

**Course Syllabus**  
**Database-I (CP363)**

Department of Physics and Computer Science, Faculty of Science, Waterloo Campus

**Term: Winter 2024**

*I acknowledge that in Kitchener, Waterloo, Cambridge, and Brantford, we are on the traditional territory of the Neutral, Anishnawbe, and Haudenosaunee peoples.*

**Instructor: Dr. Sumeet Kaur Sehra**

**Email:** [sksehra@wlu.ca](mailto:sksehra@wlu.ca)

**Office:** N2091

**Office Hours:** Wednesday: 2:00 PM - 3:00 PM ([MS Teams](#)) Or: By appointment through email.

**Course Prerequisite:** CP164 (or CP114)

**Lecture Delivery:** The lectures will be delivered in person.

**Lectures Timings:** Tuesday and Thursday: 7:00 PM - 08:20 PM

**Location:** BA201

**Course Overview:** This course will focus on Introduction to database systems. Topics include data models, query languages, database design, recovery and concurrency, integrity, and security.

**Course Outcomes:** By the end of this course, students should be able to:

- Analyze Database design using the E-R data model by identifying entities, attributes, relationships, generalization and specialization along with relational algebra.
- Explore data manipulation language to query, update, and manage a database.
- Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model.
- Apply and create Relational Database Design process with Normalization and Denormalization of data.
- Understand essential DBMS concepts, including database security, integrity, and concurrency.

**Course Tools and Learning Materials:**

- **Textbook:**  
Fundamentals of Database Systems, 7<sup>th</sup> Edition by Ramez Elmasri, Shamkant B. Navathe (Pearson)
- **Reference Book:**

Database Systems: A Practical Approach to Design, Implementation, and Management, 6<sup>th</sup> edition by Thomas Connolly and Carolyn Begg (Pearson)

- **Required Software:** This course will use **MySQL Workbench** for designing ER diagrams and executing the SQL commands to design and retrieve from the databases.
- Lecture PowerPoint slides will be posted in MyLearningSpace.

### Student Assessments:

To complete this course, students must participate in regular classes and complete assignments, midterm, and final exams. You must pass the final exam (at least 50%). If you pass the final exam, then the following evaluation will be applied:

Assignment 1	10%
Assignment 2	10%
Assignment 3	10%
Assignment 4	10%
Midterm	25%
Final	35%
<b>Total</b>	<b>100%</b>

### Course Information:

Mylearningspace would be used to release the assignments and other course-related updates.

**Note:** For the context of this course, any time midnight is mentioned, it should be interpreted as 11:55 PM, not 11:59 PM.

### Course Tentative Schedule:

Week #	Date	Lecture #	Content	Quiz and Assignments	Resources
1	09-Jan	1	Introduction		Chapters 1 and 2 (Fundamentals of Database Systems by Elmasri and Navathe)
	11-Jan	2	Database System Concepts and Architecture		
2	16-Jan	3	Data Modeling Using the Entity-Relationship (ER) Model		Chapters 3 and 4 (Fundamentals of Database Systems by Elmasri and Navathe)
	18-Jan	4	Data Modeling Using the Entity-Relationship (ER) Model		
3	23-Jan	5	The Relational Data Model		Chapter 5 (Fundamentals of Database Systems by Elmasri and Navathe)
	25-Jan	6		Assignment 1 out and due on February 4	
4	30-Jan	7	Structured Query Language (SQL) Part I		Chapter 6 (Fundamentals of Database Systems by Elmasri and Navathe)
	01-Feb	8			

5	6-Feb	9	Structured Query Language (SQL) Part II		Chapter 7 (Fundamentals of Database Systems by Elmasri and Navathe)
	8-Feb	10			
6	13-Feb	11	The Relational Algebra and Relational Calculus		Chapter 8 (Fundamentals of Database Systems by Elmasri and Navathe)
	15-Feb	12		Assignment 2 out and due on February 26	
7	20-Feb and 22-Feb	Reading week			
8	27-Feb	13	Relational Database Design by ER- and EER-to-Relational Mapping		Chapter 9 (Fundamentals of Database Systems by Elmasri and Navathe)
	29-Feb	Midterm Examination			
9	05-Mar	14	Functional Dependencies and Normalization for Relational Databases		Chapter 14 (Fundamentals of Database Systems by Elmasri and Navathe)
	07-Mar	15	Query Processing and Optimization	Assignment 3 out and due on March 18	Chapter 18 (Fundamentals of Database Systems by Elmasri and Navathe)
10	12-Mar	16	Query Processing and Optimization		Chapter 19 (Fundamentals of Database Systems by Elmasri and Navathe)
	14-Mar	17	Introduction to Transaction Processing		Chapter 20 (Fundamentals of Database Systems by Elmasri and Navathe)
11	19-Mar	18	Transaction processing and concurrency control		Chapter 21 (Fundamentals of Database Systems by Elmasri and Navathe)
	21-Mar	19		Assignment 4 out and due on April 5	
12	26-Mar	20	Concurrency Control and Database Recovery		Chapters 21, 22 (Fundamentals of Database Systems by Elmasri and Navathe)
	28-Mar	21			
13	2-Apr	22	Database Security		Chapter 30 (Fundamentals of Database Systems by Elmasri and Navathe)
	4-Apr	23	Review		

## Missed Assignments

An assignment not handed in receives a zero mark unless there is a documented reason. If a documented reason is supplied, the weight of the missing assignment is shifted to the final exam. A copy/original of the documented reason must be given to and approved by the instructor.

