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## **BUSI 3400 A Data and Information Management Fall 2015**

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### **Instructor: Ajit Thomas, Ph.D.**

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E-mail:           ajit.thomas@carleton.ca  
Office:            TBD  
Phone:            613-407-6520 (cell)  
Office Hours:    By appointment or email       - location TBD  
Class Room:     Tory Building, Room 202  
Class Dates:     **Sept 4 (Friday)** – Dec 7 (6-9 P.M.)  
Lab hours:        TBD  
TA:                TBD

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### **Prerequisites**

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BUSI 2400 with a grade of C or higher.

**The School of Business enforces all prerequisites.**

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### **Data and Information Management**

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This course provides the 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 them 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 an industrial-strength 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.

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### **Course Description**

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BUSI 3400 [0.5 credit]

Keywords: 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.

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## Learning Objectives

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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 Microsoft SQL Server, 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

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## Required Materials

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Database Systems: Design, Implementation and Management, 9<sup>th</sup> Edition or later, Carlos Coronel, Steven Morris and Peter Rob

**ISBN-13:** 978-0-538-46968-5

**ISBN-10:** 0-538-46968-4

Other readings may be announced.

Course webpage: **CULearn**

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## Tentative Course Schedule

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

Session	Date	Topic / Important Deadlines	Chapter / Readings
1	Friday, Sept 4	Course Administration – Introduction – Database Concepts I	Ch 01
2	Monday, Sept 14	Database Concepts II: Data Models <b>Discuss database project requirements</b>	Ch 02
3	Sept 21	Design Concepts I: The Relational Database Model	Ch 03
4	Sept 28	Design Concepts II: Entity Relationship (ER) Modelling	Ch 04
5	Oct 5	Design Concepts III: Advanced Data Modelling <b>Submit database project concept for approval (1 page)</b>	Ch 05
6	Oct 19	Design Concepts IV: Normalization of Database Tables	Ch 06
		Study Break – Oct 26 – 30	
7	Nov 2	<b>In class Midterm Exam</b> <b>Submit preliminary ER diagram for database project</b>	
8	Nov 9	Advanced Design and Implementation I: SQL– <b>Assignment 01 Due</b>	Ch 07 & 08
9	Nov 16	Advanced Design and Implementation II: Advanced SQL and Database Design	Ch 08 & 09
10	Nov 23	Advanced Database Concepts I: Business Intelligence and Data Warehouses <b>Assignment 02 due</b>	Ch 13
11	Nov 30	Advanced Database Concepts II: Database Connectivity and the Internet Database Administration: Database Administration and Security	Ch 14 & Ch 15
12	Dec 7	<b>Database project write-up due at the beginning of class</b> <b>Database project group presentations</b>	

Note: The chapters referenced in the table above are based on the 9<sup>th</sup> edition. Newer versions may be slightly different.

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## Group Database Project

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Students will work in teams of 4-5 (max) 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.**

The last class will be used to present the database project to the class. All group members must be present and should participate actively in the presentation. Presentation must be delivered using

Powerpoint and must include a working application (the UI will be built in MS Access and reference an underlying SQL Server DB) that must be demonstrated to the class.

**Please note that the group project is peer-evaluated.** Your mark will be calculated as a function of the mark received by the group. E.g. 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** and a group mark will not be released until each group member has provided his or her peer evaluation. **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 cannot do anything if you are unhappy with your peer evaluation and complain to me in the last class.** I recommend that teams meet regularly, take attendance and assign work equally. **DO NOT put your work off to the last weeks as you will NOT do well in your project.**

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## Individual Assignments

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Over the course of the term, the instructor will provide two assignments (problems taken from the course textbook). 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 ON YOUR FINAL EXAM.** All assignments must be submitted in soft copy through WebCT. Please also provide a paper copy as it is easier for me to mark.

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## Labs

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Labs will start after around 3 weeks of classes and a TA has been assigned. They will be held 2-3 times a week and the class will be split up into groups of approximately 20 students to attend the labs. 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. They are important so please attend them.

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## Evaluation

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Your final grade will be composed of the following:

<b>40% Final Exam</b>
<b>20% Midterm Exam *</b>
<b>20% Group Project</b>
<b>20% Assignments</b>

*\*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 10% 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 Carleton Connect

## ADDITIONAL INFORMATION

### Course Sharing Websites

Student or professor 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

WDN = Withdrawn from the course

ABS = Student absent from final exam

DEF = Deferred (See above)

FND = (Failed, no Deferred) = Student could not pass the course even with 100% on final exam

## **Academic Regulations, Accommodations, Etc.**

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 Accommodations**

### *For Students with Disabilities:*

The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your **Letter of Accommodation** at the beginning of the term, and 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 me to ensure accommodation arrangements are made. The deadlines for contacting the Paul Menton Centre regarding accommodation for final exams for the December 2015 exam period is November 6, 2015 and for the April 2016 exam period is March 6, 2016.

### *For Religious Obligations:*

Students requesting academic accommodation on the basis of religious obligation should make a formal, written request to their instructors for alternate dates and/or means of satisfying academic requirements. Such requests should be made during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist, but no later than two weeks before the compulsory event.

Accommodation is to be worked out directly and on an individual basis between the student and the instructor(s) involved. Instructors will make accommodations in a way that avoids academic disadvantage to the student.

Students or instructors who have questions or want to confirm accommodation eligibility of a religious event or practice may refer to the Equity Services website for a list of holy days and Carleton's Academic Accommodation policies, or may contact an Equity Services Advisor in the Equity Services Department for assistance.

### *For Pregnancy:*

Pregnant students requiring academic accommodations are encouraged to contact an Equity Advisor in Equity Services to complete a letter of accommodation. The student must then make an appointment to discuss her needs with the instructor at least two weeks prior to the first academic event in which it is anticipated the accommodation will be required.

## **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 in 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:

<http://www2.carleton.ca/sasc/advisingcentre/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’re 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/support-services/>

Be in the know with what’s happening at Sprott: Follow @SprottStudents and find us on Facebook SprottStudents Sprott.

## **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, it would be easier to respond to your inquiries if you would send all email from your Carleton 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/>
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