DEPARTMENT OF BUSINESS AND OFFICE ADMINISTRATION

COURSE OUTLINE –WINTER 2021

MG3120 A3: APPLIED STATISTICS FOR BUSINESS AND ECONOMICS II – 3 (3-0-1) UT 60 Hours for 15 Weeks

INSTRUCTOR:	Dr. Chuntai Jin	**PHONE:**	(780) 539-2857
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OFFICE HOURS:	TBA		

WINTER 2021 DELIVERY:
Remote Delivery. This course is delivered remotely. There are no face-to-face or onsite requirements. Students must have a computer with a webcam and reliable internet connection. Technological support is available through helpdesk@gprc.ab.ca

Note: GPRC reserves the right to change the course delivery.

CALENDAR DESCRIPTION:
Statistical inference for variance; statistical inference for the means; proportions and variances from two populations; analysis of variance; non-parametric statistics; joint probability distributions; marginal and conditional distributions; covariance; correlation and independence; contingency tables; simple linear regression; multiple linear regression; nonlinear regression; and time series analysis are topics covered in the course.

PREREQUISITE(S)/COREQUISITE:
ST 1510

REQUIRED TEXT/RESOURCE MATERIALS:
Textbook: Business Statistics, 4th Canadian Edition, *Pearson*, by Sharpe, De Veaux, Velleman, & Wright
https://www.pearson.com/store/p/business-statistics-fourth-canadian-edition/P100002962598

This textbook includes *MyLab Statistics. MyLab* is a learning platform that allows students to practice course material without limit. It will also help you identify topics you still need to work on and will create a personalized study plan. Furthermore, you are required to complete a series of online assignments and quizzes in *MyLab*. You need an access code to register for *MyLab Statistics* for this course. *MyLab* registration instructions are available in the Registration Module on D2L.

Software: Microsoft Excel/StatCrunch will be used to assist with the statistical calculations.

Calculator: A business/financial calculator (TI-BA II Plus is recommended).

DELIVERY MODE(S):
Remote Delivery. This course is delivered remotely. There are no face-to-face or onsite requirements. Students must have a computer with a webcam and reliable internet connection. This course consists of three hours of lecture and one hour of lab per week.

COURSE OBJECTIVES:
This course introduces students to the statistical methods of analyzing business problems. Students will learn different statistical tools that can be used to make better business decisions. Statistical software such as Excel and StatCrunch will be used to facilitate the analytical processes.

LEARNING OUTCOMES:
Upon completion of this course students should be able to understand and explain:

- how to use a linear model to analyze the relationship between two variables
- probability distribution and statistical inference
- how to model discrete random variables and continuous random variables
- the sampling distribution of a proportion and a mean
- how to calculate a confidence interval and perform a hypothesis testing for a proportion
- the relationship between hypothesis tests and confidence intervals
- how to calculate a confidence interval for the difference between two proportions
- how to perform a hypothesis test comparing two proportions
- how to construct a confidence interval and perform a hypothesis testing for a mean
- how to calculate a confidence interval for the difference between two means
- how to construct confidence intervals and perform hypothesis tests on the difference between means of paired data based on the t-distribution
- how to analyze the results of a statistical experiment using ANOVA: Analysis of Variance
- how to perform a homogeneity test and a goodness-of-fit test
- which nonparametric tests can be used in given business situations, together with their advantages and disadvantages
- how to perform nonparametric tests on one, two, or more groups
- how to perform nonparametric tests to identify the degree of relationship between two variables
- how to perform a hypothesis test and calculate the confidence interval for the slope of a linear regression
- how to perform a hypothesis test on a correlation coefficient
- how to calculate the confidence interval and prediction interval for predicted values
- the multiple regression model and how to test the significance level of the model

TRANSFERABILITY:
Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page http://www.transferalberta.ca.

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.**

EVALUATIONS:

Assignments 15%
Quizzes 15%
Midterm Exam 1.....20%
Midterm Exam 2.....20%
Final Exam 30%

GRADING CRITERIA: (The following criteria may be changed to suite the particular course/instructor)

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100		C+	2.3	67-69
A	4.0	85-89		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE:

Week Beginning	Topics	Required Reading
Jan. 4	Course Outline; Linear Regression	Chapter 7
Jan. 11	Randomness and Probability	Chapter 8
Jan. 18	Random Variables and Probability Distributions	Chapter 9
Jan. 25	Sampling Distributions	Chapter 10
Feb. 1	Confidence Intervals for Proportions	Chapter 11
	Midterm Exam 1 (Feb. 5)	***Chapter 7 - 10***
Feb. 8	Testing Hypotheses about Proportions	Chapter 12
Feb. 15	***Winter Break – No Classes (Feb. 15 – 19)***	
Feb. 22	Confidence Intervals and Hypothesis Tests for Means	Chapter 13
Mar. 1	Comparing Two Means	Chapter 14
Mar. 8	Analysis of Variance (ANOVA)	Chapter 15
	Midterm Exam 2 (Mar. 12)	***Chapter 11 - 14***
Mar. 15	Inference for Counts: Chi-Square Tests	Chapter 16
Mar. 22	Nonparametric Methods	Chapter 17
Mar. 29	Inference for Regression	Chapter 18
Apr. 5	Multiple Regression	Chapter 20
Apr. 14 - 22	***Final Exam***	**Chapter 7 – 18, 20**

* Course schedule is approximate and may vary slightly at the discretion of the instructor.

