



**BUSINESS ANALYTICS  
BUSINESS 4406 – Fall 2018**

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**Class Times**

| <i>Section</i> | <i>Day</i> | <i>Time</i>   |
|----------------|------------|---------------|
| A              | Tuesdays   | 14:35 – 17:25 |

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**INSTRUCTOR**

**Dr. Alejandro Ramirez**

Office: DT1722

Phone: 613.520.2600 x2397

Office Hours: Tuesdays 10:00 AM – 12:00 PM or by appointment

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**Course Description**

BUSI 4406 [0.5 Credit]

**Business Analytics**

Evolution of Decision Support Systems. Business Intelligence. Data Mining and Warehousing. Web Analytics. Mobile Apps for Business Analytics. Strategic use of Information Systems for Competitive Advantage

Prerequisite(s): Third-year standing and BUSI 2400 with a grade of C or higher

Lecture three hours a week.

*The School of Business enforces all prerequisites.*

This course uses the evolution of organizational decision making and the systems that support decision making in organizations to develop a critical view of the use of computers in organizations. The goal is to understand the role of **Business Analytics** in today organizational environment. It was designed to help you:

- become aware of the present state of knowledge in the areas of Business Intelligence and Business Analytics
- become familiar with academic and non-academic literature in these fields
- develop a personal perspective on emerging theories and their application, current debates and controversies within these disciplines

- develop analytical and critical skills to deal with these issues (i.e., help you develop, present and defend arguments)

### **Approach taken in this Course**

Business Analytics continues to be the *buzzword* of the day. Business Analytics is a **data-driven process that provides insight**. It may report on historical information or predictions about future events. The end goal of analytics is to add value through analyses that turn data into information. This course introduces a range of methods and modern technologies that are used in business analytics. We start from where we are all comfortable, MS-Excel, and move into a world of more sophisticated tools that need a different understanding of manipulation of data through tools that are for modelling, visualization, and forecasting.

The instructional approach will include some software demos and illustrate applications of decision support technologies to problems in finance, marketing, manufacturing, services and health care management, and information systems consulting. Students have the opportunity to work on a personal project.

The course introduces recent approaches to managerial decision analysis and support. The student will be exposed to formal methods and specific computer-based tools. The course deals with advanced techniques and tools to support decision making processes.

### **Course Objectives**

The main goal of this course is to provide the students with an understanding of management support capabilities of information technologies to support the function of Business Analytics, and the development of skills to become a business analytics professional. At the conclusion of this course, students will be able to:

- explain the theory of *Bounded Rationality* and its implications on managerial decision making
- demonstrate an understanding of the underlying methods and technologies used in business analytics;
- analyse and applied alternate methods for designing, developing and implementing Business Analytics tools;
- identify and justify opportunities for management support systems development and the specific considerations which apply in their effective management.

### **Reading Material**

There is an Ares page [<https://libares01.carleton.ca/>] with access to the reading material for this course. Also available through CU Learn. You are expected to read this material before the indicated lecture. These readings are part of the midterm assessment. Students are expected to discuss the relevance and implications of it to Business Analytics.

## Grading/Deadlines

[SATISFACTORY IN TERM PERFORMANCE MEANS A STUDENT SUBMITTED TWO ASSIGNMENTS, PARTICIPATED IN THE GROUP PRESENTATION, WROTE THE MIDTERM AND DELIVERED THE COURSE PROJECT]

Your final grade will be composed of the following:

- ✓ **Two Assignments 20%**
  - Excel Assignment (10%) due October 1, 2018 by 10:00 PM
  - SAS Assignment (10%) due November 19, 2018 by 10:00 PM
- ✓ **Group Report & Presentation 10%**
  - Report is due December 3, 2018 by 10:00 PM
  - Presentation is due in class December 4, 2018 – schedule of presentations will be reveal at the beginning of the session
- ✓ **In Class Midterm Examination 30%** - October 16, 2018
- ✓ **Project 40%**
  - Project Proposal (10%) due November 1, 2018 by 10:00 PM
  - Final Report (30%) due December 21, 2018 by 10:00 PM

There is a CU Learn site for this course. All expected deliverables for this course are expected to be submitted though the site. You will find your feedback there as well. It is important that you visit the site regularly to stay on top of the course's expectations. When communicating with the TA or the instructor, please use the mail service associated with the course or include in your message the course number if using a different mail service

## Assignments

**These are INDIVIDUAL assignments!** That does not mean that you can't discuss them with your classmates, on the contrary, business analytics is better when you are able to discuss the issues with your peers – collective intelligence is what has moved this field forward. What it means is that you need to do your own analysis and write your own reports. It is one of the most important skills you need to develop in this course. Therefore, once the analysis is finished, write your report considering that it is expected to empower your manager to make decisions. Most of the output generated during your analysis can be included only as appendices, the body of the report only needs to refer to it when absolutely necessary.

