BUS 335AC: Business Analytics
Fall 2019
Course Outline

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CLASSES : 11:30-12:45 P.M. Mondays and Wednesdays in Education Building 531.
OFFICE HOUR : WEDNESDAYS 1-2 PM OR BY APPOINTMENT.

COURSE DESCRIPTION

This course focuses on teaching students different methods for data driven decision making. Students will learn to apply basic business analytics principles, and effectively use and interpret analytic models to make better business decisions. Topics may include: Descriptive statistical measures, statistical inference, regression analysis, linear and integer optimization, data mining, and simulation. Different application areas will be studied in the areas of finance, marketing and operations. ***Prerequisite: STAT 100***

COURSE OBJECTIVES

This course is intended to provide an introduction to Business Analytics, which can be defined as the combined use of data analysis techniques and optimization models to make "data-driven" business decisions. Because Business Analytics has applications in finance, marketing, and operations, the course covers examples and includes practical exercises in a variety of areas:
• Finance – what is the best portfolio to invest, given the predicted risk of investment?
• Marketing – which customers should be targeted directly, given their predicted probability of responding to a certain advertisement?
• Operations – how to schedule appointments, given their no-show probability?

This course covers the three dimensions of Business Analytics:
• Descriptive analytics, which "to use data to figure out what happened in the past",
• Predictive analytics, which "to use data to find out what could happen in the future",
• Prescriptive analytics, which "to use data to prescribe the best course of action to increase the chances of realizing the best outcome".

COURSE MATERIAL

- **Textbook:** *Essentials of Business Analytics*, 3rd Edition; Camm, Cochran, Fry, Ohlmann, Anderson, Sweeney, and Williams, 2018, South-Western College Pub. The book is available at the U of R bookstore.
- **Software:** We will use Analytic Solver (www.analyticsolver.com) as the main software for this class. Analytic Solver is an add-on package to excel. The software is available on the computer lab (ED 531) machines. You can also download a free 15-day trial version of the software. Another option (not required) is to purchase a 140-day license of the software at a cost of $25 which you can download to your own PC. The instructions for download are available on UR-courses

(Analytic_Solver_v2019_Student_Installation_Guide). The course code is: **BUS335ACEA19F.** The book code is: **CCFOEBA.**

COURSE MANAGEMENT

The course homepage is available at http://www.uregina.ca/urcourses/. Lecture slides, announcements, practice problems, assignments, and all other related material will be posted on the course web page. It is your responsibility to check the website regularly.

COMMUNICATION

Please use the UR-courses email for any communication regarding this course. Allow for at least 24 hours for me to respond to your email. I do not check this email during weekends.

EVALUATION

The course grade will be based on the following:

Assignments (5)	25 %
Midterm exam	30 %
Group Project	40 %
Report	30%
Presentation	10%
Participation	5 %

ASSIGNMENTS

Five individual assignments will be assigned from the textbook to practice the quantitative material covered in class. Each student is expected to submit their assignment file (via UR-courses) at the beginning of class on the assignment due date along with any supporting material. The file name should follow the following format (Last name-Assignment #-date). The solutions for each assignment will be posted on UR courses after the due date. We will discuss in class some of the assignments as well.

MIDTERM EXAM

An in-class midterm exam will be held on October 16, 2019 during lecture time. The exam will cover all the material discussed in class up to the exam date. The format of the exam will be discussed later in the course.

PROJECT

A group project (two students each) is required and worth 40% of your total mark. Every group is expected to prepare a project report (worth 30%) and deliver a presentation (worth 10%). The project report is due on or before December 16. The presentations will be held during the last week of classes. The project will be based on case studies with actual data sets. More details on the case studies and expectations will be discussed later in the term.

PARTICIPATION

It is strongly recommended that you attend all classes. Participation during the class is also encouraged. There will be 5% of the course total mark dedicated for your participation in the lecture discussion. Your questions, comments and criticism will all be counted towards the participation grade. The objective is to create an involved atmosphere to enhance learning.

ACADEMIC INTEGRITY AND STUDENT BEHAVIOUR

Academic Integrity: "Students enrolled in Business courses at the University of Regina are expected to adhere rigorously to principles of intellectual integrity. Plagiarism is a form of intellectual dishonesty in which another person's work is presented as one's own. Plagiarism or cheating on examinations/assignments is a serious offence that may result in a zero grade on an assignment, a failing grade in a course, or expulsion from the University"

Student Behavior: Students of the University of Regina (the "University") are expected to conduct themselves responsibly and with propriety both in their studies and in their general behavior, and are expected to abide by all policies and regulations of the University. Misconduct, which may be academic (that is, in academic studies) or non-academic (in general behavior), is subject to disciplinary action. For information on categories of offences and types of penalties. Students are referred to the University Calendar for information on appeals, withdrawal dates, plagiarism, cheating, and academic misconduct. Students are expected to abide by these regulations of the University of Regina http://www.uregina.ca/presoff/vpadmin/policymanual/Academic%20Regulations/DisciplinaryRegulations.pdf.

COURSE SCHEDULE

The following is a tentative schedule of topics to be covered during the Semester. It is possible that there will be changes in the schedule as the course progresses. Changes to this schedule will be announced during class in advance of the class periods that will be affected.

Date	Topic/ Case	Reading Assignments
Sept 4	Course introductions What is Business Analytics and why it is important to study	Chapter 1
Sept 9-11	Descriptive Statistics Data Visualization Guest speaker: Data visualization at Conexus Credit Union	Chapter 2 Chapter 3
Sept 16-18 Sept 18	Descriptive data mining	Chapter 4 Assignment 1
Sept 23-25	Statistical Inference	Chapter 6
Sept 30-oct 2 Oct 2	Linear Regression	Chapter 7 Assignment 2
Oct 7-9	Time Series Analysis and Forecasting	Chapter 8
Oct 16	Midterm exam	
Oct 21-23 Oct 23	Predictive data mining	Chapter 9 Assignment 3
Oct 28-30	Spread sheet models	Chapter 10
Nov 4, 13 Nov 13	Monte Carlo Simulation	Chapter 11 Assignment 4
Nov 18-20	Linear optimization models Integer optimization models	Chapter 12 Chapter 13
Nov 25-27 Nov 25	Decision Analysis Guest Speaker: The use of decision trees and data mining tools at Conexus Credit Union	Chapter 15 Assignment 5
Dec 2-4	Project Presentations	