



## COURSE OUTLINE

### 1. **Course:** CPSC 571, Design and Implementation of Database Systems - Winter 2024

Lecture 01 : TR 09:30 - 10:45 - Online

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).

#### Online Delivery Details:

This course is being offered online in real-time via scheduled meeting times, you are required to be online at the same time.

To help ensure Zoom sessions are private, do not share the Zoom link or password with others, or on any social media platforms. Zoom links and passwords are only intended for students registered in the course. Zoom recordings and materials presented in Zoom, including any teaching materials, must not be shared, distributed or published without the instructor's permission.

The lectures will be on zoom.

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.

No scheduled tutorials for this course, but I will ask the TA's to do some practical sessions before the quizzes and the homework submission; students are recommended to attend them and follow all practical sessions to be organized by TA's.

#### Course Site:

D2L: CPSC 571 L01-(Winter-2024)-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) <sup>1</sup>	15%	Feb 04 2024		
5 quizzes (short exams) 50 to 75 minutes each (count best 4 out of 5) <sup>2</sup>	40%	Feb 06 2024		
Class presentations <sup>3</sup>	5%	Mar 28 2024		
Term Project <sup>4</sup>	40%	Apr 09 2024		

<sup>1</sup> 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 Sunday 04 Feb 2. Homework#2 Due Sunday 18 Feb 3. Homework#3 Due Sunday 10 March 4. Homework#4 Due Sunday 24 March 5. Homework#5 Due Sunday 07 April

<sup>2</sup> There will be 5 short exams (quizzes), each will be for 50 to 75 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 (Tuesday 06 Feb) 2. Quiz#2 covers FPM (Tuesday 27 Feb) 3. Qz#3 covers TP + Recovery + CC (Tuesday 12 March) 4. Qz#4 XML -XQuery - Reengineering (Tuesday 26 March) 5. Qz#5 Big Data MongoDB - (Thursday 04 April)

<sup>3</sup> 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: Thursday 28 March: Student., Student; Tuesday 02 April: Student., Student; Student;

<sup>4</sup> 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 a. each presentation should cover the problem definition, the motivation, the planned methodology and expected outcome with expected deliverables. 2. Project final outcome presentations 09 April in the evening at 7:30 PM to give all groups enough time to present

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
<b>Minimum % Required</b>	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:

In the event that a student legitimately fails to submit any online or in-person assessment on time (e.g. due to illness, domestic affliction, 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, or possible exemption and reweighing of components. Absences not reported within 48 hours will not be accommodated. Students may be asked to provide supporting documentation ([Section M.1](#)) for an excused absence, See [FAQ](#).

If an excused absence is approved, options for how the missed assessment is dealt with is at the discretion of the coordinator or course instructor. Some options such as an exemption and pro-rating among the components of the course 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:

The following out of class activities are scheduled for this course.

Activity	Location	Date and Time	Duration
Term Project	Zoom	Tuesday, April 9, 2024 at 7:30 pm	3 Hours

**REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY.** If you have a conflict with the out-of-class-time-activity, please contact your course coordinator/instructor no later than **14 days prior** to the date of the out-of-class activity so that alternative arrangements may be made.

Project final presentations on April 09 at 7:30 PM outside the class time to give all students enough time to present.

Final presentation should be similar to a conference paper presentation for 20-25 minutes including questions and answers

## 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 to 75 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](tel: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](mailto:svsa@ucalgary.ca)) or phone at [403-220-2208](tel: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](mailto:science1@su.ucalgary.ca), [science2@su.ucalgary.ca](mailto:science2@su.ucalgary.ca), [science3@su.ucalgary.ca](mailto: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:**

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

Electronically Approved - Jan 02 2024 10:46

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**Department Approval**

Electronically Approved - Jan 03 2024 09:50

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**Associate Dean's Approval**