THE UNIVERSITY OF WINNIPEG

APPLIED COMPUTER SCIENCE

Course Number: ACS-4902-001/ GACS-4902-001
Course Name: Advanced Database Systems
Course Webpage: http://courses.acs.uwinnipeg.ca/4902-001/

Instructor Information

Instructor: Dr. Mary Adedayo
E-mail: m.adedayo@uwinnipeg.ca

Office Hours:	Tues/Thurs	2:30 – 4:00 pm	**Office:**	3D27
Class meeting times:	Tues/Thurs	1:00 – 2:15 pm	**Room:**	3D03

Important Dates

1. First Class: Tuesday, January 7, 2020
2. Reading Week (no classes):   February 16 – 22, 2020
3. Midterm Exam: Tuesday, February 25, 2020
4. Final Withdrawal Date[1]:   Friday, March 13, 2020
5. Last Class: Thursday, April 2, 2020
6. Final Exam (Comprehensive):   Thursday, April 9, 2020 at 1:30 p.m.
                                              Room: TBA

7. University closures:

        Louis Riel Day: Monday, February 17, 2020
        Good Friday: Friday, April 10, 2020

[1]Final withdrawal date without academic penalty: 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.

Course Objectives / Learning Outcomes

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

Concretely, the knowledge of the following topics will be established:
1. System implementation and client/server architectures
2. Query processing and optimization
3. Transaction processing, concurrency control and recovery
4. Database security
5. Enhanced entity-relationship modelling

6. Object-oriented database management systems

Evaluation Criteria

1. Assignments (20%)
   - There will be 4 assignments, equally weighted.
   - All assignments MUST be completed individually.
   - Assignments will be accepted up to 24 hours late with a 25% penalty.
   - Non-programming questions must be typed using a word processor and handed in during the class on the due date. The requirement for programming questions will be stated in each assignment. Any additional details for submission procedure will be stated in each assignment.

2. Midterm Exam (25%)
   - During the regular class time on February 25

3. Final Exam (55%)
   - Cumulative
   - 3 hours duration

Students should contact the instructor as soon as possible if extenuating circumstances require missing an assignment, test or examination. A medical certificate from a practicing physician may be required before any adjustments are considered.

Test / Exam Requirements

- Photo ID is required for the midterm and final exam.
- Calculators can be used during both midterm and final exams, but the use of computers, phones, or other electronic devices is not permitted.
- Midterm and final exams are closed book.

Final Letter Grade Assignment

Historically, numerical percentages have been converted to letter grades using the following scale. However, instructors can deviate from these values based on pedagogical nuances of a particular class, and final grades are subject to approval by the Department Review Committee.

A+	90 – 100%	B+	75 – 79%	C	60 – 64%
A	85 – 89 %	B	70 – 74%	D	50 – 59%
A-	80 – 84%	C+	65 – 69%	F	below 50%

Required Textbook / Reading List

- Elmasri and Navathe, *Fundamental of Database Systems, 7th Edition,* Addison-Wesley, ISBN: 978-0-133970777
- Class notes and notices will be available from the course website.

Prerequisite Information

• A grade of at least C in both ACS-2947(3) and ACS-3902(3)

Services for Students

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., note-takers) are encouraged to contact Accessibility Services (AS) at 204-786-9771 or accessibilityservices@uwinnipeg.ca to discuss appropriate options. All information about a student's disability or medical condition remains confidential.
https://www.uwinnipeg.ca/accessibility-services.
Students may choose not to attend classes or write examinations on holy days of their religion, but they must notify their instructors at least two weeks in advance. Instructors will then provide opportunity for students to make up work examinations without penalty. A list of religious holidays can be found in the 2019-20 Undergraduate Academic Calendar online at
http://uwinnipeg.ca/academics/calendar/docs/important-notes.pdf

All students, faculty and staff have the right to participate, learn, and work in an environment that is free of harassment and discrimination. The UW Respectful Working and Learning Environment Policy may be found online at https://www.uwinnpeg.ca/respect.

Misuse of Computer Facilities, Plagiarism, and Cheating

Academic dishonesty is a very serious offense and will be dealt in accordance with the University's policies.

Avoiding Academic Misconduct and Non-academic Misconduct. Students are encouraged to familiarize themselves with the Academic Regulations and Policies found in the University Academic Calendar at:
https://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf
Particular attention should be given to subsections 8 (Student Discipline), 9 (Senate Appeals) and 10 (Grade Appeals). Please note, in particular, the subsection of Student Discipline pertaining to plagiarism and other forms of cheating.

Detailed information can be found at the following:

• Academic Misconduct Policy and Procedures: https://www.uwinnipeg.ca/institutional-analysis/docs/policies/academic-misconduct-policy.pdf and https://www.uwinnipeg.ca/institutional-analysis/docs/policies/academic-misconduct-procedures.pdf
• Non-Academic Misconduct Policy and Procedures: https://www.uwinnipeg.ca/institutional-analysis/docs/student-non-academic-misconduct-policy.pdf and https://www.uwinnipeg.ca/institutional-analysis/docs/student-non-academic-misconduct-procedures.pdf

Misuse of Filesharing Sites. Uploading essays and other assignments to essay vendor or 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 class without prior permission of the instructor/presenter, are in violation of copyright law and University policy. Students must also seek prior permission of the instructor /presenter before photographing or recording slides, presentations, lectures, and notes on the board.

Class Cancellation, Correspondence with Students and Withdrawing from Course

When it is necessary to cancel a class due to exceptional circumstances, the course instructor will make every effort to inform students via uwinnipeg email (and/or using the preferred form of communication, as designated in this outline), as well as the Departmental Assistant and Chair/Dean so that class cancellation forms can be posted outside classrooms.

Students are reminded that they have a responsibility to regularly check their uwinnipeg e-mail addresses to ensure timely receipt of correspondence from the University and/or the course instructor*.*

Please let course instructor know if you plan on withdrawing from the course. Note that withdrawing before the VW date does not necessarily result in a fee refund.

Topics to be covered (tentative)*

- Chapter 2 Database System Concepts and Architecture
- Chapter 9 ER- and EER-to-Relational Mapping
- Chapter 10 Introduction to SQL Programming Techniques
- Chapter 12 Object and Object-Relational Databases
- Chapter 13 XML: Extensible Markup Language
- Chapter 18 Strategies for Query Processing
- Chapter 19 Query Optimization
- Chapter 17 Indexing structures for files and Physical Database Design
- Chapter 20 Introduction to Transaction Processing Concepts and Theory
- Chapter 21 Concurrency Control Techniques
- Chapter 22 Database Recovery Techniques
- Chapter 30 Database Security

Topics may be covered in a different order