NORTHWESTERN POLYTECHNIC

DEPARTMENT OF BUSINESS AND OFFICE ADMINISTRATION

COURSE OUTLINE – Winter 2023

BA2060 (EC): Statistics for Business – 3 (3-0-2) 75 Hours for 15 Weeks

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR:	Chuntai Jin, PhD	**PHONE:**	(780) 593-2857
OFFICE:	C309	**E-MAIL:**	cjin@nwpolytech.ca
OFFICE HOURS:	Monday & Wednesday, 10:00-11:30 AM		

CALENDAR DESCRIPTION:

This is an introduction to the use of random variables, descriptive statistics, probability, the binomial and normal probability distributions, estimation, small and large sample theory, analysis of variance, tests of hypotheses, regression analysis, forecasting, time series and linear programming is provided. Practical applications are emphasized in the course.

PREREQUISITE(S)/COREQUISITE:

BA1050

REQUIRED TEXT/RESOURCE MATERIALS:

- Sharpe, De Veaux, Velleman, & Wright (2020). _Business Statistics 4th Canadian Edition_, Pearson. 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 in _MyLab_. You need an access code to register for _MyLab Statistics_ for this course. _MyLab_ registration instructions are available on _D2L_.
- Microsoft Excel/StatCrunch will be used to assist with the statistical calculations.
- A business/financial calculator (TI-BA II Plus is recommended).

DELIVERY MODE(S):
Asynchronous (online) – This type of course will be delivered online through NWP's learning management system. There are no set class times and students attend remotely and asynchronously.

This is a paced self-study course and is delivered entirely online using *MyClass (D2L)* and *MyLab Statistics*. For each chapter, required readings and PowerPoint lecture notes are available, along with student resources in *MyLab Statistics*. Relevant practice exercises for each chapter will be assigned as well as weekly assignments and quizzes to test your knowledge, understanding and application of the material throughout the course. You will be evaluated several times so you can assess how you are doing as you work through the material. The assignments, quizzes, and exams have specific due dates to help you finish the course on time.

COURSE OBJECTIVES:
This course provides students an introduction to business statistical methods and their applications. Four main topics will be covered in this course: displaying and describing both categorial and quantitative data with numerical and graphical summaries; linear regression; probability distribution theories and statistical inference, which deals with testing hypotheses and drawing conclusions from sample data using scientific methods. Students will learn how to use statistical software such as StatCrunch to conduct statistical analysis. This course will prepare students to apply statistical analysis to real-world decision-making problems.

LEARNING OUTCOMES:
Upon completion of this course students should be able to understand and explain:
- What are the five W's and how use them to identify the context of data
- different types of data including quantitative/categorical; cross-sectional/time series; and primary/secondary
- different ways of selecting a representative sample
- how to use a bar or pie chart appropriately and how to analyze contingency tables
- how to display data in a histogram and in a stem-and-leaf diagram
- how to use a linear model to analyze the relationship between two variables
- probability distribution and statistical inference
- the difference between independent and disjoint events
- how to represent probabilities of multiple events using a probability tree
- 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 perform a homogeneity test and a goodness-of-fit test

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 20%
Midterm Exam 30%
Final Exam 35%

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

STUDENT RESPONSIBILITIES:

- The expectation for this course is that students will read the chapter material and complete all assignments and quizzes. You should supplement your learning with the resources in *MyLab Statistics*.

- Adopting and adhering to effective learning habits in this course will likely take up a great deal of time. You should plan your schedule according to the course schedule.

- Email is the preferred option to communicate with your instructor. Email correspondence to your instructor must be sent from your NWP student email account. Emails should be professionally formatted with a subject line, 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.

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 Northwestern Polytechnic Calendar at https://www.nwpolytech.ca/programs/calendar/ or the Student Rights and Responsibilities policy which can be found at https://www.nwpolytech.ca/about/administration/policies/index.html.

**Note: all Academic and Administrative policies are available on the same page.

ASSIGNMENTS, QUIZZES AND EXAMS:

Students are expected to finish all assignments and quizzes. **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.

MyClass D2L & MyLab Statistics

- Course materials will be available on your *D2L* course space https://myclass.gprc.ab.ca/d2l/home.
- Assignments, quizzes and exams will be available on *MyLab Statistics*. https://mlm.pearson.com/northamerica/mystatlab.

StatCrunch

- StatCrunch is a web-based statistical software that allows students to collect data, perform statistical analysis, and generate reports. StatCrunch is integrated directly into *MyLab Statistics*.
- It is the student's responsibility to learn how to use StatCrunch. Turorial videos are available in *MyLab Statistics* or http://statcrunch.com.

Assignments

- There are 12 assignments in this course. The best 10/12 will account for 15% of the overall grade.

Quizzes

- There are 12 quizzes in this course. The best 10/12 will account for 20% of the overall grade. Each quiz consists of 20 multiple choice questions. The quizzes will be marked immediately. Corrections for the quizzes will be made available to the students <u>after the due date</u>.
- 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 and the final exam must be taken online using LockDown Browser + Respondus Monitor where video and audio are recorded from the student's webcam and microphone.

- Students must download and utilize Respondus Monitor for the duration of course. The proctoring software is necessary to uphold academic integrity and meet accreditation requirements. Please be aware that Respondus Monitor charges a $10 fee per course to access the software.
- The midterm exam will be written upon the completion of Chapter 7 and is scheduled for the week of **February 20 – 26**. The final exam covers chapters 8 – 13, 16 and it must be completed during the examination period of **April 14 – 24**.
- Final grades are based on academic performance throughout the semester. There are no test re-writes, deadline extensions, or extra-credit assignments available to improve your grade. It is important to complete all assessments as scheduled and to the best of your abilities.

COURSE SCHEDULE/TENTATIVE TIMELINE:

Week	Date	Topics and Required Reading	Assignments Due Dates	Quizzes Due Dates
1	Jan 4-8	Ch1 An Introduction to Statistics		
2	Jan 9-15	Ch2 Data	A1: Jan 14	Q1: Jan 15
3	Jan 16-22	Ch3 Surveys and Sampling	A2: Jan 21	Q2: Jan 22
4	Jan 23-29	Ch4 Categorical Data	A3: Jan 28	Q3: Jan 29
5	Jan 30-Feb 5	Ch5 Quantitative Data	A4: Feb 4	Q4: Feb 5
6	Feb 6-12	Ch6 Scatterplots, Association, and Correlation	A5: Feb 11	Q5: Feb 12
7	Feb 13-19	Ch7 Linear Regression	A6: Feb 18	Q6: Feb 19
8	*Feb 20-26*	*Midterm Exam (Chapter 1-7)*		
9	Feb 27-Mar 5	Ch8 Randomness and Probability	A7: Mar 4	Q7: Mar 5
10	Mar 6-12	Ch9 Random Variables and Probability Distribution	A8: Mar 11	Q8: Mar 12
11	Mar 13-19	Ch10 Sampling Distributions	A9: Mar 18	Q9: Mar 19
12	Mar 20-26	Ch11 Confidence Intervals for Proportions	A10: Mar 25	Q10: Mar 26
13	Mar 27-Apr 2	Ch12 Testing Hypotheses About Proportions	A11: Apr 1	Q11: Apr 2
14	Apr 3-9	Ch13 Confidence Intervals and Hypothesis Tests for Means	A12: Apr 8	Q12: Apr 9
15	Apr 10-12	Ch16 Inference for Counts: Chi-Square Tests		
	Apr 14 -24	*Final Exam (Chapter 8-13, 16)*		