

COURSE OUTLINE		
TERM: Spring 2023	COURSE NO: BADM 310	
INSTRUCTOR:	COURSE TITLE: Decision Modelling in Business	
OFFICE: LOCAL: E-MAIL: @capilanou.ca	SECTION NO(S):	CREDITS: 3.0
OFFICE HOURS:		
COURSE WEBSITE:		

Capilano University acknowledges with respect the Lilwat7úl (Lil'wat), xʷmə ǀ ʰkʷəyəm (Musqueam), shíshálh (Sechelt), Skwxwú7mesh (Squamish), and Səlílwətaʔ/Selilwitulh (Tseil-Waututh) people on whose territories our campuses are located.

COURSE FORMAT

Three hours of class time, plus an additional hour delivered through on-line or other activities for a 15-week semester, which includes two weeks for final exams. May be offered online or in mixed mode format.

COURSE PREREQUISITES

One of BADM 210 or STAT 101 or STAT 205 or KINE 302 or TOUR 350 and one of BCPT 123 or TOUR 149 or COMP 101.

CALENDAR DESCRIPTION

This course provides the student with a theoretical foundation and practical application of commonly used techniques in statistical modelling, particularly Linear Regression and Time Series Analysis. Data analysis software is extensively used in these applications. Linear Programming Models will also be introduced and graphical and computer-generated solutions will be developed and analyzed.

COURSE NOTE

BADM 310 is an approved Science & Technology course for Cap Core requirements.

BADM 310 is an approved Quantitative/Analytical course for baccalaureate degrees.

REQUIRED TEXTS AND/OR RESOURCES

The required text is available online or in the University bookstore.

Lind D., Marchal W., Wathen S., Waite C. (2018). *Basic Statistics for Business and Economics* (Sixth Canadian Edition). Toronto: McGraw-Hill or similar textbook.

COURSE STUDENT LEARNING OUTCOMES**On successful completion of this course, students will be able to do the following:**

1. Apply the principles of the descriptive statistics and probability theory.
2. Support business decisions using inferential statistics tools.
3. Identify business situations appropriate for statistical modeling and perform statistical, regression, and linear programming analyses using Microsoft Excel.
4. Apply tests of goodness of fit and independence in problems commonly used in marketing research.
5. Use multiple regression models to analyze associations between variables and use models to make practical management decisions.
6. Develop business forecasts and predictions by applying various smoothing methods of time-series data such as random variations, time trends, and seasonal cycle.
7. Formulate linear programming models and illustrate solutions to such problems using the graphical methods.

Students who complete this Science and Technology course will be able to do the following:

1. Apply numerical and computational strategies to solve problems.
2. Evaluate scientific information (e.g. distinguish primary and secondary sources, assess credibility and validity of information).
3. Demonstrate how a problem, concept, or process can be modelled numerically, graphically, or algorithmically.
4. Participate in scientific inquiry and communicate the elements of the process, including making careful and systematic observations, developing and testing a hypothesis, analyzing evidence, and interpreting results.

COURSE CONTENT

Date	Topics and Readings
Week 1	Course Introduction. Descriptive Statistics Review: frequency distributions, numerical measures for describing data.
Week 2	Probability Theory Review: probability concepts and discrete probability distributions. Inferential Statistics Review: normal probability distribution and sampling distributions.
Week 3	Inferential Statistics Review: confidence intervals and tests of hypothesis.
Week 4	Analysis of Variance: F-distribution, ANOVA assumptions, the ANOVA test.
Week 5	Regression Analysis Review: simple linear regression & correlation. Regression Analysis: multiple regression correlation analysis.
Week 6	Regression Analysis: the ANOVA table, global test of significance. Regression Analysis: evaluating individual regression coefficients.
Week 7	Regression Analysis: residual analysis. Regression Analysis: qualitative independent variables.
Week 8	Chi-Square Applications: goodness-of-fit test, contingency table analysis.
Week 9	Time Series and Forecasting: smoothing methods, moving averages, deseasonalizing data.
Week 10	Linear Programming: 2 variable problem formulation and graphical solutions.
Week 11	Linear Programming: multi-variable LP applications.
Week 12	Linear Programming: applying the methodology using Solver.
Week 13	Linear Programming: sensitivity analysis and special cases in LP.
Week 14-15	Final Exam Period

EVALUATION PROFILE

Assessment	Percentage of final grade
Quizzes	20%
Assignments and/or Projects	20%
Term Exam	35%
Final Exam	25%
Total	100%

GRADING PROFILE

A+ = 90-100	B+ = 77-79	C+ = 67-69	D = 50-59
A = 85-89	B = 73-76	C = 63-66	F = 0-49
A- = 80-84	B- = 70-72	C- = 60-62	

Incomplete Grades

Grades of Incomplete "I" are assigned only in exceptional circumstances when a student requests extra time to complete their coursework. Such agreements are made only at the request of the student, who is responsible to determine from the instructor the outstanding requirements of the course.

