ORIGINAL COURSE IMPLEMENTATION DATE: November 1994
REVISED COURSE IMPLEMENTATION DATE: September 2023
COURSE TO BE REVIEWED (six years after UEC approval)**:** January 2029
Course outline form version: 28/10/2022

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: BUS 226	**Number of Credits:** 3 Course credit policy (105)
Course Full Title: Economic and Business Statistics **Course Short Title:** Economic & Business Statistics	
Faculty: Faculty of Business and Computing	**Department (or program if no department):** School of Business

Calendar Description:

The application of statistics for business and economics on real data sets, using industry-standard statistical software for data analysis. Concepts learned in this course will be applied in upper-level courses in economics and business.

Note: This course is offered as BUS 226 and ECON 226. Students may only take one of these for credit.

Prerequisites (or NONE):	STAT 106 and one of MATH 111 or MATH 141.
Corequisites (if applicable, or NONE):	
Pre/corequisites (if applicable, or NONE):	

Antirequisite Courses *(Cannot be taken for additional credit.)*

Former course code/number: **BUS 301/ECON 301**

Cross-listed with: **ECON 226**

Equivalent course(s): **ECON 226**

(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)

Typical Structure of Instructional Hours

Lecture/seminar	30
Supervised laboratory hours (computer lab)	15
Total hours	**45**

Scheduled Laboratory Hours

Labs to be scheduled independent of lecture hours: ☒ No ☐ Yes

Course Details

Special Topics course: **No**
(If yes, the course will be offered under different letter designations representing different topics.)

Directed Study course: **No**
(See policy 207 for more information.)

Grading System: **Letter grades**

Delivery Mode: **May be offered in multiple delivery modes**

Expected frequency: **Every semester**

Maximum enrolment (for information only)**: 36**

Prior Learning Assessment and Recognition (PLAR)

PLAR is available for this course.

Transfer Credit *(See **bctransferguide.ca**.)*

Transfer credit already exists: **Yes**

Submit outline for (re)articulation: **No**
(If yes, fill in transfer credit form.)

Department approval	**Date of meeting:**	October 4, 2022
Faculty Council approval	**Date of meeting:**	November 4, 2023
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	January 27, 2023

Learning Outcomes *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

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

LO 1. Explain the different types of sampling methods, sampling distributions, sampling error, central limit theorem, and finite population correction factor.
LO 2. Construct and interpret confidence intervals, and determine sample size, type II error and power calculations.
LO 3. Perform hypothesis testing for one-sample, two-sample tests for independent and related population means, variances and proportions using z-test, t-test and F-test.
LO 4. Use one-way and two-way analysis of variance to investigate the main and interaction effects, and conduct multiple comparisons post-hoc tests.
LO 5. Conduct Chi-square test for cross-tabulation analysis and multiple comparisons of proportions, Chi-square goodness of fit test, and other non-parametric methods like Kruskal Wallis and McNemar tests.
LO 6. Build linear regression models with continuous and categorical predictor variables, dummy coding, interpreting coefficients and interactions.
LO 7. Apply time-series forecasting techniques and identify appropriate models.
LO 8. Solve decision-making problems using probabilistic and non-probabilistic decision analysis techniques including Bayesian analysis.
LO 9. Carry out an applied data analysis project using real data.
LO 10. Analyze data using industry-standard statistical software.

Recommended Evaluation Methods and Weighting *(Evaluation should align to learning outcomes.)*

Final exam:	40%	Assignments:	15%		%
Quizzes/tests:	30%	Project:	15%		%

Details:

Data analysis project

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Instructional Methods *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lectures and labs/tutorials.

Texts and Resource Materials *(Include online resources and Indigenous knowledge sources. Open Educational Resources (OER) should be included whenever possible. If more space is required, use the Supplemental Texts and Resource Materials form.)*

	Type	Author or description	Title and publication/access details	Year
1.	Textbook	Levine, D., Stephan, D.F, & Szabat, K. A.	Statistics for Managers	Current
2.				
3.				
4.				
5.				

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)*

A calculator approved by the UFV School of Business. (See the UFV School of Business student handbook for approved calculators).

Course Content and Topics

Module One: Sampling distributions and confidence interval estimation

- Sampling and sampling distributions
- Confidence interval estimation
- Finite population correction factor
- Type II error and statistical power calculations
- Assignments (LO 1–2)
- Mid-term exam #1 (LO 1–2)

Module Two: Statistical hypothesis testing

- Compare two independent samples means and proportions
- Compare two dependent sample means and proportions
- Compare two sample variances
- Assignments (LO 3)
- Mid-term exam #2 (LO 3)

Module Three: Analysis of variance and contingency analysis

- Factorial experimental designs
- One-way and two-way ANOV Tests of goodness-of-fit and contingency tables analysis
- Assignments (LO 4–5)
- Mid-term exam #3 (LO 4–5)

Module Four: Predictive modelling

- Covariance, correlation, simple linear regression
- Multiple linear regression with continuous and dummy variables
- Index numbers and forecasting with time-series data
- Decision analysis
- Assignments (LO 6–8)
- Final exam (LO 6–8)

Module Five: Semester-long data analysis project (LO 1-10)

- Data analysis proposal, research questions and hypotheses
- Secondary data collection from publicly available sources
- Data analysis, report writing, and presentation