Late assignments will be penalized 25% and accepted only within a 24-hour period, after that will be considered missed and tabulated as 0 [Zero].

## Group Presentation

You will be expected to form a group of 4 or 5 members in this course. In CU Learn there will be a list of topics of business analytics trends. Topics will be assigned to groups via email. As a group you need to choose, request via email, investigate and make an in-class 5 minutes presentation on

one of those topics. Please note that **all members** need to be present during this session to receive full marks.

### **In Class Midterm Examination**

There will be a 2-hours in class examination that needs to be submitted in CU Learn. If you don't have access to a portable computer, you must inform the instructor in advance to book a computer for you in the exam centre.

### **Individual Course Project**

[This has been a valuable exercise for students in the past. It is a way they have managed to explore with more detail aspects of interest in their disciplines or work environment. Some have even used their family's business to start developing a business analytics strategy]:

Identify a problem, an opportunity or a directive and propose a way to investigate how best use business analytics in that situation. Depending on its scope, the project does not have to fully generate a solution, but it should serve as a starting point to a bigger commitment that you may continue working on your own, after the course ends.

With the advantage of using the Virtual Desktop Infrastructure (VDI), you will have access to MS-Office 2016, SAS and other tools directly on your own device until the end of the term, without any cost.

**First:** Prepare a two to three-pages **proposal<sup>1</sup> by November 1, 2018**. *If approved*, a final Report of the project and ALL relevant documentation is **due on December 21, 2018 at 10:00 PM**.

***If your proposal is not approved**, you will receive a detailed e-mail message indicating the change of scope of the proposal to be considered; then you may resubmit the updated proposal, or prepare a new one. This will be agreed upon on the terms within the e-mail.*

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<sup>1</sup> There are some proposal examples in CU Learn from students in past semesters. Use them to understand the scope of a proposal, not as an expected template of the proposal you need to write.

## Outline\*

| Session | Date  | Topic  |
|---------|-------|--|
| 1       | 09/11 | <p style="text-align: center;"><b><u>THEORIES</u></b></p> <p style="text-align: center;">Welcome – Course Administration – Overview<br/>From Decision Making and Support Systems to Business Analytics:<br/>A historical introduction</p>  |
| 2       | 09/18 | <p style="text-align: center;">Decision Making, Systems, Modelling, and Support – Business Analytics<br/>Concepts, Methodologies, and Technologies: An Overview</p> <p style="text-align: center;"><b><u>TOOLS</u></b></p> <p style="text-align: center;">Excel: Opportunities and Limitations<br/><a href="#">Readings: Simon 2000 &amp; Mintzberg 2013 [Chapter 3]</a></p> |
| 3       | 09/25 | <p style="text-align: center;">Data Warehousing &amp; Data Marts – Analyzing Data in Excel 2016 with<br/>Business Intelligence<br/><a href="#">Reading: Devlin 2017</a></p>  |
| 4       | 10/02 | <p style="text-align: center;">Data <a href="#">Visualization</a> – Excel’s Power Pivot, Power View, Power Map<br/><a href="#">Reading: Berinato 2016</a><br/><a href="#">Video: Knafllic 2015</a></p>   |
| 5       | 10/09 | <p style="text-align: center;">Data Analyses &amp; SAS Enterprise Guide<br/><a href="#">Reading: Cegielski et al. 2016</a></p>   |
| 6       | 10/16 | <b><i>Mid Term Exam</i></b>  |
|         | 10/23 | <b><i>Reading Week – No lecture</i></b>  |
| 7       | 10/30 | Predictive Modelling & SAS Enterprise Miner I  |
| 8       | 11/06 | Predictive Modelling & SAS Enterprise Miner II   |
| 9       | 11/13 | Business Forecasting   |
| 10      | 11/20 | SAS Forecast Studio  |
| 11      | 11/27 | <p style="text-align: center;">Artificial Intelligence &amp; Expert Systems</p> <p style="text-align: center;"><b><u>TRENDS</u></b></p> <p style="text-align: center;">Business Analytics on today’s job market</p>  |
| 12      | 12/04 | <p style="text-align: center;">Big Data Emerging Trends – Social Networking &amp; the Cloud<br/>Group Presentations</p>  |

