Faculty of Science

CSCI 3030U: Database Systems & Concepts
Course outline for Fall 2022

1. Course Details & Important Dates*

Term	Section	Course Type	Day	Time
Fall	001	Undergraduate	Tuesdays	3:40pm – 5:00pm
Fall	001	Undergraduate	Thursdays	3:40pm – 5:00pm

Location	CRN #	Classes Start	Classes End	Final Exam Period
UP 1501	40259	Sept 6th, 2022	Dec 2nd, 2022	Dec 7th – Dec 16th, 2022

* Visit https://ontariotechu.ca/current-students/academics/important-dates-and-deadlines.php for other dates

2. Instructor Contact Information

Instructor Name	Office	Phone	Email
Dr. Rohollah Moosavi	UA 4041	905-721-8668	rohollah.moosavi@ontariotechu.ca
Office Hours: • Thursday: 2:30pm-3:30pm • Google Meet Office hours by appointment https://meet.google.com/bxy-wyvg-kyk			

Teaching Assistant Name	Day	time	Location	Email
Roya Dehghani	Tuesday	11:10am-12:30pm	UB2058	roya.dehghani@ontariotechu.net
Roya Dehghani	Tuesday	2:10pm-3:30pm	UB2054	roya.dehghani@ontariotechu.net
Marzieh Ahmadi	Thursday	12:40pm-2:00pm	UB2054	marzieh.ahmadinajafabadi@ontariotechu.ca
Riley Weagant	Monday	12:40pm-2:00pm	UB2054	riley.weagant@ontariotechu.ca
Marzieh Ahmadi	Wednesday	11:10am-12:30pm	UB2054	marzieh.ahmadinajafabadi@ontariotechu.ca
Office Hours: During laboratory times or by appointment.				

3. Course Description

This course is studies Database Systems and the related theories and concepts. Students will be introduced to the classical relational data model and the theory of relational data normalization. We will also cover modern data models such as the semi-structured, and unstructured data models. We cover a range of data query languages including SQL, XQuery and text search based query methods. Practical issues such as performance, security and application programming interfaces to host languages are discussed. We also discuss the intimate connection between database engines and modern computer systems such as the WWW, mobile devices and computer networks.

4. Learning Outcomes

The purpose of this course is to introduce the concepts of database management, including aspects of data models, database languages, and database design. At the end of this course, a student will be able to understand and apply the concepts required for the use and design of database management systems.

5. Course Design

Lectures in this course will include both presented material, and interactive elements. The classroom interaction will be designed to solidify concepts and techniques learned in the lectures.

In order to achieve success in this course, students must attend all lectures. Regular absences mean that you miss critical information and just are not able to catch up. The instructor will provide the majority of classroom materials on the Canvas site. The TAs will supervise the laboratories, while you complete an assignment designed by the instructor. The instructor and the TAs will collaborate on some of the marking.

6. Outline of Topics in the Course

1. **Relational Data**
    - Relational data modeling
    - ER diagrams
    - Constraints and data normalization
2. **SQL and Database Programming and Administration**
    - SQL Database programming in Java and Python
    - Data driven Web programming Indexes and performance tuning
    - Security and access control
3. **Semistructured Data**
    - XML and DTD Xquery
4. **Unstructured Data**
    - Text data and full text search
    - NoSQL databases
5. **Advanced topics**
    - Data mining algorithms
    - Keyword search and search engines
    - Embedded databases: from the Web to the mobile phone

7. Required Texts/Readings

Database Systems, The Complete Book,
Hector Garcia-Molina, Jeffery Ullman and Jennifer Widom

Additional readings may be assigned or recommended during the course.

8. Evaluation Method

Component	Weight
Labs + Project	40% (10% + 30%)
First Midterm	30% (15% + 15%)
Participation & Presentation	15%
Final Midterm	15%

Final course grades may be adjusted to conform to program or Faculty grade distribution profiles. Further information on grading can be found in Section 5 of the Ontario Tech University Academic Calendar.

9. Assignments and Tests

Component	Due Date Important Dates will be posted	Weight
Labs	Weekly 10 x Labs	10%
First Midterm – part 1	October 18th	15%
First Midterm – part 2	October 20th	15%
Project – phase 1	October 17th	15%
Project – phase 2	December 2nd	15%
Final Midterm	December 1st	15%
Participation and Pres.	TBA	15%

Any student who misses an examination without a valid medical reason and documentation will receive zero for that examination. Those with medical documentation will either be given a makeup exam or will have the weight of the examination added to the final exam.

A late penalty of 10% per day late will be applied, in the absence of a medical note, to a maximum of 3 days late. (After 3 days, it will not be accepted.)

