

# STAT 2607 C - BUSINESS STATISTICS II

Winter 2021

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<b>Instructor:</b> Ahmed Sid-Ali	<b>Place:</b> Posted on CuLearn
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**Lectures:** From January 11, 2021 to April 14, 2021. The course will be delivered online. Lecture notes and pre-recorded lectures will be uploaded weekly on CuLearn.

**Office Hours:** Thursday 2:00 pm to 4:30 pm via BigBlueButton (BBB). Also available upon request.

## **REQUIRED Textbook:**

Business Statistics and Analytics in Practice  
9th Edition

By Bruce Bowerman and Anne M. Drougas and William M. Duckworth and Amy G. Froelich and Ruth M. Hummel and Kyle B. Moninger and Patrick J. Schur

ISBN10: 1260187497

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**Course description:** Experimental design, multiple regression and correlation analysis, covariance analysis, and introductory time series. Use of computer packages. The course consists of lectures of approximately 3 hours a week, and labs 1 hour a week. The tutorial sessions will give students hands-on experience in solving problems based on the topics covered in the classes. The meeting links of lectures and tutorials (Zoom/BBB) will be available on CuLearn.

**Labs schedule:** The starting dates of laboratories will be announced later. The schedule for each group is as follows:

- Group C1: Mondays 12:35 pm- 1:25 pm.
- Group C2: Mondays 4:35 pm - 5:25 pm.
- Group C3: Wednesdays 1:35 pm - 2:25 pm.
- Group C4: Thursdays 8:35 am - 9:25 am.
- Group C5: Wednesdays 4:35 pm - 5:25 pm.
- Group C6: Wednesdays 12:35 pm - 1:25 pm.

**Prerequisite:** STAT 2606.

**Software:** Students are required to use statistical software MINITAB for their assignments. Data used for assignment/examples are provided at CuLearn. You need to use MINITAB by connecting to VDI (Virtual Desktop Interface) through VMWare Horizon Client or HTML. <https://cudesktop.carleton.ca>

**Grading Policy:**

Quizzes 15%  
Assignments 10%  
Midterm Examination 25%  
Final Exam 50%

**Quizzes:** There will be three quizzes DUE ON ASSIGNED DATES:. The three quizzes will be counted towards the course total where each quiz is equally weighted. All quizzes will take place on CuLearn. The deadlines and the materiel covered by each quiz are as follows:

- Quiz 1: Due on Sunday, February 7, 2021. Materiel: Weeks 1 to 3.
- Quiz 2: Due on Sunday, February 28, 2021. Materiel: Weeks 4 to 5.
- Quiz 3: Due on Sunday, March 21, 2021. Materiel: Weeks 6 to 8.

**Assignments:** There will be two assignments, each counting equally toward the term mark. Students may wish to work together on assignments, but each student must write up his/her assignment independently. You will need to upload your assignments for marking, via CuLearn, on the due date, before 11:59 pm. No late assignment will be accepted. The deadlines and the materiel covered by each assignment are as follows:

- Assignment 1: Due on Sunday, March 7, 2021. Materiel: Weeks 1 to 5.
- Assignment 2: Due on Sunday, March 28, 2021. Materiel: Weeks 6 to 9.

**Midterm:** The midterm examination will be held on CuLearn on Sunday, March 14, 2021, from 2 p.m. to 4 p.m. There is no deferred midterm. If you miss a midterm exam and provide a self-declaration form (<https://carleton.ca/registrar/wp-content/uploads/self-declaration.pdf>) within one week of the missed exam, the assigned weight (of 25%) will be added to your final exam; otherwise, a mark of zero is assigned. Students will need to fill out the form "Consent to Release Information to a Third Party" (which is available on CuLearn) when they submit a medical note. The material covered by the midterm consists of weeks of 1 to 5.

**Final Exam:** The 3-hour final examination will take place on CuLearn during the official final examination period of April 16 to 27, 2021, and is scheduled by the Registrar's Office. Please do not make travel plans before April 27, 2021. If you miss the final examination, please contact the Registrar's Office as soon as possible after the missed exam to qualify for a deferred exam next semester.

