UNIVERSITY OF CALGARY
FACULTY OF SCIENCE

Department of Computer Science
ICT 602
403 220-6015
cpsc@cpsc.ucalgary.ca

COURSE OUTLINE

1. **Course:** CPSC 571, Design and Implementation of Database Systems - Winter 2023

   Lecture 01 : TR 09:30 - 10:45 in SA 104

Instructor	Email	Phone	Office	Hours
Dr Reda Elhajj	alhajj@ucalgary.ca	403 210-9453	ICT 513	W 14:00-15:00 T 15:30-16:30

   To account for any necessary transition to remote learning for the current semester, courses with in-person lectures, labs, or tutorials may be shifted to remote delivery for a certain period of time. In addition, adjustments may be made to the modality and format of assessments and deadlines, as well as to other course components and/or requirements, so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff).

   In Person Delivery Details:

   The lectures will be in-person.

   Office hours will be dedicated to handle students' inquiries and to go into further details on topics for which they need more details and explanation.

   Tutorials will run in-person and students are required to attend them and follow all practical sessions to be organized by TA's.

   Re-Entry Protocol for Labs and Classrooms:

   To limit the spread of COVID-19 on campus, the University of Calgary has implemented safety measures to ensure the campus is a safe and welcoming space for students, faculty and staff. The most current safety information for campus can be found here.

   Course Site:

   D2L: CPSC 571 L01-(Winter-2023)-Data Base Management Systems

   Note: Students must use their U of C account for all course correspondence.

   Equity Diversity & Inclusion:

   The University of Calgary is committed to creating an equitable, diverse and inclusive campus, and condemns harm and discrimination of any form. We value all persons regardless of their race, gender, ethnicity, age, LGBTQIA2S+ identity and expression, disability, religion, spirituality, and socioeconomic status. The Faculty of Science strives to extend these values in every aspect of our courses, research, and teachings to better promote academic excellence and foster belonging for all.

2. **Requisites:**

   See section 3.5.C in the Faculty of Science section of the online Calendar.

   Prerequisite(s):
   Computer Science 471.

   Antirequisite(s):
   Credit for Computer Science 571 and 671 will not be allowed.

3. **Grading:**

   The University policy on grading and related matters is described in F.1 and F.2 of the online University Calendar.

   In determining the overall grade in the course the following weights will be used:

Course Component	Weight	Due Date (duration for exams)	Modality for exams	Location for exams
5 Assignments (count best 4 out of 5) [1]	15%	Feb 01 2023		
5 quizzes (short exams) 50 minutes each (count best 4 out of 5)[2]	40%	Feb 02 2023		
Class presentations[3]	5%	Mar 28 2023		
Term Project[4]	40%	Apr 12 2023		

[1] There will be 5 assignments, each will cover one of the five course components as per the course detailed outline. The deadline and material to be covered in each has been specified in the detailed course outline. 1. Homework#1 Due Wednesday 01 Feb 2. Homework#2 Due Wednesday 15 Feb 3. Homework#3 Due Wednesday 08 March 4. Homework#4 Due Wednesday 22 March 5. Homework#5 Due Monday 03 April

[2] There will be 5 short exams (quizzes), each will be for 50 minutes to cover one of 5 course components as per the course detailed outline. The date and material to be covered in each has been specified in the detailed course outline. 1. Quiz#1 covers Introduction RA-SQL + QP&O (Thursday 02 Feb) 2. Quiz#2 FPM (Thursday 16 Feb) 3. Qz#3 covers TP + Recovery + CC (Thursday 09 March) 4. Qz#4 XML -XQuery - Reengineering (Thursday 23 March) 5. Qz#5 Big Data MongoDB - (Tuesday 04 April)

[3] Each graduate student will select and present one of the topics to listed in the course outline. Undergraduate students will evaluate the presentations and submit summaries Presentations by grad students and evaluation by undergrad students: object-oriented data, data security, data privacy, mobile and distributed databases, spatial databases, data streams, cloud computing, NOSQL, Web data management, recommendation systems, Network analysis, etc. Presentations: Tuesday 28 March: Student., Student; Student; Thursday 30 March: Student., Student; Student;

[4] final project outcome to be submitted on last day of classes by 11:59 PM The 40% project assessment will be distributed as follows: proposal presentation 5%, various components 10%; completeness 20%; demo 5% 1. Project proposal presentations 14 February and 16 February 2. Project final outcome presentations 04 April, 06 April and 11 April

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	90 %	85 %	80%	75%	70 %	65 %	60%	55%	50 %	40 %

F	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
0 - 39	40 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85 - 89	90 - 94	95 - 100

The University of Calgary offers a flexible grade option, Credit Granted (CG) to support student's breadth of learning and student wellness. Faculty units may have additional requirements or restrictions for the use of the CG grade at the faculty, degree or program level. To see the full list of Faculty of Science courses where CG is not eligible, please visit the following website: https://science.ucalgary.ca/current-students/undergraduate/program-advising/flexible-grading-option-cg-grade

4. **Missed Components Of Term Work:**

The university has suspended the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, one possible arrangement is that the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course. This option is at the discretion of the coordinator and may not be a viable option based on the design of this course.