10. Accessibility

Students with disabilities may request to be considered for formal academic accommodation in accordance with the Ontario Human Rights Code. Students seeking accommodation must make their requests through the Centre for Students with Disabilities in a timely manner, and provide relevant and recent documentation to verify the effect of their disability and to allow the University to determine appropriate accommodations.

Accommodation decisions will be made in accordance with the Ontario Human Rights Code. Accommodations will be consistent with and supportive of the essential requirements of courses and programs, and provided in

a way that respects the dignity of students with disabilities and encourages integration and equality of opportunity. Reasonable academic accommodation may require instructors to exercise creativity and flexibility in responding to the needs of students with disabilities while maintaining academic integrity.

11. Academic Integrity

Students and faculty at Ontario Tech University share an important responsibility to maintain the integrity of the teaching and learning relationship. This relationship is characterized by honesty, fairness and mutual respect for the aim and principles of the pursuit of education. Academic misconduct impedes the activities of the university community and is punishable by appropriate disciplinary action.

Students are expected to be familiar with Ontario Tech University's regulations on Academic Conduct (Section 5.15 of the Academic Calendar) which sets out the kinds of actions that constitute academic misconduct, including plagiarism, copying or allowing one's own work to copied, use of unauthorized aids in examinations and tests, submitting work prepared in collaboration with another student when such collaboration has not been authorized, and other academic offences. The regulations also describe the procedures for dealing with allegations, and the sanctions for any finding of academic misconduct, which can range from a written reprimand to permanent expulsion from the university. A lack of familiarity with Ontario Tech University's regulations on academic conduct does not constitute a defense against its application.

Further information about academic misconduct can be found in the Academic Integrity link on your laptop.

12. Turnitin

Ontario Tech University and faculty members reserve the right to use electronic means to detect and help prevent plagiarism. Students agree that by taking this course all assignments are subject to submission for textual similarity review by Turnitin.com. Assignments submitted to Turnitin.com will be included as source documents in Turnitin.com's restricted access database solely for the purpose of detecting plagiarism in such documents for five academic years. The instructor may require students to submit their assignments electronically to Turnitin.com or the instructor may submit questionable text on behalf of a student. The terms that apply to Ontario Tech University 's use of the Turnitin.com service are described on the Turnitin.com website.

Students who do not wish to have their work submitted to Turnitin.com must inform their instructor at the time the work is assigned and provide with their assignment a signed Turnitin.com Assignment Cover sheet: http://www.uoit.ca/assets/Academic~Integrity~Site/Forms/Assignment%20Cover%20sheet.pdf

Further information about Turnitin can be found on the Academic Integrity link on your laptop.

13. Final Examinations

Final examinations are held during the final examination period at the end of the semester and may take place in a different room and on a different day from the regularly scheduled class. Check the published Examination Schedule for a complete list of days and times.

Students are advised to obtain their Student ID Card well in advance of the examination period as they will not be able to write their examinations without it. Student ID cards can be obtained at the Campus ID Services, in G1004 in the Campus Recreation and Wellness Centre.

Students who are unable to write a final examination when scheduled due to religious publications may make arrangements to write a deferred examination. These students are required to submit a Request for Accommodation for Religious Obligations to the Faculty concerned as soon as possible and no later than three week prior to the first day of the final examination period.

Further information on final examinations can be found in Section 5.24 of the Academic Calendar.

14. Course Evaluations

Student evaluation of teaching is a highly valued and helpful mechanism for monitoring the quality of Ontario Tech University's programs and instructional effectiveness. To that end, course evaluations are administered by an external company in an online, anonymous process during the last few weeks of classes. Students are encouraged to participate actively in this process and will be notified of the dates. Notifications about course evaluations will be sent via e-mail, and posted on Blackboard, Weekly News and signage around the campus.

Ontario Tech University is committed to the prevention of sexual violence in all is forms. For any Ontario Tech University student who has experienced Sexual Violence, ***Ontario Tech University can help****. Ontario Tech University will make accommodations to cater to the diverse backgrounds, cultures, and identities of students when dealing with individual cases.*

If you think you have been subjected to or witnessed sexual violence:

- *Reach out to a Support Worker, who are specially trained individuals authorized to receive confidential disclosures about incidents of sexual violence. Support Workers can offer help and resolutions options which can include safety plans, accommodations, mental health support, and more. To make an appointment with a Support Worker, call 905.721.3392 or email supportworker@uoit.ca*
- *Learn more about your options at: www.uoit.ca/sexualviolence*

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact studentlife@uoit.ca for support.

Furthermore, please notify your professor if you are comfortable in doing so. This will enable them to provide any resources and help that they can.