

RYERSON UNIVERSITY

**Ted Rogers School of Information Technology Management
and G. Raymond Chang School of Continuing Education**

COURSE OF STUDY 2017-2018

(C)ITM 500 – Data and Information Management

1.0 PREREQUISITE

The prerequisites for this course are (ITM 100 and ITM 207) or ITM 305 or CAAT Programs. Students who do not have the prerequisites will be dropped from the course.

2.0 INSTRUCTOR INFORMATION

- Name:
- Office Phone Number:
- E-mail address:
- Faculty/course web site(s): <https://my.ryerson.ca>
- Office Location & Consultation hours:
 - Your instructor is available for personal consultation during scheduled consultation hours which are posted on their office door or on the course shell in D2L Brightspace. However, you are advised to make an appointment by e-mail or by telephone before coming to ensure that the professor is not unavoidably absent.
- E-mail Usage & Limits:

Students are expected to monitor and retrieve messages and information issued to them by the University via Ryerson online systems on a frequent and consistent basis. ***Ryerson requires that any official or formal electronic communications from students be sent from their official Ryerson E-mail account.*** As such emails from other addresses may not be responded to.

3.0 CALENDAR COURSE DESCRIPTION

This course provides the students with an introduction to the core concepts in data and information management. It is centered around conceptual data modeling techniques, converting the conceptual data models into relational data models and verifying its structural characteristics with normalization techniques. The course will include coverage of basic database administration tasks and key concepts of data quality and data security. Building on the transactional database understanding, the course

provides an introduction to data and information management technologies that provide decision support capabilities under the broad business intelligence umbrella.

4.0 COURSE OVERVIEW

To acquire knowledge of and competency in the major techniques used in the analysis and design of the relational databases for business applications. Specifically to acquire competency in developing SQL views and queries to extract relevant data to meet business information requirements and in building ERD models that support relational database logical schema design

5.0 COURSE OBJECTIVES

Upon completion of the course, students will be able to:

1. Understand and articulate the Relational Database concept and its role in business
2. Analyze data requirements for the database
3. Construct an Entity Relationship Diagram
4. Transform the ERD to a Logical Data Model
5. Understand and apply the rules of Normalisation
6. Develop query commands in SQL at an advanced level
7. Design and implement Views using SQL
8. Translate the Logical Data Model to a basic Physical Schema
9. Be competent in the use of relevant industry representative software

6.0 EVALUATION

The grade for this course is composed of the mark received for each of the following components:

Evaluation Component	Percentage of the Final Grade
Weekly Labs	10%
Assignment 1	10%
Assignment 2	10%
Midterm Exam	20%
Final Exam	50%
Total	100%

NOTE: Students must achieve a course grade of at least 50% to pass this course.

Citation Format for Essays and Term Papers

All essay assignments, term paper and other written works must adhere with APA citation format. Technical errors (spelling, punctuation, proofing, grammar, format, and citations) and/or inappropriate levels of language or composition will result in marks being deducted. You are encouraged to obtain assistance from the Writing Centre (www.ryerson.ca/writingcentre) for help with your written communications as needed.

You can find APA guidelines and academic referencing from the following online resources:

a) Ryerson Writing Support Web site:
<http://www.ryerson.ca/content/dam/studentlearningsupport/resources/citation-conventions/APA%20Basic%20Style%20Guide.pdf>

b) Ryerson Library for APA style guide: <https://library.ryerson.ca/guides/style/>

7.0 POSTING OF GRADES

- ❖ All grades, on assignments or tests must be posted or made available to students through the return of their work. Grades on final exams must be posted. However, as there may be other consideration in the determination of final grades, students will receive their official final grade in the course only from the Registrar. Final official course grades may not be posted or disclosed anywhere by an instructor.
- ❖ Posting of grades on the Course Management System (D2L Brightspace) is preferred. If grades are posted in hard copy they must be posted numerically sorted by student identification number after at least the **first four digits** have been removed. Instructors must inform students in all course management documentation of the method to be used in the posting of grades. Students who wish not to have their grades posted must inform the instructor in writing.
- ❖ Some graded work will be returned to students prior to the last date to drop a course without academic penalty.

