Carleton University
Sprott School of Business
BUSI3400A
Data and Information Management
Fall 2019

Instructor: Ajit Thomas, Ph.D.

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Office:	TBD
Phone:	613-407-6520 (cell)
Office Hours:	By appointment or email - location TBD
Class Term:	Sept 4 - Dec 6 (Fridays, 11:35 A.M - 2:25 P.M)
Lab hours:	BUSI3400A1: Mondays, 10:35am - 11:25am
	BUSI3400A2: Mondays, 9:35am - 10:25am
TA:	TBD

Prerequisites

BUSI 2400 with a grade of C or higher.

The School of Business enforces all prerequisites.

Course Calendar Description

Information management, database administration, Entity-Relationship Model, database development life cycle: planning, analysis, design, implementation, and maintenance of database management systems. Construction of a database. Introduction to SQL, distributed databases, object-oriented databases, and data warehousing.

Precludes additional credit for COMP 3005.

Data and Information Management

This course provides students with an introduction to the core concepts in data and information management. It is centered on the core skills of: identifying organizational information requirements; modelling said requirements using conceptual data modelling techniques; converting the conceptual data models into relational data models and verifying the model's structural characteristics with normalization

techniques; and implementing and utilizing a relational database using a scalable database management system. The course will also include coverage of basic database administration tasks. In addition to developing database applications, the course helps the students understand how large-scale packaged systems are highly dependent on the use of DBMS. Building on the transactional database understanding, the course also provides an introduction to data and information management technologies that provide decision support capabilities under the broad business intelligence umbrella.

Learning Objectives

Students are expected to:

1. Understand the role of databases in managing organizational data and information.
2. Understand the historical development of database management systems and logical data models.
3. Understand the role of information requirements specification processes in the broader systems analysis & design context.
4. Use Entity-Relationship (ER) modelling to capture the information requirements for an enterprise domain.
5. Understand the link between data/information modelling and process modelling.
6. Produce high-quality relational database designs.
7. Understand the purpose of normalization and the first three normal forms (NF's).
8. Implement a relational database design using an appropriate DBMS, including the principles of data type selection and indexing.
9. Use the data definition (DDL), data manipulation (DML), and data control language components of Transact-SQL language.
10. Perform some simple database administration tasks.
11. Learn the concept of database transaction and apply it appropriately to an application context.
12. Understand how to access relational databases from various types of applications.
13. Understand the role of databases and database management systems in the context of enterprise systems
14. Understand the difference between On-line Transaction Processing (OLTP) and On-line Analytic Processing (OLAP).
15. Understand concepts of business intelligence, data warehousing and data mining.
16. Brief introduction to Big data concepts

Required Materials

Coronel, C. & Morris, S. (2017). Database Systems: Design, Implementation and Management, 12th Edition.

Course webpage: **cuLearn**

Other readings may be announced.

Tentative Course Schedule

The following schedule may be changed at the discretion of the instructor.

Session	Date	Topic / Important Deadlines	Chapter / Readings
1	Sept 6	Course Administration – Introduction – Database Concepts I	Ch 01
2	Sept 13	Database Concepts II: Data Models Discuss database project requirements	Ch 02
3	Sept 20	Design Concepts I: The Relational Database Model Form groups	Ch 03
4	Sept 27	Design Concepts II: Entity Relationship (ER) Modelling	Ch 04
5	Oct 4	Design Concepts III: Advanced Data Modelling Submit database project concept for approval (1 page)	Ch 05
6	Oct 11	Design Concepts IV: Normalization of Database Table Assignment 01 Due s	Ch 06
7	Oct 18	In class Midterm Exam	
		Study Break – Oct 21 – 25	
8	Nov 1	Advanced Design and Implementation I: SQL Submit preliminary ER diagram for database project (due Oct. 30)	Ch 07
9	Nov 8	Advanced Design and Implementation II: Advanced SQL and Database Design	Ch 08
10	Nov 15	Advanced Design and Implementation II: Database Design. Advanced Database Concepts I: Transaction Mgnt and Concurrency Control Assignment 02 due	Ch 09 & Ch 10
11	Nov 22	Advanced Database Concepts II: Business Intelligence and Data Warehouses Advanced Database Concepts III: Database Connectivity and the Internet	Ch 13 & Ch 15
12	Nov 29	Database project write-up due at the beginning of class Database project group presentations	

Group Database Project

Students will work in teams to present a realistic database driven solution for a real life business. The project must cover all the steps in the database development life cycle and must take into account the current and future business requirements and address in tangible terms how the implementation of the

new system will be beneficial to the business in terms of improved effectiveness and efficiency. Students are required to make use of all the techniques that they will learn while taking the course. **More detailed project explanation and instructions will be provided during Session 2.**

Please note that the group project is peer-evaluated. Your mark will be calculated as a function of the mark received by the group. For example, if your peer evaluation by the rest of your group assigned you a score of 80% for participation then you will receive only 80% of your group's mark. **Peer evaluation ratings are mandatory. Students are expected to resolve any issues within the team first.** If there are issues that cannot be resolved, **bring it to my attention early.** I recommend that teams meet regularly, take attendance and assign work equally.

