Yukon University	School of Business and Leadership
	MATH 210 **Applied Statistics**
	Term: Winter 2025 (2024-02) **Number of Credits: 3**

Course Outline

INSTRUCTOR: Tanzi Khakimova

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COURSE FORMAT: F2F & Self-Paced

OFFICE HOURS: By appointment

DATES: January 8 – April 9, 2025

TIME: Wednesday, 2:00 – 3:50 PM

COURSE DESCRIPTION

Through practical application and exposure to a teamwork environment, this course provides students with a general understanding of the statistical techniques used in solving business problems, making managerial decisions, and undertaking market research in a global and northern Canadian context. The goal is for the student to acquire skills to methodically gather, use, analyze, communicate, organize and interpret data for northern problems and challenges that can be found in various business contexts (e.g., all levels of government, research, not for profits, and private business).

Topics covered in this course include graphical techniques for data and presentation, measures of central location and variability, probability, discrete and continuous probability distributions, sampling distributions, estimation, and hypothesis testing. Students will learn how to apply knowledge gained in these areas using statistical computer applications.

COURSE REQUIREMENTS

Prerequisite(s): MATH141 & COMP161 or equivalents, or permission from the program.

EQUIVALENCY OR TRANSFERABILITY

Receiving institutions determine course transferability. Find further information at:

https://www.yukonu.ca/admissions/transfer-credit

LEARNING OUTCOMES

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

1. Reflect on historical and present northern situations which require statistical analysis and ethical consideration.
2. Identify and apply basic business statistical tools and concepts while working with statistical problems that are found in northern Canadian business contexts (e.g. all levels of government, research organizations, not for profits, and private businesses).

3. Identify and model the appropriate graphical and/or numerical technique in a business situation.
4. Calculate measures of central tendency, variability, and association between two variables using descriptive statistics on data.
5. Quantify uncertainty and assess business risk using discrete, continuous, or sampling probability distributions.
6. Recognize appropriate techniques to conduct and interpret hypothesis tests of population means and proportions.
7. Identify when to use model-based estimation and prediction methods with business applications.
8. Apply statistical knowledge gained in the course to northern business situations using statistical computer applications.

COURSE FORMAT

In this MS Excel-heavy course, we will build our statistical analysis skills together through recorded lessons, case studies, numeracy-building activities, synchronous online sessions, and online discussions and teamwork. We take a constructivist approach to building understanding in mathematical analysis and application of skills to the business environment.

Typically, about 3 hours of instructional time (2 hours synchronous, 1 hour asynchronous) will be provided during each week of the course. Our shared learning will be documented in the Yukon University Moodle for the course.

EVALUATION

Assignments	30 %
Project	10 %
Term test	25 %
Final exam	35 %
Total	100%

Assignments

There are approximately 10 graded assignments in the course – one per week. In addition, there are numerous activities to build mathematical competencies that are not graded and solely for the purpose of student learning and skill-building. We recognize that students will have a wide range of mathematical backgrounds and support in the form of skill-building activities will be provided.

Students are given one week to complete each assignment. One extra week will be given for late assignments with a daily five percent (5%) deduction; after which time, assignments will not be accepted.

Unless prior arrangements are made with the instructor, or the instructor indicates otherwise, all assignments will be submitted electronically using Moodle.

Project (10%)

Term projects will focus on developing statistical survey and data analysis with Yukon- and/or Canadian-based business, economic and community context. Students will be responsible for development of the questions, background, context and data for the question, describe the methods used in performing the analysis, and a final discussion of the results and conclusion.

The goal of the project is to develop critical thinking skills and the ability to apply the knowledge and skills gained in this course to current, real-world business questions.

Projects will be presented to students in the course as a learning opportunity for all.

Term Tests (25%)

There will be one, 2-hour term test in this course. This term test will be held during regular class sessions, as indicated in the accompanying syllabus.

Final Examination (35%)

There will be a three-hour final examination. The exam will contain a short answer section, essay and/or numerical problem section and a lab component. Content will cover the entire semester. Details on this examination will be provided near the end of the term.

COURSE WITHDRAWAL INFORMATION

Refer to the YukonU website for important dates.

TEXTBOOKS & LEARNING MATERIALS

There is no required text for this course. Internet access is assumed and learning resources are open source and internet-based.

Students will need access to a recent version of Microsoft Excel or Google Sheets – or similar open source spreadsheet software.

ACADEMIC INTEGRITY

Students are expected to contribute toward a positive and supportive environment and are required to conduct themselves in a responsible manner. Academic misconduct includes all forms of academic dishonesty such as cheating, plagiarism, fabrication, fraud, deceit, using the work of others without their permission, aiding other students in committing academic offences, misrepresenting academic assignments prepared by others as one's own, or any other forms of academic dishonesty including falsification of any information on any Yukon University document.

Please refer to Academic Regulations & Procedures for further details about academic standing and student rights and responsibilities.

ACCESSIBILITY AND ACADEMIC ACCOMMODATION

Yukon University is committed to providing a positive, supportive, and barrier-free academic environment for all its students. Students experiencing barriers to full participation due to a visible or hidden disability

(including hearing, vision, mobility, learning disability, mental health, chronic or temporary medical condition), should contact Accessibility Services for resources or to arrange academic accommodations: access@yukonu.ca.

TOPIC OUTLINE

Subject to change:

Aa Week	Date	Topic	Assignment	Due date
Week 1	2025/01/08 2:00 PM → 3:50 PM	Introduction to Statistics		
Week 2	2025/01/15 2:00 PM → 3:50 PM	Graphical Descriptive Techniques		
Week 3	2025/01/22 2:00 PM → 3:50 PM	Visualization Sprint	1	January 28, 2025 11:59 PM
Week 4	2025/01/29 2:00 PM → 3:50 PM	Numerical Descriptive Techniques	2	February 4, 2025 11:59 PM
Week 5	2025/02/05 2:00 PM → 3:50 PM	Measures of Linear Relationship. Data Collection & Sampling	3	February 11, 2025 11:59 PM
Week 6	2025/02/12 2:00 PM → 3:50 PM	Probability	4	February 25, 2025 11:59 PM
Week 7	2025/02/26 2:00 PM → 3:50 PM	Random Variables & Discrete Probability	5	March 4, 2025 11:59 PM
Week 8	2025/03/05 2:00 PM → 3:50 PM	Midterm		March 11, 2025 11:59 PM
Week 9	2025/03/12 2:00 PM → 3:50 PM	Continuous Probability Distributions	6	March 18, 2025 11:59 PM
Week 10	2025/03/19 2:00 PM → 3:50 PM	Sampling Distributions	7	March 25, 2025 11:59 PM
Week 11	2025/03/26 2:00 PM → 3:50 PM	Introduction to Estimation	8	April 1, 2025 11:59 PM
Week 12	2025/04/02 2:00 PM → 3:50 PM	Introduction to Hypothesis Testing	9	April 8, 2025 11:59 PM
Week 13	2025/04/09 2:00 PM → 3:50 PM	Research Project Presentations	10	April 9, 2025 4:00 PM
Final exam	2025/04/23 1:00 PM → 4:00 PM	Final Exam		