COMP 3380 – Databases: Concepts and Usage

Department of Computer Science
The University of Manitoba
Fall 2016 (September-December 2016)

ROASS

Instructors
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EITC E2-403  EITC E2-483

* All email should start with [comp3380] in the subject line

Lectures
COMP 3380 A01  COMP 3380 A02
Tue & Thu 16:00-17:15 in EITC E2-110  Tue & Thu 08:30-09:45 in EITC E2-350

Office Hours  TBA (Note that office hours are subject to periodic change)

Course Description
• An introduction to database systems including the relational, hierarchical, network and entity-relationship models with emphasis on the relational model and SQL
• Credits: 3
• Prerequisite: Minimum grade of C in COMP 2140 (or the former 074.214 or 074.206) or COMP 2061 (or the former 074.206F)

Course Text & References
• Textbook:
• Optional References:
  o Silberschatz et al., Database System Concepts, 6e, McGraw-Hill, 2011

Course Evaluation / Grading (Subject to minor changes)
• Assignments: 50%
  o Include theory and/or programming homework exercises
  o NO late assignment will be accepted
  o It is not necessary that all assignments have the same weight
• Tests: 50%
  o Include closed-book in-class term tests
  o There will be no deferrals for those missing the test(s)
  o It is not necessary that all tests have the same weight

Pandemic Note: Should major disruptions to university activities occur as a result of a pandemic, the course content, marks breakdown, and other provisions of this document may be adjusted as the circumstances warrant.

Rules
• Lectures need not follow text closely; although materials are compatible, notations may differ
• You are responsible for the text, lectures, & any additional reading that may be assigned
• Course notes: (a) Notes on the course Web; (b) Extra in-class examples; (c) Serve only as an aid, & reading the course materials is mandatory
Rules (continued)

- **Honesty Declaration:**
  - An Academic Honesty Declaration must be included with each submitted work
  - Your submission will NOT be marked if the Honesty Declaration is not included

- **Faculty of Science Statement on Academic Dishonesty:** The University of Manitoba and its Faculty of Science regard acts of academic dishonesty in quizzes, tests, examinations, laboratory reports or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence. Acts of academic dishonesty include, but are not limited to bringing unauthorized materials (e.g., *cell phones, pagers, PDAs, MP3 units or electronic translators*) into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation. Penalties that may apply, as provided for under the UofM’s Student Discipline By-Law (http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html), range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. Suggested minimum penalties assessed by the Faculty of Science for acts of academic dishonesty are available on http://umanitoba.ca/faculties/science/resources/Acad_Dishon_TABLE_RevCSS_AdminC_Jul2012_WEB.pdf. Please refer to http://umanitoba.ca/faculties/science/resources/Science_StatementOnAcademicDishonesty2013.pdf for more information on Faculty of Science’s Statement on Academic Dishonesty.

- **Registration Advisory:** It is your responsibility to ensure that you are entitled to be registered in this course. This means that you have (a) the appropriate prerequisites, as noted in the calendar description, or have permission from the instructor to waive these prerequisites; (b) not previously taken, or are concurrently registered in this course and another that has been identified as “not to be held with”. The registration system may have allowed you to register in this course, but it is your responsibility to check. If you are not entitled to be in this course, you will be withdrawn (even part way through the term), or the course may not be used in your degree program. There will be no fee adjustment. This is not appealable. Please be sure to read the course description for this and every course in which you are registered.

Some Important Dates

- Thu, Sep 08, 2016: First day of classes
- Thu, Sep 08, 2016–Wed, Sep 21, 2016: Registration revision period
- Thu, Oct 06, 2016–Fri, Oct 07, 2016: Mid-term break - No classes
- Mon, Oct 10, 2016: Thanksgiving Day - No classes
- Fri, Nov 11, 2016: Remembrance Day - No classes
- Fri, Nov 18, 2016: Last day for voluntary withdrawal from first-term courses
  - In terms of evaluative feedback, at least one graded assignment will be returned and at least one test will be held before this VW deadline
- Fri, Dec 09, 2016: Classes end
- Mon, Dec 12, 2016–Thu, Dec 22, 2016: Final examination period
  - Students MUST remain available until all examination obligations have been fulfilled

Course Outline (Subject to minor changes; subject to time constraints & re-ordering)

- Basic database system and architecture concepts
- Entity-relationship model:
  - Conceptual database design
  - Data modeling using the entity-relationship (ER) model
  - Enhanced entity-relationships (EER) and object modeling
- Relational model:
  - Logical database design
  - The relational data model, relational and integrity constraints
  - Functional dependencies and normal forms
  - ER- and EER-to-relational mapping
- Other database models (e.g., hierarchical model, network model)
- Relational query languages: Relational algebra, relational calculus; SQL
- Introduction to file structures (e.g., basic file organizations, files indexes and hashing)
- Other topics (if time permits)
Some Useful Info

