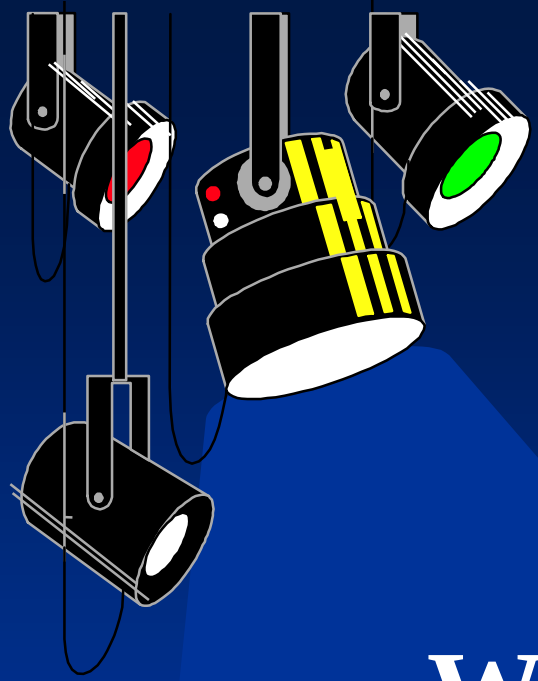

Welcome to Advanced Database Course

Name: Yangjun Chen

P.h.D: University of Kaiserslautern, Germany, in 1995

Post Doctor: University of Chemnitz, Germany, 1995/7 - 1997/8

Senior engineer: Germany Research Center for Information Technology, 1997/9 - 2000/2

Post-Doc.: University of Alberta, 2000/2 - 2000/6

Assistant Prof.: University of Winnipeg, from 2000/7
Associate Prof.: University of Winnipeg, from 2004/7
Full Prof.: University of Winnipeg, from 2009/7

Professor: Dr. Y. Chen

Office: 3D27
home-page: http://www.acs.uwinnipeg.ca/ychen2
E-mail: y.chen@uwinnipeg.ca
phone: 204-786-9417

Meeting time: 11:30 am - 12:45 pm, Mon. & Wed.

Meeting location: 3D03

Office hours: 16:00 - 17:00 Mon. & Wed.
12:00 – 3:00 pm Friday (except time for dept. meeting)

Important dates:

Wed, Sept. 04, 2024	First class
Oct. 14 – 18, 2024	reading break (no classes)
Wed., Oct. 23, 2024	Midterm examination

Nov. 13, 2024

Final date to withdraw without academic penalty from a course that begins in Sept. and ends in December of the 2024 Fall term

Mon., Dec. 02, 2024	Last class
Final examination	TBA

Course objectives:

This course covers advanced topics related to database management systems:

- DB system architecture and system catalog
- Query processing and optimization
- Transaction processing, concurrency, and recovery which form the basis of OLTP systems
- Database security and authorization
- Enhanced entity-relationship modelling
- Spatial and temporal data management
- Indexes over multi-dimensional data
- Web browser and internet
- Graph databases
- Data mining (most popular package design)

Required textbook:
Elmasri/Navathe, Fundamentals of Database Systems, **3rd, 4th, 5th, 6th, or 7th edition**, Addison-Wesley, ISBN# 0-8053-1755-4

Required reading:
Ch. 17, 3rd ed. Database system architecture and the system catalog
(Ch. 2, 4th ed., 5th ed., 6th ed., 7th ed.)
Ch. 18, 3rd ed. Query processing and optimization
(Ch. 15, 4th ed., 5th ed.; Ch. 19, 6th ed.; Ch. 18, 19, 7th ed.)
Ch. 19, 3rd ed. Transaction processing concepts
(Ch. 17, 4th ed., 5th ed.; Ch. 21, 6th ed.; Ch. 20, 7th ed.)
Ch. 20, 3rd ed. Concurrency control techniques
(Ch. 18, 4th ed., 5th ed.; Ch. 22, 6th ed.; Ch. 21, 7th ed.)
Ch. 21, 3rd ed. Database Recovery techniques
(Ch. 19, 4th ed., 5th ed.; Ch. 23, 6th ed.; Ch. 22, 7th ed.)

Ch. 22 , 3rd ed. Database security and authorization
(Ch. 23, 4th ed., 5th ed.; Ch. 24, 6th ed.; Ch. 30. 7th ed.)
Ch. 4 , 3rd ed. Advanced data models and EER-to-Relational mapping
(Ch. 7, 4th ed., 5th ed., Ch. 8, 6th ed.; Ch. 9, 7th ed.)
Lecture notes Spatial and temporal data management (Ch. 26, 7th ed.)
Lecture notes Indexes over multi-dimensional data
Lecture notes Web browser and search engines
Lecture notes Graph databases
Lecture nodes Data mining (most popular package design)

Reference Material

Yangjun Chen, Class notes and/or html pages.

Course Evaluation:

4 assignments	20%
1 midterm examination	25%
1 final examination	55%

- All assignments are handed in through email on the due date. (Marker: Mr. Navkaran Singh, nav4902ta@gmail.com)
- All works must be prepared using a word processor and placed in a folder.
- Late assignments are accepted (up to 1 day late) and receive a 25% penalty.

Academic dishonesty:

- Academic dishonesty is a very serious offense and will be dealt with in accordance with the University's discipline bylaw. Be sure that you have read and understood Regulations and Policies, #8 in the 2024-2024 UW Calendar.