## Midterm Exam

**(Tentative) Thursday, February 29, 2023. Time: 7:00 PM - 08:20 PM.** The instructions would be posted on the Myls Page before the exam date.

## Missed Midterm

A missed midterm exam will receive a **zero** mark unless there is a valid documented reason. Weight shifting is only given to students with verifiable extenuating circumstances. An extenuating circumstance is a rare and severe event over which a student has no control or cannot anticipate (for example, a severe accident or emergent medical condition).

## Final Exam

To be announced by the **registrar's office**. If you are considering registering for a special examination or event, you should select a time outside the examination period. Consult Academic Regulations in the Academic Calendar for special circumstances for examination deferment.

## Getting Help

- **MyLearningSpace:** You should frequently visit your instructor's CP363 webpage on Myls. It contains information pertinent to the course.
- **Use the discussion forum on Myls:** You are encouraged to post your questions on the discussion forum at Myls. For each chapter and assignment, you would see a thread where you can post the questions. Review earlier posts to check if your question has not been answered.
- If the issue/question is not appropriately addressed, you should consult your instructor without delay through email or during office hours given on page 1. Please do not email me via Myls and do not make any submissions through email as it gets automatically flagged as spam.

## University and Course Policies

**Academic Calendars:** Students are encouraged to review the [Academic Calendar](#) for information regarding all important dates, deadlines, and services available on campus.

**Special Needs:** Students with disabilities or special needs are advised to contact Laurier's Accessible Learning Centre for information regarding its services and resources.

**Academic Integrity/Misconduct (cheating, plagiarism):** The University has a defined policy with respect to Academic Misconduct; penalties are always severe and enforced. You are responsible for familiarizing yourself with the academic misconduct policy and penalty

guidelines. You are cautioned that, in addition to failure in a course, students may be suspended or expelled from the University for academic misconduct, and the offense may appear on their transcripts. The relevant policy can be found on Laurier's [Academic Integrity](#) website, along with resources to educate and support you in upholding a culture of integrity. Ignorance of Laurier's academic misconduct policy is not a defense. Academic misconduct includes, but is not limited to, transmission or reception of information, or possession of unauthorized information, during laboratories, quizzes, tests, or examinations. Academic misconduct also includes plagiarism. Wilfrid Laurier University uses software that can check for plagiarism. If requested by the instructor, students are required to submit their written work in electronic form and have it checked for plagiarism. WLU [Policy 12.2 Student Code of Conduct and Discipline](#) provides information on academic and research misconduct code and the procedures for investigating and determining appropriate disciplinary measures for breaches of this Code.

**Intellectual Property:** The educational materials developed for this course, including, but not limited to, lecture notes and slides, handout materials, examinations and assignments, and any materials posted to MyLearningSpace, are the intellectual property of the course instructor. These materials have been developed for student use only and are not intended for broader dissemination and/or communication outside of a given course. Posting or providing unauthorized audio, video, or textual material of lecture content to third-party websites violates an instructor's intellectual property rights and the Canadian Copyright Act. Recording lectures in any way is prohibited in this course unless the instructor has granted specific permission. Follow these instructions to avoid being in contravention of the university's Code of Student Conduct and/or Code of Academic Conduct which will result in appropriate penalties. Participation in this course constitutes an agreement by all parties to abide by the relevant University Policies, and to respect the intellectual property of others during and after their association with Wilfrid Laurier University.

**Late Submission Policy:** Late submissions are not accepted. Any submission not handed in receives a **Zero** mark unless there is a documented reason. If a documented reason is supplied, the weight of the missing assignment is shifted to the final exam. A copy of the documented reason must be given to and approved by the instructor.

**Final Examinations:** Students are strongly urged to refrain from making any commitments (i.e., vacation) during the examination period (**April 11 – April 27**). Students must be available for examinations during the examination periods of all terms they register. Refer to the Handbook on Undergraduate Course Management for more information.

**Religious and Spiritual Accommodation:** The University welcomes Students, Staff and Faculty from a wide range of backgrounds, beliefs and traditions, and has a duty to provide accommodation based on creed (religion and spirituality) under the Ontario Human Rights Code. This obligation requires the University to work with students to provide reasonable accommodation when a student's religious observances or spiritual beliefs creates a conflict with their academic schedule. In order for instructors to provide proper accommodations, students have obligations to request accommodations in a timely manner. All religious and spiritual accommodation requests for mid-terms, tests, labs or course work are to be directed to and addressed by the course instructor.