- All email communication must conform to the Communicating with Students university policy (http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf)
- Copyrights and intellectual property must be respected by all students. Copyrighted content may be used in this course. Please appropriately acknowledge this content, and copy in accordance with copyright laws and University guidelines. Copyrighted works, including those created by course instructors, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (e.g., UM Learn), or any website, unless an exception to the Copyright Act applies or written permission has been confirmed. For more information, see the University’s Copyright Office.
- Course instructors and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission. Course materials (both paper and digital) are for the participant’s private study and research.
- It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. Students can use all technology in classroom setting only for educational purposes approved by course instructors and/or the University of Manitoba Disability Services. Students are expected not to participate in personal direct electronic messaging or posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g., Facebook) online and offline “gaming” during scheduled class time. If students are on call (emergency), they should switch their communication devices on vibrate mode and leave the classroom before using these devices.
- The Faculty of Science takes academic integrity very seriously. Any evidence of academic dishonesty on assignments, labs and/or tests will be forwarded to the appropriate authorities for potential disciplinary actions.
- Students are expected to act in a respectful manner.
- Students who fail or VW from a course will be subject to limited access to that course in future terms. That is, students will not be able to register for a course (for which they have VWed or failed) during the limited access registration period.
- Voluntarily withdrawing from a course (or needing to repeat it because of doing poorly) will put students behind others—who have not repeated or VWed—on waiting lists (for three terms following). The intent of this is that where space is limited, students who have not had a chance at a course take priority over those that have already had a chance. The caveat regarding VWs is that deciding a course is not for them is not considered a VW while the registration period is still open. If students decide it is bad timing for them to take the course (or the work is not for them, etc.) and leave by that time, not only do they avoid being pushed to the back of the waiting list, but another student on the waiting list can still join the course. Leaving a course only becomes a VW after the revision period.
- Tentative schedule (subject to changes) for assessments (e.g., assignments, tests) is discussed in class at the beginning of the term.
- In terms of evaluative feedback, at least one graded assignment and/or at least one graded test paper will be returned by the VW deadline.
- Student Accessibility Services (SAS) is a resource for facilitating the implementation of accommodation for Students.
Some Useful Links

- **Academic Support/Resources:**
  - Academic Learning Centre (ALC): http://umanitoba.ca/student/academiclearning/
  - University of Manitoba Libraries (UML): http://www.umanitoba.ca/libraries
    - Donald W. Craik Engineering Library: http://libguides.lib.umanitoba.ca/engineering
    - Science and Technology Library: http://libguides.lib.umanitoba.ca/science_library
    - Course guides for COMP 3380: http://libguides.lib.umanitoba.ca/computer_science/comp3380and4380

- **Health & Mental Health Resources:**
  - Student Accessibility Services (SAS): http://umanitoba.ca/student/saa/accessibility/
  - Student Counselling Centre (SCC): http://umanitoba.ca/student/counselling/index.html
  - University Health Service (UHS): http://umanitoba.ca/student/health/
  - Health and Wellness: http://umanitoba.ca/student/health-wellness/welcome.html
  - Live Well @ UofM: http://umanitoba.ca/student/livewell/index.html

- **Copyright & Intellectual Property (IP) Resources:**
  - Copyright: http://umanitoba.ca/copyright

- **University & Unit Policies, Procedures, and Supplemental Information:**
  - University Governing Documents Pertaining to Students:
    http://umanitoba.ca/admin/governance/governing_documents/students/index.html
  - Academic Calendar: http://umanitoba.ca/student/records/academiccalendar.html
  - Registrar’s Office: http://umanitoba.ca/registrar/
  - Academic Integrity Resources:
    - Academic Integrity: http://umanitoba.ca/academicintegrity/
    - Student Discipline: http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html,
      http://umanitoba.ca/faculties/science/undergrad/resources/webdisciplinedocuments.html
  - Respectful Behaviour Resources:
    - Respectful Work and Learning Environment:
      http://umanitoba.ca/admin/governance/governing_documents/community/230.html
    - Violent or Threatening Behaviour:
      http://umanitoba.ca/admin/governance/governing_documents/community/669.html
    - Sexual Assault: http://umanitoba.ca/admin/governance/governing_documents/community/230.html,
      http://umanitoba.ca/student/sexual-assault/
  - Final Examinations, Grades and Grade Appeals Resources:
    - Final Examination and Final Grades Policy:
      http://umanitoba.ca/admin/governance/governing_documents/academic/1299.html,
      http://umanitoba.ca/faculties/science/undergrad/resources/Academic%20Resources%20index.html
    - Appeal of Term Work Grades: http://umanitoba.ca/student/records/grades/690.html
    - Student Access to View Final Exams in the Faculty of Science:
  - Limited Access and VW Resources:
    http://www.umanitoba.ca/admin/governance/media/Repeated_Course_Policy_-_2016_09_01.pdf
  - Academic Advisor: http://umanitoba.ca/academic-advisors/
  - Student Advocacy: http://umanitoba.ca/student/advocacy/
  - Faculty of Science: http://www.sci.umanitoba.ca/
  - Department of Computer Science: http://www.cs.umanitoba.ca/
  - Security Services: http://umanitoba.ca/campus/security/contact.html, (204)474-9312
    - Emergency: 555, #555, (204)474-9341