8.0 TOPICS – SEQUENCE & SCHEDULE

Session	Weekly Topic with Learning Objectives	Readings
1	Role of Database Management and Relational Model Overview	Chap 1 and 2
	<ul style="list-style-type: none"> • Explain the advantages of Relational Databases • Explain Relational DB development and role of DBMS • Explain Relational Concept • Explain Primary and Foreign Keys and Referential Integrity 	
2	Simple Query formation in SQL	Chap 7 Sect 4
	<ul style="list-style-type: none"> • Analyze information request requirements • Explain components of SELECT statement • Design and implement a single table SQL query • Implement Conditional and Ordering requirements • Analyze output for completeness and accuracy 	
3	Simple Aggregates	Chap 7 Sect 6
	<ul style="list-style-type: none"> • Implement String searches • Implement Date functions • Implement Simple Aggregate functions 	
4	Complex Aggregates , Joins and DML Commands	Chap 7 Sect 7 Chap 8 Sect 1
	<ul style="list-style-type: none"> • Design and Implement queries using GROUP BY • Design and Implement queries using INNER JOINS • Apply Data Manipulation commands 	
5	Midterm Exam	

6	The Relationship Model	Chap 3
	<ul style="list-style-type: none"> Analyze Information Needs and Business Rules Identify Constraints 	
	<ul style="list-style-type: none"> Design and Implement an ERD 	
7	Entity Relationship Diagrams	Chap 4
	<ul style="list-style-type: none"> Implement the Transform of Many to Many Relationships Define and Implement Conceptual Relational Model 	
8	Complex Relationship Diagrams and Physical Design of Relational Model	Chap 5 Sect 3-4
	<ul style="list-style-type: none"> Implement Recursive and Network Hierarchical structures Implement Multiple and Bi-Directional Relationships Design Entities to support Referential Integrity 	
9	Sub Queries	Chap 8 Sect 2
	<ul style="list-style-type: none"> Design and Implement Sub Queries to access Aggregate Results Design and Implement Sub Queries to for Recursive Relations Combine Sub Query results in single command 	
10	Views	Chap 8 Sect 5
	<ul style="list-style-type: none"> Explain the role and structure of Views Design and Implement Views Design and Implement queries that utilize Views 	
11	Normalization	Chap 6
	<ul style="list-style-type: none"> Understand the role of Normalization in Data Base Design Define the rules of Normalization Create a set of Normalized Relations for a data structure Convert a set of Relations to an ERD 	
12	Review	
	<ul style="list-style-type: none"> Adequately prepare for Final Exam 	

9.0 TEACHING METHODS

This course will incorporate the following teaching/learning methods lecture, laboratory assignments, problem-based learning and group projects. Please note that beside the main textbook, the class lecture notes and assigned labs are the major delivery of the content of ITM 500.

10.0 TEXTS & OTHER READING MATERIALS

Title: Database Systems: Design, Implementation, and Management, 12th Edition

Author: Carlos Coronel & Steven Morris

Publisher: Cengage Learning

ISBN: 978-1305627482

11.0 VARIATIONS WITHIN A COURSE

All sections of a course (Day and CE sections) will follow the same course outline and will use the same course delivery methods, methods of evaluation, and grading schemes. Any deviations will be posted on D2L Brightspace once approved by the course coordinator.

12.0 OTHER COURSE, DEPARTMENTAL, AND UNIVERSITY POLICIES

- For more information regarding course management and departmental policies, please consult the ‘**Appendix of the Course of Study**’ which is posted on the Ted Rogers School of Information Technology Management website, <http://www.ryerson.ca/content/dam/itm/documents/cos/Appendix.pdf>. This appendix covers the following topics:
 - 12..1** Attendance & Class Participation
 - 12..2** Email Usage
 - 12..3** Request for Academic Consideration
 - 12..3.1** Ryerson Health Certificate
 - 12..3.2** Academic Accommodation for Students with Disabilities
 - 12..3.3** Religious, Aboriginal or Spiritual Observance
 - 12..3.4** Re-grading and Recalculation
 - 12..4** Examinations & Tests
 - 12..4.1** Period of Prohibition from Testing
 - 12..4.2** Make-Up of Mid-Term Tests, Assignments and Other Assessments During the Semester
 - 12..4.3** Make –Up of Final Exams
 - 12..4.4** Missing a Make-Up
 - 12..5** Late Assignments
 - 12..6** Standard of Written Work
 - 12..7** Academic Grading Policy
 - 12..8** Academic Integrity
 - 12..8.1** Turnitin.com
 - 12..9** Student Rights