

RYERSON UNIVERSITY

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

COURSE OF STUDY 2017-2018

(C)ITM 610 – Database Administration

1.0 PREREQUISITE

The prerequisite for this course is ITM 500. Students who do not have the prerequisite 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 covers the Database Administration (DBA) role for large-scale relational databases. It specifically will deal with the following: the approach to the installation and upgrading of software and utilities; techniques for the allocation of the database to physical devices and directories; the creation of user authorities and controlling access to data and resources; management of data storage; analyzing database performance and implementing procedures for optimizing performance; procedures for the backup and recovery operations.

4.0 COURSE OVERVIEW

The major objective is to give the student an understanding of the concepts involved with the role of a Database Administrator. They will achieve an understanding of the following: techniques for the allocation of the database to physical devices and directories; the creation of user authorities and controlling access to data and resources; management of data storage; analysing database performance and implementing procedures for optimising performance; procedures for the backup and recovery operations. Major topics will be covered in a formal lecture but the student will be required to master the detail through independent study. The version of the software used is SQL Server 2014

5.0 COURSE OBJECTIVES

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

1. Define the various roles of a DBA
2. Plan for the installation of the DBMS
3. Plan and define the database
4. Implement physical database Constraints
5. Design and implement the tables
6. Perform detailed space estimates and calculations
7. Identify and implement required indexes
8. Identify and implement required management controls
9. Plan and implement backup and restore procedures
10. Plan and implement database security
11. Understand the role and coding for views, stored procedures, user functions, triggers and transactions
12. Understand and utilize the functions of Integration Services
13. Utilize performance optimization tools
14. Be competent in a representative industry DBMS 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%
Assignments(2)	20%
Mid Term Examination	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	Being a DBA	Chap 1
	<ul style="list-style-type: none"> • Explain the SQL Server Architecture • Explain major roles of a DBA 	
2	Configuring SQL Server	Chap 2, 3
	<ul style="list-style-type: none"> • Plan and Execute SQL Server installation • Explain post- installation configurations • Troubleshoot common installation issues 	
3	Core DBA Functions	Chap 4, 5
	<ul style="list-style-type: none"> • Configure instance using Server Management Studio • Monitor processes using Dynamic Management Options • Configure and use SQL Server Agent 	
4	Security	Chap 8
	<ul style="list-style-type: none"> • Understand SQL Server and Windows authentication types • Implement object level security • Maintain row level security 	
5	Optimization	Chap 11
	<ul style="list-style-type: none"> • Understand benefits of optimizing application performance • Using partitioning and compression • Tuning I/O, CPU and Memory 	

6	Indexes	Chap 14
	<ul style="list-style-type: none"> • Understand Index features of SQL Server • Understand how indexes affect performance • Implement partitioned tables and indexes • Maintain and tune indexes 	
7	Mid Term Examinations	
8	Performance Tuning Transact SQL	Chap 13
	<ul style="list-style-type: none"> • Understand query processing • Understand query plans and query operators • Implement performance tuning in a production environment 	
9	Backup and Recovery	Chap 17
	<ul style="list-style-type: none"> • Understand different failure types and causes • Plan for disasters • Understand how backup works • Configure backup environment • Recover databases 	
10	Integration Services	Chap 20
	<ul style="list-style-type: none"> • Understand SQL Server Integration Services (SSIS) • Deploy and Configure SSIS Packages • Secure and administer SSIS 	
11	SQL Server Analysis Services Administration (SSAS)	Chap 21
	<ul style="list-style-type: none"> • Understand Analysis Services instances • Administer SSAS server properties • Performance-tuning SSAS 	
12	SQL Server Reporting Services Administration	Chap 22
	<ul style="list-style-type: none"> • Use Configuration manager to set up Reporting Services • Understand features of Reporting Services • Manage and execute reports using Report Manager 	

9.0 TEACHING METHODS

This course will incorporate the following teaching/learning methods lecture, laboratory assignments, problem-based learning, group projects.

10.0 TEXTS & OTHER READING MATERIALS

Title: Professional Microsoft SQL Server 2014 Administration

Author: Adam Jorgensen et alia

Publisher: Wiley

ISBN: 978-1-118-85913-1

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