THOMPSON RIVERS UNIVERSITY

Department of Computing Science
Faculty of Science

COURSE OUTLINE
COMP 3610-01
Database Systems (3,1,0) Winter 2026

Instructor: Shivani Tyagi
Class Schedule: Tuesdays & Fridays **(**10:30 AM -12:20 PM)
Venue: OM 1350
Office hours: By appointment   **Office:** 406B Clock Tower

Recognized Holidays (No Classes)
1. Feb 16 (Mon) – Family Day
2. Apr 3 (Fri) – Good Friday
3. Apr 6 (Mon) – Easter Monday

Midterm Break: Feb 17 – Feb 20
Final Exam Window: Apr 16 – Apr 29

Course Description

This course introduces students to database concepts. It begins with a review of the major components of the database environment and the evolution of the database technologies (from inverted lists structures to database-driven websites). Database design techniques are then introduced using both the Entity Relationship model and an Object-Oriented approach (UML). The relational database model and data normalization will be taught as students design and implement a case study project. Structured Query Language (SQL) including Data Description Language (DDL), Data Manipulation Language (DML), Data Control Language, and data integrity checking will be covered.

Client/Server architecture will be discussed and implemented. Case study work will be completed using current Database Management Systems available in the lab.

Educational Objectives/Outcomes

Prerequisites: COMP 2230

Objectives: Upon successful completion of the course, the student will demonstrate the ability to:
1. Identify major components in a typical database environment.

2. Use the database development process within the system development life cycle.
3. Logically and physically design multiple table relational databases (using a case tool).
4. Understand and perform normalization of a database.
5. Define and verify referential integrity in declarative and procedural ways.
6. Design and implement a simple user interface (MS Access/ MySQL).
7. Use the relational algebra operations and provide the equivalent operations in SQL.
8. Effectively use structured query language (SQL).
9. Understand and use major components of DBMS such as Oracle, MS Access and SQL Server.
10. Design a simple OO model for a small database (using UML standard).
11. Identify and use components of an Object Relational Database Management System (ORDBMS) – if time permits.

Overview of Course Topics and Tentative Schedule

Week	Topics
Week 1	Introduction to the concepts and principles of database systems.
Week 2	The Relational Database Model
Week 3	Oracle SQL
Week 4	Advanced SQL: Introduction to PL/SQL (triggers, functions, simple procedure)
Week 5	Database modeling
Week 6	**Mid Term Break**
Week 7	Database analysis and design
Week 8	Entity-Relationship (ER) Model & Enhanced Entity-Relationship (EER) model
Week 9	Normalization
Week 10	DBMS Systems: MS Access, MySQL, Oracle, and SQL Server
Week 11	Conceptual Database Design
Week 12	Logical Database Design & Physical Database Design
Week 13	Object Oriented Concepts, Designs and Databases (UML)

Department of Computing Science
Faculty of Science

Grade Evaluation

You are responsible for the following deliverables, which will determine your course grade:

Assessment Type	Note	Weight
Attendance	Class Attendance	5%
Weekly worksheet x 10	Open-book. Release on Mondays	20%
Midterm 1	Closed-book, Moodle timed-quiz, 45 minutes	15%
Midterm 2	Closed-book, Moodle timed-quiz, 90 minutes	15%
Individual Project	Small individual/group project	10%
Final Exam	Closed-book, 120 minutes	30%

The timelines for assignment & exams are as follows:

Assessment	Date	Notes
Worksheet 1	Jan 19 (Mon) – Jan 25 (Sun)	Covers Week 1 topics
Worksheet 2	Jan 26 (Mon) – Feb 1 (Sun)	Covers Week 2 topics
Worksheet 3	Feb 2 (Mon) – Feb 8 (Sun)	Covers Week 3 topics
Midterm 1	**Feb 13 (Fri)**	**Covers Weeks 1–4, Closed-book, Moodle timed quiz (40 min)**
Worksheet 4	Feb 23 (Mon) – Mar 1 (Sun)	Covers Week 5 topics
Worksheet 5	Mar 2 (Mon) – Mar 8 (Sun)	Covers Week 7 topics
Worksheet 6	Mar 9 (Mon) – Mar 15 (Sun)	Covers Week 8 topics
Worksheet 7	Mar 16 (Mon) – Mar 22 (Sun)	Covers Week 9 topics

THOMPSON RIVERS UNIVERSITY

Department of Computing Science
Faculty of Science

Midterm 2	Mar 27 (Friday)	Covers Weeks 5–10, Closed-book, Moodle timed quiz (40 min)
Worksheet 8	Mar 30 (Mon) – Apr 5 (Sun)	Covers Week 10 topics
Worksheet 9	Apr 6 (Mon) – Apr 12 (Sun)	Covers Week 12 topics
Worksheet 10	Apr 13 (Mon) – Apr 19 (Sun)	Covers Week 13 topics
Final Exam	Apr 16 – Apr 29 (1 day TBD)	Closed-book (120 min)

Weekly assignments

Every week, you will have a worksheet that is worth 2%. These low-stakes assignments consist of multiple choice questions and small exercises that help you consolidate your understanding of the materials and serve as a formative assessment.

The worksheet will be distributed via Moodle every Monday (except for midterms' weeks & the first week of the semester) and the deadline for each worksheet is the same Sunday of that week at 11:59 PM.

Note: **During the last class of each week (Friday), the final 10 minutes will be dedicated to addressing any questions or doubts regarding the worksheet.**

Communication

1. For any course-related questions, such as lectures, assignments, exams, course logistics, please ask them under the discussion forum in Moodle.
2. For any individual-related questions, such as academic concession, deadline extension, personal circumstances, etc.
3. Response time: I will try our best to reply to your inquiries as soon as possible during the normal working hours (9AM-5PM Mon-Fri). If you send me a message outside of regular working hours, please expect a response on the next working day.

Attendance

A registered student who does not attend the first two events (e.g., lectures/labs/ etc.) of their course(s) and who has not made prior arrangements acceptable to the

instructor(s) may, at the discretion of the instructor(s), be considered to have withdrawn from the course(s) and have their course registration(s) deleted.

Please refer to TRU's attendance policy. In addition, we will take attendance during class via Moodle.In the CS department, you need to get at least 75% attendance for passing any course.

Academic concessions

If you encounter situations that may impede your ability to meet course requirements—such as illness, family emergencies, or other significant life events—please notify the instructor at least 24 hours before the deadline. Academic concessions, including extensions or alternative assessments, will be considered on a case-by-case basis. You may be required to provide documentation to support your request. Concession requests after the deadline has passed will likely be refused.

Late Assignments

Assignments are expected to be submitted on time. Late submissions will incur a penalty of 25% per day, up to a maximum of 75%. After 3 days, late assignments will no longer be accepted and will receive a grade of zero. Extensions may be granted in exceptional circumstances, provided that you contact the instructor before the deadline.

Accessibility

Students registered with the Accessibility Services who require accommodations must provide their Letter of Accommodation to the instructor as soon as possible. This letter will outline the necessary accommodations to ensure an equitable learning environment. Please ensure that this is done early in the term to facilitate timely arrangements.

Policy on the use of generative AI

Please refer to TRU's guideline on the use of generative AI tools such as chatGPT or Copilot in this course. https://libguides.tru.ca/artificialintelligence