COLLEGE OF THE ROCKIES

Statistics – STAT 106

University Studies Program

Course Outline

COURSE IMPLEMENTATION DATE:	**Pre 1998**
OUTLINE EFFECTIVE DATE:	**September 2020**
COURSE OUTLINE REVIEW DATE:	**April 2025**

GENERAL COURSE DESCRIPTION:

This course introduces the fundamental ideas of statistics and can be applied to any discipline. Topics include: collection, description, and presentation of data; calculating central tendency and dispersion; probability and statistical inference; hypothesis testing (means, proportions, variances, one and two samples); correlation and regression; decision making and sampling, Goodness of Fit Tests, and Contingency Tables.

Program Information: This course can be used as 3 credits towards any College of the Rockies arts or science certificate or diploma. It is a required course in the Business Administration diploma.

Delivery: This course is delivered in both face-to-face and online formats.

COTR Credits: 3

Hours for this course: 60 hours

Typical Structure of Instructional Hours:

Instructional Activity	Duration
Lecture Hours	45
Seminars / Tutorials	
Laboratory / Studio Hours	15
Practicum / Field Experience Hours	
Other Contact Hours	
Total	60

Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-job Experience	N/A
Formal Work Experience	N/A
Other	N/A
Total	N/A

Course Outline Author or Contact:
Leslie Molnar, BSc, MA

Signature

APPROVAL SIGNATURES:

Department Head
Erin Aasland Hall
E-mail: aaslandhall@cotr.bc.ca

Department Head Signature

Dean of Business and University Studies
Darrell Bethune
E-mail: bethune@cotr.bc.ca

Dean Signature

EDCO

Valid from: September 2020 – April 2025

Education Council Approval Date

COURSE PREREQUISITES AND TRANSFER CREDIT:

Prerequisites: A minimum of 60% in either Principles of Math 11, Foundations of Math 11, Applications of Math 11, Pre-Calculus Math 11, Statistics 12, Pre-Calculus 12, Calculus 12, MATH 080, or MATH 101; or a minimum grade of 65% in either Foundations of Math 12, Geometry 12, or Computer Science 12; or any grade in Foundations of Math 11 and 70% or higher in Foundations of Math 12; or a minimum grade of 60% in MATH 111.

Experience using Microsoft Excel is recommended.

Corequisites: None

Flexible Assessment (FA):

Credit can be awarded for this course through FA ☑ Yes ☐ No

Learners may request formal recognition for flexible assessment at the College of the Rockies through one or more of the following processes: External Evaluation, Worksite Assessment, Demonstration, Standardized Test, Self-assessment, Interview, Products/Portfolio, or Challenge Exam. Contact an Education Advisor for more information.

Transfer Credit: For transfer information within British Columbia, Alberta and other institutions, please visit http://www.cotr.bc.ca/Transfer.

Students should also contact an academic advisor at the institution where they want transfer credit.

For professional associations, please visit each professional association website to determine transfer credits.

Prior Course Number: MATH 106

Date changed: March 2010

Textbooks and Required Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Triola (2018) *Elementary Statistics Using Excel,* 6th Edition, Pearson Canada

Please see the instructor's syllabus or check COTR's online text calculator http://go.cotr.bc.ca/tuition/tCalc.asp for a complete list of the currently required textbooks.

LEARNING OUTCOMES:

Upon the successful completion of this course, students will be able to

- recognize the value of statistical information in a variety of academic disciplines and work environments;
- collect, collate, analyze and interpret data for educational, planning, decision making, and evaluation purposes;
- derive meaningful information from statistical data;
- present and interpret data in such a manner that it is understood and meaningful to colleagues, peers, and clients;
- construct a variety of charts, such as histograms, frequency polygons, ogives, pie charts, box plots, etc.;
- use Microsoft Excel to collate and analyze data, create charts, and calculate statistical information;
- critically analyze statistical information portrayed in the media, work, and educational environments;
- calculate the mean, median, and mode of both raw and grouped data, as appropriate;
- calculate an appropriate measure of variation (range, variance, mean deviation, standard deviation, coefficient of variation, and coefficient of skewness);
- use combinations, permutations, and the counting laws of sets to calculate probabilities, conditional probabilities (including Bayes' Theorem), and probability distributions;
- recognize and use the Normal, Binomial, Hypergeometric, and Poisson probability distributions;
- understand the Central Limit Theorem and be able to construct confidence intervals and to determine appropriate sample sizes;
- perform hypothesis tests of both small and large samples, on one and two sample sets of data for means, proportions, and variances;
- know the properties of and be able to use Z, t and χ^2 distributions;
- perform Goodness of Fit tests, and work with contingency tables to test for independence; and
- calculate and determine the significance of linear correlation coefficients (Pearson and Spearman) and calculate regression lines and predication/confidence intervals.

COURSE TOPICS:

- Descriptive Statistics – frequency distributions, measures of center and dispersion, pictures of data, other descriptive measures.
- An introduction to Probability Theory – counting techniques, set theory, conditional probabilities, independence.

- Probability Distributions – discrete and continuous distributions, special families of distributions such as Binomial, Poisson, Hypergeometric, and Normal.
- Inferential Statistics – the Central Limit Theorem, Confidence Intervals, One and Two Sample Hypothesis tests for Means, Proportions, and Variances.
- Correlation and Regression – both Spearman and Pearson.
- Goodness of Fit tests and Tests of Independence

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

EVALUATION AND ASSESSMENT (Face-to-Face Delivery):

Assignments	% Of Total Grade
Assignments/Quizzes	15%
Labs	15%
Midterms	30%
Final Exam	40%
Total	100%

EVALUATION AND ASSESSMENT (Online Delivery):

Assignments	% Of Total Grade
Assignments/Quizzes	20%
Labs	15%
Midterm	25%
Final Exam	40%
Total	100%

Please see the instructor syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments, and use of electronic aids.

EXAM POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

COURSE GRADE:

Course grades are assigned as follows:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Mark (Percent)	≥ 90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	< 50

A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

ACADEMIC POLICIES:

See www.cotr.bc.ca/policies for general college policies related to course activities, including grade appeals, cheating, and plagiarism.

COURSE CHANGES:

Information contained in course outlines is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational, employment, and marketing needs. The instructor will endeavour to provide notice of changes to students as soon as possible. The instructor reserves the right to add or delete material from courses.