**Tentative Course Outline:**

Week	Chapters	Topics
1	Chapters 10 (10.6- 10.7), 11 (11.4 - 11.5) and 12 (12.1 -12.2)	Statistical Inference for One and Two Population Variances, Experimental Design and One-way ANOVA.
2	Chapter 18 (18.4) and Chapter 12 (12.3)	Kruskal Wallis Test (nonparametric test for one-way ANOVA), Randomized Block Design, Friedman Test (non-parametric test for randomized block design).
3	Chapter 13 (13.1- 13.2)	Chi-square Goodness-of-Fit Tests, Test of Independence
4	Chapter 14 (14.1-14.2, 14.6)	Correlation, Testing the Significance of Population Correlation Coefficient, Simple Linear Regression (SLR) Model.
5	Chapter 14 (14.3-14.5)	SLR Model Assumptions and the Standard Error, Testing the Significance of Regression Model, Confidence and Prediction Intervals.
Feb. 15-19	Winter Break (No class)	
6	Chapter 14 (14.7)	Residual Analysis to Check SLR Model Assumptions.
7	Chapter 15 (15.1-15.5)	Multiple Regression Model, R <sup>2</sup> and Adjusted R <sup>2</sup> , Model Assumptions and the Standard Error, The Overall F Test, Testing the Significance of an Independent Variable
8	Chapter 15 (15.6-15.9)	Confidence and Prediction Intervals, Dummy Variables, Quadratic Regression Model, Partial F Test. Midterm Exam Review (Weeks of 1-5).
9	Chapter 15 (15.10 - 15.11)	Multicollinearity, Model Building and Model Validation, Residual Analysis, Outliers, and Influential Observations.
10	Chapter 17 (17.1-17.2)	Time Series Components, Time Series Regression
11	Chapter 17 (17.3-17.4)	Multiplicative Decomposition, Simple Exponential Smoothing.
12	Chapter 17 (17.5 - 11.7)	Holt-Winter's Models, Box-Jenkins Methodology, Forecast Error Comparisons.

**Note:** This outline is subject to change depending on the progress of the course. All necessary changes will be announced in class and on CULearn. It is the responsibility of the student to keep up to date with any such modifications.

**Important Dates:** January 25, 2021 is the last day to register for the course; January 31, 2021 is the last day to withdraw with a full fee adjustment; and April 14, 2021 is the last day to withdraw without academic penalty.

**Mathematics and Statistics Learning Assistance Program (MS-LAP):** MS-LAP supports first year mathematics and statistics courses. This free-of-charge program helps students in achieving their goals. It provides learning support and solutions to homework questions through assistance videos. These services are available on CuLearn. MS-LAP gives students tools to succeed while explaining step-by-step strategies and associated theories for particular problem. The program is for anyone who wants to deepen their understanding at the own pace, and in the comfort and privacy of their home.

**Course standing:** Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

**Course Policy:** Students who need to miss a test for a valid reason must inform me prior to the test and send me by email a copy of the appropriate supporting documentation within one business day of the test. Students who correctly follow this procedure will have the weight of the missed test added to the weight of the final exam. Failure to follow this procedure will result in a grade of 0% on the missed test.

**Academic Integrity:** Students should familiarize themselves with the Carleton University policy on Academic Integrity. This policy details those behaviors considered to be violations of academic integrity (e.g., cheating, plagiarism) and provides guidelines as to the imposition of various sanctions, including a reduction in grade, suspension, and expulsion. Also be aware of the academic integrity policy on the registrar website page at <https://carleton.ca/registrar/academic-integrity/>

**Requests for Academic Accommodation:** You may need special arrangements to meet your academic obligations during the term. For accommodation requests, 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](https://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>

- **Deferred Exam:** Students who miss the final exam may be eligible for a deferral. Application for a deferral must be made, with appropriate documentation, to the Registrar's Office within five business days of the examination.

**Additional student support information:**

Carleton University offers additional support at the Writing Tutorial Service (215PA), Student Life Services (501 Unicentre), and the Student Academic Success Centre (302 Tory).