DEPARTMENT OF BUSINESS

COURSE OUTLINE – WINTER 2018

MG 3120 – APPLIED STATISTICS FOR BUSINESS AND ECONOMICS II – 3 (3-0-1) 60 Hours

INSTRUCTOR:	Charles A. Backman, PhD	**PHONE:**	780 539 2846
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OFFICE HOURS:	TBD		

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:
ST1510

REQUIRED TEXT/RESOURCE MATERIALS:
Groebner, David, Patrick Shannon, Phillip Fry, 2017, Business statistics – A decision making approach, 10th edition, Pearson/Prentice-Hall, 864 pp.

DELIVERY MODE(S):
Lecture and Laboratory

COURSE OBJECTIVES:
This course introduces students to:

1. The scientific method of analyzing problems and identify where in the statistical analytical process that the outcome can be manipulated;
2. Different statistical tools that can be used to understand complex situations;
3. Computer and computer software to facilitate the analytical process;
4. Standard format by which to present statistical report to decision makers.

LEARNING OUTCOMES:
As a result of taking this course, students will gain the ability to:

1. Identify which statistical tool can be used to unbundle a specific problem;

2. Present outcomes and recommendations flowing from an analysis in a format that is accessible to a decision maker;

3. Use standard statistical software embedded in Excel to analyze complex problems, extract relevant information to support the analysis and recommendations, and insert into word documents.

TRANSFERABILITY: (as of December 1, 2015)

(Click on the links for details and any applicable transfer conditions that may apply)

- **Athabasca University: MGSC 312 (3)**
- **Canadian University College: BUAD 3xx (3)**
- **Concordia University College of Alberta: BUS 2xx (3)**
- **King's University College, The: BUSI 3xx (3)**
- **MacEwan University: MGTS 312 (3)**
- **University of Alberta: MGTSC 312 (3) OR AUSTA 2xx (3)**
- **University of Calgary: STAT 217 (3)**
- **University of Lethbridge, The: STAT 2780 (3)**

What does 1xx, 1xxx, Jr. or Sr. mean? This indicates *unspecified* credit. The course is not close enough in content to a receiving institution course to be given credit for a specific receiving institution course. However, it will transfer as an option. Institutions have various ways of indicating non-specific course options which also designate the level of study (i.e., a junior-level option might be Jr. ENGL, ENGL 1xx or 2xx, or ENGL 1xxx).

REMINDER: Transfer agreements specified in the Online Alberta Transfer Guide may be dependent on the particular program a student wishes to enter. If a student switches to an unrelated program, courses may not be fully transferable

** 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:

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

GRADING CRITERIA:

Quizzes
Five Quizzes – 10%

Assignments
Four assignments - 10%

Laboratories
Five Lab assignments - 20%

Exams
First Test 10%
Second Test 10%
Final Exam 40%

3rd Exam (Cumulative) During Regularly scheduled Exam Time

IN ORDER TO GAIN CREDIT FOR THIS COURSE, YOU MUST HAVE A CUMULATIVE GRADE SCORE OF 50% AND AT LEAST A 50% IN THE FINAL EXAM.

Please note that Universities will not accept your course for transfer credit **IF** your grade is **less than C-**. This means **DO NOT GET LESS THAN "C-" IF YOU ARE PLANNING TO TRANSFER TO UNIVERSITY.**

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: Move to be placed here.

COURSE SCHEDULE/TENTATIVE TIMELINE:

Week 1 Jan. 1-5

- No classes

Week 2 Jan 8-12

- Introduction (Distribute course outline)
- Data collection and description

Reference: Chapter 1, 2, 3

Week 3 Jan 15-19

Hand out Quiz ONE

- Review of some important discrete probability distribution

Reference: Chapters 5

Week 4 Jan 22-26

Hand in Quiz ONE

Hand out Quiz TWO

Hand out Assignment ONE

- The Normal distribution and other continuous probability distribution functions

Reference: Chapter 6

- Review of sampling and sampling and sampling distributions

Reference: Chapter 7

- Review of estimation of single population parameters

Reference: Chapters 8

Week 5 Jan 29-Feb. 2

- Review of hypothesis testing

Reference: Chapter 9

Hand in Assignment ONE

Hand in Quiz TWO

Week 6 Feb 5-9

- Estimation and Hypotheses tests for two population parameters

Reference: Chapter 10

- Hypothesis tests and Estimation for Population Variances

Reference: Chapter 11

Week 7 Feb 12-16

Test 1 (Weeks 1 through 5)

Week 8 Feb 19-23

Reading week

Week 9 Feb 26-Mar. 2

Hand out Quiz THREE

Hand out Assignment TWO

- Analysis of Variance

Reference: Chapter 12

- Goodness of Fit Tests and Contingency Analysis

Reference: Chapter 13

Week 10 Mar. 5 – Mar. 09

- Bivariate analysis for quantitative variables
- Simple linear regression

Reference: Chapter 14

Hand in Assignment TWO

Hand in Quiz THREE

Week 11 Mar 12-16

- **2nd Test (Weeks Six through Nine inclusive)**

Week 12 Mar 19-23

Hand out Quiz FOUR

Hand out Assignment THREE

- Multiple regression model building

Reference: Chapter 15

Week 13 Mar 26 – 30

- Multiple regression model building

Reference: Chapter 15

Hand in Quiz FOUR

Hand in Assignment THREE

Week 14 Apr. 2 –April 6

Hand out Quiz FIVE

Hand out Assignment FOUR

- Analyzing and Forecasting Time Series Data

Reference: Chapter 16

Week 15 Apr. 9-13

- Methods for Statistical process Control

Reference: Chapter 18

Hand in Quiz FIVE

Hand in Assignment FOUR

- **The instructor reserves the right to change or cancel any of these dates and topics.**

STUDENT RESPONSIBILITIES:

Each student is expected to come to class **on time**, having read the material and completed the assignments. Note that participation marks will be based not only on the contribution made to the class by the student but also on professionalism exhibited. **Note:** The use of cell phones is unprofessional and is distracting to the instructor and fellow students.

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 Admission Guide at http://www.gprc.ab.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at www.gprc.ab.ca/about/administration/policies/**

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

Modified: January 2, 2018

LABORATORY SCHEDULE

There is a 1 hour lab attached to the 3 hour lecture per week. In order to get the most out of the lab sessions, the 1 hour lab time per week will occur as a 2 hour lab every other week or as identified in the attached schedule.

Select Lab periods will be used to cover material in greater detail as required.

There are two objectives linked to the attached laboratories: (1) review familiarity with Excel as a tool in statistical analysis; (2) Application of statistical techniques learned in class time to real life problems.

Week	**Laboratory #**	**Topic**	
One			
Two	Lecture	Chapters 1, 2, 3	
Three	Lab 1	Methods of describing sets of data	TBD
Four	Lecture	Chapter 7	
Five	Lab 2	Test of hypotheses and sample confidence intervals	TBD
Six	Lecture	Chapter 10	
Seven	MT Review	Ch. 1, 2, 3, 5, 6, 7, 8, 9	Mid Term Wednesday Feb. 14
Eight	**Reading Week**		
Nine	Lecture	Chapter 12	
Ten	Lab 3	Comparing more than two means/Chi squared and contingency tables	
Eleven	MT Review	Ch. 10, 11, 12, 13	Mid Term Mar 14
Twelve	Lab 4	Simple Regression	TBD
Thirteen	Lecture	Chapter 15	TBD
Fourteen	Lab 5	Multiple Regression	TBD
Fifteen	Lecture	Chapter 18	

Modified: January 2, 2018

Schedule maybe modified depending on circumstances.