Carleton University
School of Mathematics and Statistics
STAT 2606 – Sections *A* and *B* – *Business Statistics I* – Fall 2021

Instructor: Dr. Wayne Horn, wayne.horn@carleton.ca

Lectures: Lecture slides and pre-recorded videos will be posted weekly on Brightspace.

Labs: Refer to the public class schedule for lab times and locations. The purpose of the labs is to demonstrate how to use Microsoft Excel to complete required tasks within the course assignments.

Office Hours: Office hours will be posted on Brightspace on the main course page.

Textbook: There are no required textbooks. If you would like a reference book, I recommend one of:

1. *ISE Business Statistics in Practice*, Ninth Edition, Bowerman et al.
2. *Business Statistics for Contemporary Decision Making*, Third Canadian Edition, Black et al.

Prerequisites: MATH 1009.

Grading Scheme: Assignments 20%, Midterm Exam 40%, Final Exam 40%

Assignments: There will be five (5) assignments each counting equally toward the term mark. The tentative due dates for the assignments are **October 6**, **October 20, November 3**, **November 24**, and **December 8**. No late assignments will be accepted.

Midterm Exam: There will be a **3-hour midterm** starting at **9:00am** on **Sunday, November 7.** The exam will cover the material listed under weeks 1 through 6 of the syllabus.

Final Exam: There will be a **3-hour final exam** scheduled by the university. The final exam period runs from **December 11 – 23**. The exam will cover the material listed under weeks 7 through 12 of the syllabus.

Calculators: Only a non-programmable calculator may be used for the midterm and final exams.

Academic Integrity: Students are required to be familiar with the Academic Integrity Policy at Carleton University. Students who violate the standards of academic integrity relating to any coursework will be required to meet with the Associate Dean of Science.

ADDITIONAL COURSE POLICIES:

1. Concerns about grading on any assignment or exam must be brought to my attention within three business days of the completion of grading.

2. Students who need to miss an assignment submission or an exam for a valid reason must complete and submit the self-declaration form prior to the assessment in order to receive accommodation. In the case of an assignment or the midterm exam, the form must be submitted to the instructor. In the case of the final exam, the form must be submitted to the Registrar's Office. For a missed assignment, the weight of the assignment will be added to the weight of the relevant exam. For a missed exam, the student will be offered a deferred exam, approximately two weeks after the original exam in the case of the midterm exam. Deferred final exam scheduling is at the discretion of the University. **NOTE:** You cannot defer a deferred exam.

3. Students are required to obtain a minimum score of 50% on each of the midterm exam and final exam. Students who fail to do so will automatically be assigned a grade of **F** in the course. Exceptions to this rule may be made at the discretion of the instructors.

4. Students are required to submit and obtain a minimum grade of 50% on at least three of the five assignments. Students who fail to do so will automatically be assigned a grade of **F** in the course. Exceptions to this rule may be made at the discretion of the instructors.

5. Any student wishing to review their final exam must make an appointment within a two week period following the submission of the final grades. These appointments are solely for educational purposes and are **not** to be treated as an opportunity to debate your grade.

6. You must use your Carleton email account for all email communications. I am unable to respond to non-Carleton emails due to FIPPA (Freedom of Information and Protection of Privacy Act).|

7. All assignments and exams in the course will be submitted online. A document entitled *Submission Instructions* will be posted on the course page in Brightspace. Any submissions not following the *Submission Instructions* will not be accepted for credit.

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.

TENTATIVE LECTURE SCHEDULE

WEEK	STARTING DATE	TOPICS
1	Sept 8	Descriptive and Inferential Statistics. Population and Sample. Qualitative and Quantitative Data. Levels of Measurement. Graphical Displays. Measures of Central Tendency. Measures of Variability.
2	Sept 15	Percentiles. Box Plots. Identifying Outliers. Experiment and Sample Space. Assigning Probability to an Outcome. Events; Intersection, Union, and Complement. Venn Diagrams. Mutually Exclusive Events. Addition Rule.
3	Sept 22	The *mn* Rule. Combinations. Conditional Probability. Multiplication Rule. Independent Events. Law of Total Probability. Bayes' Theorem. Probability Trees.
4	Sept 29	Discrete Random Variables; Probability Distribution, Expected Value, and Variance. Binomial Probability Distribution. Poisson Probability Distribution. Continuous Random Variables. Exponential Probability Distribution.
5	Oct 6	Normal Probability Distribution. Normal Percentiles. Sampling Distribution of the Sample Mean and Sample Proportion. Central Limit Theorem. Point Estimation versus Interval Estimation.
6	Oct 13	Confidence Intervals for a Population Mean (known variance), and Sample Size Determination for a given Margin of Error. The Student *t* Distribution. Confidence Intervals for a Population Mean (unknown variance). Confidence Intervals for a Population Proportion, and Sample Size Determination for a given Margin of Error.
7	Oct 20	Introduction to Hypothesis Testing using *p*-values. Test about a Population Mean (known and unknown variance). Test about a Population Proportion. Critical Values. Type I and Type II Errors.
8	Nov 3	Inference for Comparing Two Population Means (known variances, unequal unknown variances, equal unknown variances). Paired Experiments. Inference for Comparing Two Population Proportions.
9	Nov 10	Categorical Data Analysis. Goodness of Fit Test. Contingency Tables. Test for Independence. Test for Homogeneity.
10	Nov 17	Correlation. Simple Linear Regression. Least Squares Regression Line. Test about the Slope Parameter (or Population Correlation).
11	Nov 24	Confidence Interval for the Mean Response. Prediction Interval for a New Observation. Multiple Regression. Interpretation of the Regression Coefficients Testing the Significance of an Independent Variable. Regression Model Building.
12	Dec 1	Confidence Interval for the Mean Response. Prediction Interval for a New Observation. Introduction to Time Series. Time Series Components.