No makeup will be done for missed short exams; if students miss one of the 5 short exams then the remaining 4 will be counted. If they miss more than one, then their average in the taken short exams will be considered to substitute the missing exam mark. Here the performance of the other students will be considered to be more fair.

Submitting late assignments will be acceptable with penalty. A student will lose 15% of the mark every day. That is, a student will get zero if the assignment is submitted one week late.

5. **Scheduled Out-of-Class Activities:**

   There are no scheduled out of class activities for this course.

6. **Course Materials:**

   Required Textbook(s):

   > Ramez Elmasri, Shamkant B. Navathe, University of Texas at Arlington, *Fundamentals of Database Systems, 7th Edition*: Pearson.

   Introduction & basic concepts -
   CPSc 471 Material Review Relational Algebra & SQL
   Query processing and optimization
   Frequent Pattern Mining
   Clustering and classification
   Transaction processing and management
   Concurrency control + Database recovery
   NoSQL Databases: Introduction to XML - XQuery + Data Reengineering
   Introduction to Big Data – MongoDB
   Presentations by graduate students

   In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

   - A computer with a supported operating system, as well as the latest security, and malware updates;
   - A current and updated web browser;
   - Webcam/Camera (built-in or external);
   - Microphone and speaker (built-in or external), or headset with microphone;
   - Current antivirus and/or firewall software enabled;
   - Stable internet connection.

   For more information please refer to the UofC ELearning online website.

7. **Examination Policy:**

   No aids are allowed on tests or examinations. All exams are closed books and notes.

   The short exams are all in class during the lecture. Every short exam will last for 50 minutes.

   Students should also read the Calendar, Section G, on Examinations.

8. **Approved Mandatory And Optional Course Supplemental Fees:**

   There are no mandatory or optional course supplemental fees for this course.

9. **Writing Across The Curriculum Statement:**

   For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section E.2 of the University Calendar.

10. **Human Studies Statement:**

    Students will not participate as subjects or researchers in human studies.

    See also Section E.5 of the University Calendar.

11. **Reappraisal Of Grades:**

    A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See Section I.3 of the University Calendar.

    a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within

the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar

b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

12. **Other Important Information For Students:**

   a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).

   b. **SU Wellness Services:** For more information, see their [website](#) or call [403-210-9355](#).

   c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email ([svsa@ucalgary.ca](#)) or phone at [403-220-2208](#). The complete University of Calgary policy on sexual violence can be viewed [here.](#)

   d. **[Student Ombuds Office:](#)** A safe place for all students of the University of Calgary to discuss student related issues, interpersonal conflict, academic and non-academic concerns, and many other problems.

   e. **Student Union Information:** [SU contact](#), Email your SU Science Reps: [science1@su.ucalgary.ca](#), [science2@su.ucalgary.ca](#), [science3@su.ucalgary.ca](#),

   f. **Academic Accommodation Policy:**

   It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: [https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf](#)

   Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: [https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf.](#)

   Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, by filling out the [Request for Academic Accommodation Form](#) and sending it to by email preferably 10 business days before the due date of an assessment or scheduled absence.

   g. **Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional [Code of Conduct](#) and promote academic integrity in upholding the University of Calgary's reputation of excellence. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

   > [Student Handbook on Academic Integrity](#)
   > Student Academic Misconduct [Policy](#) and [Procedure](#)
   > [Faculty of Science Academic Misconduct Process](#)
   > [Research Integrity Policy](#)

   Additional information is available on the [Student Success Centre Academic Integrity page](#)

   h. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by

law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or non-academic misconduct, in addition to any other remedies available at law.

i. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see Legal Services website.

j. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction (USRI) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.

Course Outcomes:

- Learn database management system implementation
- Data Analysis
- Research report writing
- Database theory
- Practical applications of databases

Electronically Approved - Jan 02 2023 22:34

Department Approval