Individual Assignments

Over the course of the term, the instructor will provide two assignments. Students will be required to hand in their assignments according to the schedule provided above.

This is supposed to be individual effort so **DO NOT COPY FROM EACH OTHER AS YOU WILL LEARN NOTHING AND WILL FAIL YOUR FINAL EXAM**. All assignments must be submitted in soft copy through CuLearn. Please also provide a paper copy as it is easier for me to mark.

Tutorials

Tutorial topics and schedule is TBA. Make sure to attend the session you are signed up for as there is limited seating. The TA will run the lab, solve problems and provide guidance and answer course related questions.

Evaluation

Your final grade will be composed of the following:

25% Final Exam
25% Midterm Exam *
30% Group Project
20% Assignments

**Midterm exam is held in class. Students must leave cell phones at home or leave them on the instructor's desk. Every year, I am witness to miracles where one or two of my students are able to produce picture perfect replicas of complex ER diagrams from the text book and they even manage to match each other's diagrams. This year, such miracles will be thoroughly investigated and students caught cheating will receive a zero on the midterm and will face disciplinary action.*

Students must hand in all assignments / project to obtain a passing grade in this course.

- Assignments are due at the beginning of the class.
- Late assignments will be penalized 20% per day

Students who miss the midterm examination shall be required to provide medical certification (for illness) or provide proof of extenuating circumstances to be considered for a re-scheduled examination. The makeup midterm exam will be conducted at a time mutually agreeable between the instructor and student. A missed final exam will require the student to contact the Business office to determine an appropriate remedy to the situation.

The final exam will be held during the regular examination period. **Students must obtain a passing grade on the weighted average of the midterm and final exam in order to gain credit for this course.**

Note: All term grades are posted on CULearn.

ADDITIONAL INFORMATION

Course Sharing Websites

Materials created for this course (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).

Required calculator in BUSI course examinations

If you are purchasing a calculator, we recommend any one of the following options: Texas Instruments BA II Plus (including Pro Model), Hewlett Packard HP 12C (including Platinum model), Staples Financial Calculator, Sharp EL-738C & Hewlett Packard HP 10bII

Group work

The Sprott School of Business encourages group assignments in the school for several reasons. They provide you with opportunities to develop and enhance interpersonal, communication, leadership, follower-ship and other group skills. Group assignments are also good for learning integrative skills for putting together a complex task. Your professor may assign one or more group tasks/assignments/projects in this course. Before embarking on a specific problem as a group, it is your responsibility to ensure that the problem is meant to be a group assignment and not an individual one.

In accordance with the Carleton University Undergraduate Calendar (p 34), the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A - = 80-84	B - = 70-72	C - = 60-62	D - = 50-52
F = Below 50			

Grades entered by Registrar:

WDN = Withdrawn from the course

DEF = Deferred

Academic Regulations

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:

http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: **carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf**

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: **carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf**

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. **carleton.ca/pmc**

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: **carleton.ca/sexual-violence-support**

Accommodation for Student Activities
Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. **https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf**

For more information on academic accommodation, please contact the departmental administrator or visit: **students.carleton.ca/course-outline**

Academic Integrity

Violations of academic integrity are a serious academic offence. Violations of academic integrity – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the degree and will not be tolerated. Penalties may include; a grade of Failure on the submitted work and/or course; academic probation; a refusal of permission to continue or to register in a specific degree program; suspension from full-time studies; suspension from all studies at Carleton; expulsion from Carleton, amongst others. Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy which is available, along with resources for compliance at: https://carleton.ca/registrar/academic-integrity/.

Sprott Student Services

The Sprott student services office, located in 710 Dunton Tower, offers academic advising, study skills advising, and overall academic success support. If you are having a difficult time with this course or others, or just need some guidance on how to successfully complete your Sprott degree, please drop in any weekday between 8:30am and 4:30pm. Our advisors are happy to discuss grades, course selection, tutoring, concentrations, and will ensure that you get connected with the resources you need to succeed! http://sprott.carleton.ca/students/undergraduate/learning-support/

Centre for Student Academic Support

The Centre for Student Academic Support (CSAS) is a centralized collection of learning support services designed to help students achieve their goals and improve their learning both inside and outside the classroom. CSAS offers academic assistance with course content, academic writing and skills development. Visit CSAS on the 4th floor of MacOdrum Library or online at: carleton.ca/csas.

Important Information:

- Students must always retain a hard copy of all work that is submitted.

- All final grades are subject to the Dean's approval.

- For us to respond to your emails, we need to see your full name, CU ID, and the email must be written from your valid CARLETON address. Therefore, in order to respond to your inquiries, please send all email from your Carleton CMail account. If you do not have or have yet to activate this account, you may wish to do so by visiting http://carleton.ca/ccs/students/