Rutgers, The State University of New Jersey
Rutgers Business School, Newark and New Brunswick

Advanced Database Systems
26:198:641

Spring 2017
Tuesdays 10:00am - 12:50pm, 1 Washington Park, Room 303

Instructor: Prof. Vijay Atluri
Office: 1082, 1 Washington Park (Newark)
Office Hours: Tuesdays 2:30 - 3:30pm and by appointment
Telephone: 973-353-1642
Fax: 973-353-5003
E-mail: atluri@rutgers.edu
Homepage: http://cimic.rutgers.edu/~atluri

Official University/Campus closings due to inclement weather:
Call 973-353-1766 or 732-932-1766, Newark Campus Information

Course Description: The purpose of this course is to present advanced topics in database systems and delve into research in these areas. The topics include distributed systems, distributed databases, as well as advanced application domains that influence database research such as Big Data, cloud computing, Web services, semantic Web, information security & privacy, and electronic commerce.

Text Book: There is no prescribed text.

Reading Material:

There is no text assigned to this course at the moment. However, the following books either cover one topic in depth or cover some of the preliminary concepts of the topics. In addition to the books listed below, the reading list includes a number of research papers.

8. The DBLP Bibliography An Excellent source for the Research materials in the Database area
9. Google Scholar
10. Plus selected readings
Related Journals and Conferences:

1. ACM Transactions on Database Systems (TODS)
2. IEEE Transactions on Knowledge and Data Engineering (TKDE)
3. ACM SIGMOD International Conference on Management of Data (SIGMOD)
4. IEEE International Conference on Data Engineering (ICDE)
5. The Very Large Data Bases (VLDB) Conference
6. The International Journal on Very Large Data Bases (VLDB journal)
7. International Conference on Information and Knowledge Management (CIKM)
8. ----- 

Expected Work:

Research Paper and Presentation 30%
Midterm Examination 25%
Final Examination 25%
Quizzes 20%

Tentative Schedule:

Jan 17
Course Introduction
Introduction to Database Fundamentals
Concurrency Control

Jan 24
Distributed Databases and Distributed Transaction Processing

Jan 31
Data replication – consistency semantics in Emerging applications
The CAP Theorem

Feb 7
Data Warehousing
Research Paper Title and Outline due

Feb 14
Guest Lecture by Deepak Paramand, Synchronoss

Feb 21
Big Data, No SQL databases
Quiz 1

Feb 28
Big Data, No SQL databases

Mar 7
Cloud Computing

Mar 21
Mid-term examination (Topics covered until Mar7)

Mar 28
Cloud Computing

Mar 31(instead of Apr 4)
Guest Lecture by Deepak Paramand, Synchronoss

Apr 11
Quiz 2
Security and privacy issues in data outsourcing in the cloud (Database as a service)

Quiz 2

Apr 18
Security in Databases
Research Paper Due

Apr 25
Research Paper Presentations: Each student will have 20 minutes to present

May 2
Final Examination