STUDENT RESPONSIBILITIES:

Attendance: Students are expected to attend all scheduled classes, arrive on time, and remain for the duration of the activities. Arriving late or leaving early is disruptive to the entire class. Frequent tardiness may be treated as absence. **Students with absences in excess of 6 classes may be refused permission to write the final exam.** For more information, please refer to the Academic Regulations on Debarred from Exams at https://www.gprc.ab.ca/programs/grading-systems.html

Time Management: The expectation for this course is that students read the chapter prior to class. Adopting and adhering to effective learning habits in this course will likely take up a great deal of time so plan your schedule accordingly. It is difficult to catch up once a student falls behind in required readings and exercises.

Cell Phones: The use of cell phones during class time is unprofessional and distracting to the instructor and fellow students. Texting and talking on a cell phone during class is therefore strictly prohibited. Cell phones must be either turned off or set to silent mode and placed out of sight.

Email: Email is the preferred option to communicate with your instructor. **Email correspondence to your instructor must be sent from your GPRC student email account.** Emails should be professionally formatted and include a subject, correct spelling and grammar, and a reference to course material and/or textbook pages, etc. Emails that do not adhere to this format may not be responded to.

Recording: Photographing and/or recording course content is strictly prohibited.

STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Calendar at http://www.gprc.ab.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at https://www.gprc.ab.ca/about/administration/policies
**Note: all Academic and Administrative policies are available on the same page.

Plagiarism: Plagiarism means submitting work (words, ideas, images, or data) in a course as if it were their own work done expressly for that particular course when, in fact, it is not. Most commonly, plagiarism exists when:

- the work submitted or presented was done, in whole or in part, by an individual other than the student (this includes having another person impersonate the student or otherwise substitute the work of another for their own in an assignment, examination, or test)
- parts of a student's work are taken from another source without reference to the original author. This includes ideas, words, and images appearing in print, digital, graphical, internet, audio and video formats
- students submit or present the work in one course which has also been submitted in another course (although it may be completely original with the student) without the prior agreement of the instructor
- clinical or laboratory reports are falsified or fabricated.

While it is recognized that academic work often involves reference to ideas, data and conclusions of others, intellectual honesty requires that such references be explicitly and clearly noted.

Instructors may choose to use online plagiarism detection services. When students submit a paper, it is understood that they are consenting to such a procedure and that they cannot claim any copyright violation should such paper be uploaded to an online plagiarism detection database.

Cheating: Cheating on tests or examinations includes, but is not limited to, the following:

- dishonest or attempted dishonest conduct such as speaking to other students or communicating with them under any circumstances whatsoever
- bringing into the examination room a textbook, notebook, memorandum, other written material or mechanical or electronic device not authorized by the examiner or instructor
- writing an examination, or part of it, outside the confines of the examination room without permission to do so
- consulting any person or materials outside the confines of the examination room without permission to do so
- leaving answer papers exposed to view, or any attempts to read other students' examination papers
- tampering or attempts to tamper with examination scripts, class work, grades and/or class records; the acquisition, attempted acquisition, possession, and/or distribution of examination materials or information not authorized by the instructor
- impersonation of another student in an examination or other class assignment.

Absolutely no examination materials may be removed from the examination room. All papers, answer forms and examination question sheets must be returned to the instructor. If students leave the examination room for any reason unacceptable to the instructor, they must hand in all examination materials and it will be assumed that the examination is completed.

If students voluntarily and consciously aid another student in the commission of one of these offenses, they are also guilty of misconduct. Any attempt to commit academic misconduct will bear the same consequences as if the act occurred. A student who assists another student in an act or attempted act of misconduct will also be considered to have committed an offense.

ASSIGNMENTS, QUIZZES AND EXAMS:

Students are expected to finish all assignments and quizzes. Due dates of all assignments and quizzes are available on Connect. **Late/missed assignments and quizzes are NOT accepted** and **will result in a grade of zero**. All exams will be written as scheduled. **No rewrite/rescheduled exams will be given,** and **all missed exams will result in a grade of zero** unless there is an excusable absence and prior arrangements have been made with the instructor. If there is a legitimate reason of absence, the weighting of the missed midterm exam will be added to the final exam weighting.

- Course materials (course outline, lecture notes, *MyLab* instructions, etc.) are available on your *D2L* course space https://myclass.gprc.ab.ca/d2l/home.
- Assignments, quizzes, and exams will be available on ***MyLab Statistics***.

Assignments

- There will be 12 assignments throughout the semester. The best 10/12 will account for 15% of your final grade. Each assignment will be worth 1.5% of the student's final grade, regardless of the length of the assignment.
- The assignments will be marked immediately. Corrections for the attempted assignment will be made available to the students immdediately.
- All assignments must be completed before the expiration of the pre-set due date or the student will receive a mark of zero for any missed assignments.

Quizzes

- There will be 12 quizzes throughout the semester. The best 10/12 will account for 15% of your final grade. Each quiz consists of 20 multiple choice questions.
- The quizzes will be marked immediately. Corrections for the attempted quiz will be made available to the students after the due date.
- All quizzes must be completed before the expiration of the pre-set due date or the student will receive a mark of zero for any missed quizzes.
- Once you start the quiz, you must complete the entire quiz within the one-hour time limit. Logging off or losing the internet connection during the quiz will result in a grade based only on the proportion of the quiz that has been completed. It is imperative that the student has a reliable internet connection when attempting the quiz.

Exams

- The midterm exam 1 will be written upon the completion of Chapter 10 and is tentatively scheduled for ***Feb. 5***.
- The midterm exam 2 will be written upon the completion of Chapter 14 and is tentatively scheduled for ***Mar. 12***.
- The final exam is cumulative and will be scheduled by the registrar's office during April exam period, ***Apr. 12 – 22***.