Late Assignments

Are at the discretion of the instructor, please consult with your instructor beforehand.

Missed Exams/Quizzes/Labs etc.

Make-up exams, quizzes and/or tests are given at the discretion of the instructor. They are generally given only in medical emergencies or severe personal crises. Some missed labs or other activities may not be able to be accommodated. Please consult with your instructor.

Attendance

Students are expected to attend all classes and associated activities, as specified by the delivery format.

English Usage

Students are expected to proofread all written work for any grammatical, spelling and stylistic errors. Instructors may deduct marks for incorrect grammar and spelling in written assignments.

Electronic Devices

Students may use electronic devices during class for notetaking only as specified by the instructor.

On-line Communication

Outside of the classroom, instructors will (if necessary) communicate with students using either their official Capilano University email or eLearn; please check both regularly. Official communication between Capilano University and students is delivered to students' Capilano University email addresses only.

UNIVERSITY OPERATIONAL DETAILS**Tools for Success**

Many services are available to support student success for Capilano University students. A central navigation point for all services can be found at: <https://www.capilanou.ca/student-life/>

Capilano University Security: download the [CapU Mobile Safety App](#)

Policy Statement (S2009-06)

Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Academic Integrity, Academic Probation and other educational issues. These and other policies are available on the University website.

Academic Integrity (S2017-05)

Any instance of academic dishonesty or breach of the standards of academic integrity is serious and students will be held accountable for their actions, whether acting alone or in a group. See policy and procedures S2017-05 Academic Integrity for more information: <https://www.capilanou.ca/about-capu/governance/policies/>

Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances, are prohibited and will be handled in accordance with the Student Academic Integrity Procedures.

Academic dishonesty is any act that breaches one or more of the principles of academic integrity. Acts of academic dishonesty may include but are not limited to the following types:

Cheating: Using or providing unauthorized aids, assistance or materials while preparing or completing assessments, or when completing practical work (in clinical, practicum, or lab settings), including but not limited to the following:

- Copying or attempting to copy the work of another during an assessment
- Communicating work to another student during an examination
- Using unauthorized aids, notes, or electronic devices or means during an examination
- Unauthorized possession of an assessment or answer key
- Submitting of a substantially similar assessment by two or more students, except in the case where such submission is specifically authorized by the instructor

Fraud: Creation or use of falsified documents.

Misuse or misrepresentation of sources: Presenting source material in such a way as to distort its original purpose or implication(s); misattributing words, ideas, etc. to someone other than the original source; misrepresenting or manipulating research findings or data; and/or suppressing aspects of findings or data in order to present conclusions in a light other than the research, taken as a whole, would support.

Plagiarism: Presenting or submitting, as one's own work, the research, words, ideas, artistic imagery, arguments, calculations, illustrations, or diagrams of another person or persons without explicit or accurate citation or credit.

Self-Plagiarism: Submitting one's own work for credit in more than one course without the permission of the instructors, or re-submitting work, in whole or in part, for which credit has already been granted without permission of the instructors.

Prohibited Conduct: The following are examples of other conduct specifically prohibited:

- Taking unauthorized possession of the work of another student (for example, intercepting and removing such work from a photocopier or printer, or collecting the graded work of another student from a stack of papers)

- Falsifying one's own and/or other students' attendance in a course
- Impersonating or allowing the impersonation of an individual
- Modifying a graded assessment then submitting it for re-grading
- Assisting or attempting to assist another person to commit any breach of academic integrity

Sexual Violence and Misconduct

All Members of the University Community have the right to work, teach and study in an environment that is free from all forms of sexual violence and misconduct. Policy B401 defines sexual assault as follows:

Sexual assault is any form of sexual contact that occurs without ongoing and freely given consent, including the threat of sexual contact without consent. Sexual assault can be committed by a stranger, someone known to the survivor or an intimate partner.

Safety and security at the University are a priority and any form of sexual violence and misconduct will not be tolerated or condoned. The University expects all Students and Members of the University Community to abide by all laws and University policies, including B.401 Sexual Violence and Misconduct Policy and B.401.1 Sexual Violence and Misconduct Procedure (found on Policy page <https://www.capilanou.ca/about-capu/governance/policies/>)

Emergencies: Students are expected to familiarise themselves with the emergency policies where appropriate and the emergency procedures posted on the wall of the classroom.

SCHOOL OF BUSINESS POLICIES

To be added to the syllabus