All accommodation requests for Final Exams are directed to and addressed by the Faculty Petitions Committee for the Faculty of the course (i.e. not the student's "home" Faculty). As per existing regulations, petition requests must be made within one week of the announcement of the examination schedule, via the Student Request for Accommodation for Religious Observances form. The form will be automatically submitted to the relevant Petitions Committee. Request submission deadlines are strictly adhered to.

All policies, procedures, timelines, and request forms are found on Laurier's Religious and Spiritual Accommodations and Supports webpage.

**Gender Inclusivity:** This course will be conducted in an affirming and mutually respectful atmosphere for people of all gender expressions and identities. I was provided with a class roster with your name as it appears on the official enrollment information. If you use a name different from the roster, please let me know at your earliest convenience. You can also share your gender pronouns with me if you like. Members of the class are expected to refer to one another by the name and pronouns identified by each student. If you are comfortable, you can also let your classmates know about your name and pronouns. The Centre for Student Diversity, Equity and Inclusion (CSEDI) has developed a website [outlining how to request a different name to appear on some university records and systems](#) such as Zoom, MyLS and email. The website also provides information about Laurier's Inclusive Washroom Initiative, support resources at Laurier, and more.

**Classroom Use of Electronic Devices** – [see Policy 9.3 \(Approved by Senate March 8, 2012\)](#)

#### **Other course policies**

- It is requested that to turn off your cell phones during lectures so that you do not distract others. In case of emergency use of a cellphone, please contact the instructor for appropriate arrangements.
- Students will have two weeks after marks are posted to raise any concerns about the marks. After two weeks, no changes will be made. It is the responsibility of the student to ensure all grades are posted in MyLearningSpace. The instructor reserves the right to remark the entire paper.
- Grades will not be changed after the final exam has ended, regardless of circumstances. If you are missing your marks, email your Instructional Assistant/Marker immediately.

### **General Regulations**

#### **Course Drop Dates**

Please refer to the Undergraduate Academic Calendar - Academic Dates **Winter term 2024** - for details, of course, add/drop dates, etc.

#### **Accessible Learning Centre**

Students with disabilities or special needs are advised to contact Laurier's Accessible Learning Centre for information regarding its services and resources, ext. 3086. Students are encouraged to review the Calendar for information regarding all services available on campus.

## **Learning Services**

A range of academic learning support services is offered at Laurier designed for all students who want to improve their academic achievement in the classroom. These services include the following specific areas:

- Central Academic Advising Office
- Mathematics Assistance Centre
- Study Skills and Supplemental Instruction Centre
- Writing Centre

Visit the Learning Services web page for detailed information.

## **Laurier Email Account**

Our official means of communication is with your Laurier email account. Students are expected to regularly check their Laurier email account for important notices from the university community. Students are also expected to send emails to official members of the university community from their Laurier email account to ensure delivery.

## **Foot Patrol, the Wellness Centre, and the Student Food Bank:**

### **Multi-campus Resource:**

- Good2Talk is a postsecondary school helpline that provides free, professional, and confidential counselling support for students in Ontario. Call 1-866-925-5454 or through 2-1-1. Available 24-7.

### **Kitchener/Waterloo Resources:**

- [Waterloo Student Wellness Centre](#): 519-884-0710, x3146. The Centre supports the physical, emotional, and mental health needs of students. The Student Wellness Centre is operational from 9 AM to 4 PM Monday through Friday. Effective Monday April 20, we will be closed over the lunch-hour from 12 to 1 PM. Please call to book an appointment with a physician, nurse, mental health nurse, or counsellor, After-hours crisis support available 24/7. Call 1-844-437-3247 (HERE247).
- [EMERGENCY RESPONSE TEAM](#) 519.885.3333. The Emergency Response Team provides on-call medical assistance to students on campus. ERT operates Monday through Thursday 3 PM-3 AM and Friday to Sunday 24 hours. ERT can also be booked for on-site event support by filling out the online booking request form at [ert.yourstudentsunion.ca](http://ert.yourstudentsunion.ca). Operating on the Waterloo campus only.
- [Student Rights Advisory Committee](#) The Student Rights Advisory Committee exists to provide you with information about your rights when it comes to landlord-tenant issues or academic appeals. While in no way legal representation, it can help to inform you about your options to make difficult situations easier to navigate.

### **Brantford Resources:**

- [Brantford Student Food Bank](#): All students are eligible to use this service to ensure they're eating healthy when overwhelmed, stressed or financially strained. Anonymously request a package online 24-7. All dietary restrictions accommodated.
- [Brantford Foot Patrol](#): 519-751-PTRL (7875). A volunteer operated safe-walk program, available Fall and Winter, Monday through Thursday from 6:30 pm to 1 am; Friday through Sunday 6:30 pm to 11 pm. Teams of two are assigned to escort students to and from campus by foot or by van.
- [Brantford Wellness Centre](#): 519-756-8228, x5803. Students have access to support for all their physical, emotional, and mental health needs at the Wellness Centre. Location: Student Centre, 2nd floor. Hours: 8:30 am to 4:15 pm Monday through Friday. After hours crisis support available 24/7. Call 1-884-437-3247 (HERE247).