 56

Course Policies
1. Students are responsible for all material presented in lecture.

2. Late Assignments: 10% penalty for 1-2 days late; 30% penalty for 3-5 days late; 50% penalty for 6-7 days late. Points will not be given to submissions late by more than 7 days. Late assignments shall not be accepted once the solutions are discussed or posted on course web page.

3. All work submitted for grading must be the student's own work. Plagiarism will result in a score of zero on the exam or assignment, and/or dismissal from the course. You can review the document on academic honesty policy in the student hand book, which is available from: http://bulletin.marquette.edu/grad/

4. In-Class Exercises will be assigned from time to time during the class lecture. It is expected that students actively participate working on the problems and upload their solutions to the class D2l folder. They may not be graded, but evidence of working on the in-class problems and general class participation count towards the "Class Participation and In Class Exercises" grade component.

5. Technology/Paper Review Discussions will involve reading technical or research papers on a topic and presenting a short summary of assigned reading to the class during lecture.

6. Attendance is vital to success in this class. Please refer to the policy on absences in the university bulletin.

7. Any course related communication will be made to the student's official Marquette email address. It is the responsibility of the student to check his/her emails.

8. Students should not use any digital device for non-course related activities such as internet browsing, texting, facebooking, tweeting, instgraming, snap chatting, etc. during lectures or exams.

9. Due to the COVID-19 pandemic and the safety measures needed to keep you safe, Easter break and mid-semester break (the day after Easter) have been replaced by mental health days spread throughout the semester. These are days for you to rest and, therefore, there will not be any assignments or activities due on these mental health days. Spring 2021 mental health days are: Tuesday, February 9, Wednesday, March 10, Tuesday, April 20, and Wednesday, May 5.

10. Final day to withdraw from the course with a W is Friday, April 23, 2021.

NOTE: This syllabus represents a general plan for the course and deviations from this plan may be necessary during the duration of the course.

Page Author: Praveen Madiraju