THE UNIVERSITY OF WINNIPEG

APPLIED COMPUTER SCIENCE

Course Number – ACS-3902-050
Course Name – Database Systems

Instructor Information

Instructor: Ron McFadyen **Office:** 3D21
E-mail: ron.mcfadyen @acs.uwinnipeg.ca **Office Hours**: Th: 2:00-3:00
or by email appointment
Class Meeting Time: W 6:00 pm – 9:00 pm **Room No:** 3D04
Course Web Page: https://courses.acs.uwinnipeg.ca/3902-050

Important Dates

First Class: W Sep 6th, 2017
Reading Week (no classes, no labs) Su Oct 8th – Sat Oct 14th, 2017
Midterm Test: W Oct 25, 2017
Final Withdrawal Date w/o academic penalty: Fr Nov 10th, 2017
(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)
Last Class: W Nov 29th, 2017
Final Exam: W Dec 13th, 2017 @ 6:00 pm

Course Objectives/Learning Outcomes

- Introduce theory of relational and NOSQL models - emphasis on relational.
- Provide the foundation for database design required by systems analysts, designers, programmers and data modelers.
- Introduce techniques utilized in the various stages of a database software development cycle.
- Cover EERDs, database languages, functional dependencies, normalization, physical data storage.

Evaluation Criteria

- Assignments: 25%
    - All assignments are to be completed <u>individually</u>
    - There will be 5 assignments worth 5% each
    - Due by midnight on due dates
    - Late assignments are accepted, up to 1 day, with 20% off
    - Assignments typically involve programming and are submitted via email to the teaching assistant
    - Multiple submissions are not permitted. Students may submit a partially completed assignment, and will receive credit for those attempted problems
    - Students are responsible to review their assignments before submission to make sure the correct files are attached to the email
    - As required, *.java, *.js, or *.sql files must be submitted for programming questions. Non programming questions must be typed using a word processor or drawing software and submitted as a PDF file (Portable Document Format). The details of submission procedure will be stated in each assignment
- Midterm Test: 25%
    - Wednesday Oct 25, during class time
- Final Exam: 50%
    - The final exam covers all material discussed in the course

Exam Requirements
- Photo ID at exam is required.
- You are expected to write the test/exam on its given day.
- No electronic devices (e.g. cell/smart phone, laptop, scientific calculators, translators, etc.) are permitted.
- Tests and final exams are closed-book.
- Unless a medical certificate is provided, no accommodation is made for missed tests or exams.

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 - 90%	B	70 - 74%	D	50 - 59%
A-	80 - 84%	C+	65 - 69%	F	below 50%

Prerequisite and Restriction Information[*]
(This information can be found in the UW Undergraduate Academic Calendar)

- A grade of at least C in ACS-2913(3) (or the previous ACS-2911(3) and ACS-2912(3)) and ACS-2814(3) (or the former ACS-2914(3))

Email Communication
Emails from accounts at uwinnipeg.ca are usually not filtered by the UofW email filter. Thereby it is recommended electronic communication used for the course utilize a UofW email account to minimize the risk of filtering.

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 786-9771 or accessibilityservices@uwinnipeg.ca to discuss appropriate options. All information about a student's disability or medical condition remains confidential http://www.uwinnipeg.ca/accessibility .

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 2017-18 Undergraduate Academic Calendar.

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 www.uwinnipeg.ca/respect .

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, in the 2017-2018 UW Undergraduate Academic Calendar available at http://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf.

Additional information is available at University of Winnipeg library video tutorial "Avoiding Plagiarism" https://www.youtube.com/watch?v=UvFdxRU9a8g

Text Book(s) / Tools
Elmasri/Navathe, Fundamentals of Database Systems, 7th edition, Addison-Wesley, ISBN# 978-0-133970777
Class notes and notices will be available from: https://courses.acs.uwinnipeg.ca/3902-050
Database systems used in class are available in ACS laboratories.

Topics to be covered (Tentative)

Week of	Topic
Sept 4	Ch 5 The relational data model and relational database constraints
Sept 11	Ch 6 Basic SQL
Sept 18	Ch 7 More SQL: complex queries, triggers, views, and schema modification
Sept 25	
Oct 2	Ch 3 Data modeling using the entity-relationship (ER) model Ch 4 The enhanced entity-relationship (EER) model.
Oct 9	Reading Week
Oct 16	Review ER and EER Ch 9 Relational database design by ER- and EER-to-relational mapping
Oct 23	Test Oct 25
Oct 30	Ch 8 The relational algebra Ch 10 Introduction to SQL programming techniques
Nov 6	Ch 24 NOSQL Databases (MongoDB)
Nov 13	Ch 14 Basics of functional dependencies & normalization
Nov 20	Ch 16, 17 Disk storage, basic file structures, hashing, indexing
Nov 27	Review
As time permits: Object and object-relational databases, XML, Data warehousing, Hierarchical data model	

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: Oct. 8 – 14 Mid-term reading week; Feb. 18-24 Winter Mid-term reading week; Friday, March 30 (Good Friday).