



THE UNIVERSITY OF WINNIPEG

APPLIED COMPUTER SCIENCE

Course Number ACS-4902-001

Course Name – Advanced Database Systems

Instructor Information

Instructor : Dr. Yangjun Chen

Office: 3D27

E-mail: y.chen@uwinnipeg.ca

Office Hours: 4:00 pm - 5:00 pm Mon. and Wed.
10:00 am – 5:00 pm Friday

Class Meeting Time: Mon. and Wed. 2:30-3:45 pm

Room No: 3D04

Important Dates

1. First Class Date: Jan. 08, 2018
2. Midterm Exam/Tests/Quizzes: Wed. Feb. 28, 2018, 2:30 - 3:45 pm
3. Final Exam (Comprehensive): April 16, 2018, 1:30 – 4:30 pm
4. Final Withdrawal Date w/o academic penalty: March 14, 2018
(A minimum of 20% of the work on which the final grade is based will be evaluated and available to the student before the voluntary withdrawal date)
5. Reading Week: Feb. 18 – 24, 2018
6. Other Deadlines (e.g., assignments, term papers/projects):
four assignments, the deadlines will be determined during the course.

All assignments are handed in at class on the due date.

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.

Course Objectives/Learning Outcomes

The course is a continuation of ACS-3902/3 (Database Management Systems). It deals with advanced topics in database design, use, and administration.

Concretely, the knowledge on the following topics will be established:

1. System implementation and client/server architectures
2. Query processing and optimization
3. Transaction processing, concurrency, and recovery, which form the basis of OLTP systems
4. Security
5. Enhanced entity-relationship modelling
6. Object-oriented database management systems
7. Spatial and temporal data management

Evaluation Criteria

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

Test/Exam Requirements

- No photo ID is required.
- Calculators/electronic translators but the text book can be used.

Students with documented disabilities, temporary or chronic medical conditions requiring academic accommodations for tests/exams (e.g., private space) or during lectures/laboratories (e.g., access to volunteer note-takers) are encouraged to contact Accessibility Services (AS) at 786-9771 or email accessibilityservices@uwinnipeg.ca to discuss appropriate options. Specific information about AS is available on-line at <http://www.uwinnipeg.ca/accessibility>. All information about a student's disability or medical condition remains confidential.

The University of Winnipeg promotes a scent-free environment. Please be respectful of the needs of your fellow classmates and your instructor by avoiding the use of scented products while attending lectures. Exposure to perfumes and other scented products (such as lotion) can trigger serious health reactions in persons with asthma, allergies, migraines or chemical sensitivities.

Required Text Book(s)/Reading List

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

Class Notes are available on the web page: <http://www.uwinnipeg.ca/~ychen2>.

Prerequisite Information*

A grade of at least C in both ACS-2947/3 and ACS-3902/3

*Make sure that you have the necessary prerequisites to take this course. If you have not successfully completed the above listed courses, it is in your interest to go to student registration office and officially drop the course. Otherwise, the registration office will do it on your behalf.

Misuse of Computer Facilities, Plagiarism, and Cheating

• Academic dishonesty is a very serious offense and will be dealt with in accordance with the University's policies. Be sure that you have read and understood **Regulations & Policies #8**, starting on page 27, in the 2017-2018 UW Course Calendar.

- Avoiding Academic Misconduct. Uploading essays and other assignments to essay vendor or essay trader sites (filesharing sites that are known providers of essays for use by others who submit them to instructors as their own work) involves "aiding and abetting" plagiarism. Students who do this can be charged with Academic Misconduct.

- **Avoiding Copyright Violation.** Course materials are owned by the instructor who developed them. Examples of such materials are course outlines, assignment descriptions, lecture notes, test questions, and presentation slides. Students who upload these materials to filesharing sites, or in any other way share these materials with others outside the same class without prior permission of the instructor/presenter, are in violation of copyright law and University policy. Students must also obtain instructor/presenter permission before photographing or recording slides, presentations, lectures, and notes on the board

Additional Course Related Information

1. When it is necessary to cancel a class due to exceptional circumstances, instructors will make every effort to inform you via uwinnipeg email, as well as the departmental assistant and Chair/Dean so that class cancellation forms can be posted outside classrooms.
2. Your uwinnipeg email address will normally be used for course related correspondence.
3. Please note that withdrawing before the VW date does not necessarily result in a fee refund.
4. April 5, 2018 is the class make-up date for courses that conflict with Good Friday, March 30.
5. No classes: Feb. 18-24 Winter Mid-term reading week; Friday, March 30 (Good Friday).

Tentative Course Outline and Schedule

Chapter 2 (6 th ed.)	Database system architecture and the system catalog
Chapter 11 (6 th ed.)	Concepts for object-oriented databases
Chapter 12 (6 th ed.) (and lecture notes)	XML: Extensible Markup Language
Chapter 13 (6 th ed.) (and lecture notes)	Introduction to SQL Programming Techniques
Chapter 15 (5 th ed.) (and lecture notes)	Query processing and optimization
Chapter 18 (6 th ed.) (and lecture notes)	Indexing structures for files
Chapter 21 (6 th ed.)	Transaction processing concepts
Chapter 22 (6 th ed.)	Concurrency control techniques
Chapter 23 (6 th ed.)	Database Recovery techniques
Chapter 24 (6 th ed.)	Database security and authorization
Lecture notes	Spatial Databases

Note: all topics listed on the outline may not be covered.