\* Note: While every attempt will be made to keep to the schedule listed above, unforeseen circumstances may necessitate modifications throughout the semester.

## 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](http://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](https://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](mailto: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](https://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](https://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](https://students.carleton.ca/course-outline)

### **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](https://carleton.ca/csas).

### **Important Information:**

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- 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/>
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## 2018-2019 Dates and Deadlines

September 5, 2018

Fall term begins.

Fall and fall/winter classes begin.

September 12, 2018

OSAP deferral deadline. Late payment charges and late registration charges applied to the student account on or after this date for eligible OSAP students.

September 14-16, 2018

Full and late summer deferred final examinations held.

September 18, 2018

Last day of registration for fall term and fall/winter courses.

Last day to change courses or sections (including auditing) for fall term and fall/winter courses.

Graduate students who have not electronically submitted their final thesis copy to the Faculty of Graduate and Postdoctoral Affairs will not be eligible to graduate in fall 2018 and must register for the fall 2018 term.

September 30, 2018

Last day to withdraw from fall term and fall/winter courses with a full fee adjustment (financial withdrawal). Withdrawals after this date will create no financial change to fall term fees and will result in a permanent notation of WDN appearing on your official transcript.

October 5, 2018

December examination schedule (fall term final and fall/winter mid-terms) available online.

October 8, 2018

Statutory holiday. University closed.

October 15, 2018

Last day for receipt of applications for admission to an undergraduate degree program for the winter term from applicants whose documents originate from outside Canada or the United States.

October 22-26, 2018

Fall break. Classes are suspended.

November 1, 2018

Application deadline to study at another institution on a letter of permission for the winter term.

November 9, 2018

Last day to request formal exam accommodations for December examinations to the Paul Menton Centre for Students with Disabilities. Note that it may not be possible to fulfil accommodation requests received after the specified deadlines.

November 15, 2018

Last day for receipt of applications for admission to an undergraduate degree program for the winter term.

November 23, 2018

Last day for summative tests or examinations or formative tests or examinations totaling more than 15% of the final grade before the official examination period (see examinations regulations in the Academic Regulations of the University section of the Undergraduate Calendar/General Regulations of the Graduate Calendar).

November 25, 2018

Winter Payment Deadline. [Click here](#) for important payment information. Late charges may be applied to the student account any time after this date.

December 1, 2018

Last day for receipt of applications from potential winter (February) graduates.

Last day for graduate students to submit their supervisor-approved thesis in examinable form to the department.

December 7, 2018

Fall term ends.

Last day of fall term classes.

Classes follow a Monday schedule.

Last day for academic withdrawal from fall term courses.

Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for fall term courses.

Last day for receipt of applications for undergraduate degree program transfers for winter term.

Last day for take home examinations to be assigned, with the exception of those conforming to the examinations regulations in the Academic Regulations of the University section of the Undergraduate Calendar/General Regulations of the Graduate Calendar.

Last day to pay any remaining fall tuition fees to avoid a hold on access to marks through Carleton Central and the release of transcripts and other official documents.

December 8, 2018

No classes or examinations take place.

December 9 – 21, 2018

Final examinations in fall term courses and mid-term examinations in fall/winter courses may be held. Examinations are normally held all seven days of the week.

December 18, 2018

Winter term registration for University of Ottawa undergraduate exchange students begins. Registration opens at 8:30 a.m.

December 21, 2018

All take home examinations are due on this day, with the exception of those conforming to the examinations regulations in the Academic Regulations of the University section of the Undergraduate Calendar/General Regulations of the Graduate Calendar.

December 24, 2018

Deadline for course outlines to be made available to students registered in winter term courses.

December 25, 2018-January 1, 2019

University closed.

January 2, 2019

University reopens at 8:30 a.m.