

We acknowledge and respect that we are gathered on the traditional lands of the Anishnaabe People of Turtle Island and proudly recognize our local host Atikameksheng Anishnawbek. We also recognize the contributions of Wahnapiatae First Nation and the Metis Nation of Ontario.

Course Title	Business Analytics				
Course Code:	BUS2723	Credit Value:	3	Credit Hours:	42
Programs:	ACGC Professional Accounting Practice GBBA Bachelor Of Business Administration HBBA Honours Bachelor In Business Administration HBBA Honours Bachelor Of Business Administration				
Equivalencies		Prerequisites	BUS2721	Corequisites	


This course may be delivered in a variety of different formats: 100% in-class, 100% online (or a blend of both), videoconferencing, distributed learning or off-campus. Please confirm with your faculty member which format will be used for your section of this course.

General Education Course: Eligible for PLAR:
 Degree Breadth Course: Experiential Learning:
 Research Intensive Course Designation:

COURSE DESCRIPTION

In this course, students will use descriptive, predictive, and prescriptive analytics to calculate statistics, create visualizations, perform inferential statistical tests, design regression and time series models, and develop and optimize spreadsheet models. Students will gain practical experience using statistical software to analyze and present data to make decisions related to business.

Date: May 31, 2024

Approved by: 

VITALII LUTSIK
 Chair, Douglas A. Smith Family School
 Of Business And Schools Of Creative
 Industries And Information Technology

Effective: Fall 2024, Winter 2025, Spring 2025

RELATIONSHIP TO PROGRAM DEGREE LEVEL OUTCOMES

PROGRAM LEVEL	
This course contributes to your program by allowing you to demonstrate the following degree level learning outcomes:	
Program(s)	Degree Level Learning Outcomes
Professional Accounting Practice	<p>College Standards</p> <ol style="list-style-type: none"> 1. Use technology to produce and present accurate and timely financial information for business decision makers. 2. Use statistical techniques in the analysis of financial information to support the accounting needs of respective stakeholders.
Bachelor Of Business Administration	<p>Degree Level Outcomes</p> <ol style="list-style-type: none"> 1. Use critical thinking skills to identify problems, analyze complex situations, weigh alternatives, and arrive at viable business solutions. 2. Apply the tools and techniques required to conceptualize, apply, analyze, synthesize, and evaluate information from a variety of sources, and form substantive recommendations. 3. Analyze and interpret complex numeric and financial data for strategic and operational decision-making.
Honours Bachelor In Business Administration	<p>Degree Level Outcomes</p> <ol style="list-style-type: none"> 1. Use critical thinking skills to identify problems, analyze complex situations, weigh alternatives and arrive at viable business solutions. 2. Apply the tools and techniques required to conceptualize, apply, analyze, synthesize, and evaluate information from a variety of sources, and form substantive recommendations. 3. Analyze and interpret complex numeric and financial data for strategic and operational decision-making.

COURSE CURRICULUM

Topics/Concepts Covered in This Course

- Types of Analytics
- Descriptive Analytics
- Inferential Statistics
- Predictive Analytics
- Prescriptive Analytics

COURSE LEVEL: Learning Outcomes and Objectives	
To earn credit for this course, you must reliably demonstrate your ability to:	
Learning Outcome	Objectives
1. Identify how analytics can be applied in business by defining business analytics and reviewing descriptive statistics.	1.1 Define business analytics and give examples for which it is beneficial in business applications. 1.2 Give examples of descriptive, predictive, and prescriptive analytics. 1.3 Develop PivotTables to explore and summarize data by creating frequency distributions and relative frequency distributions. 1.4 Calculate the mean, median, mode, standard deviation, variance, kurtosis, skewness, and other statistics for sample data using Excel functions and/or the Excel Descriptive Statistics tool. 1.5 Construct appropriate charts to visualize different types of data. 1.6 Use Excel features and functions to enhance the presentation of data. 1.7 Build dashboards for communicating data.
2. Apply two-sample tests to compare two sample statistics.	2.1 Perform calculations involving the sampling distribution for the difference between two statistics. 2.2 Develop null and alternative hypotheses for two-sample tests. 2.3 Apply two-sample t-tests to make decisions using the p-value and critical value methods. 2.4 Identify when it is appropriate to use pooled and paired t-tests. 2.5 Apply pooled and paired t-tests to make decisions using the p-value and critical value methods. 2.6 Calculate confidence intervals for the difference between two statistics.
3. Apply chi-square and ANOVA tests to perform inference for more than two groups of data.	3.1 Identify when to use ANOVA and describe the assumptions and conditions for the test. 3.2 Develop the null and alternative hypotheses for ANOVA. 3.3 Perform an ANOVA and interpret the results. 3.4 Identify when it is appropriate to use the chi-square test for independence. 3.5 Develop the null and alternative hypotheses for chi-square tests.

Learning Outcome	Objectives
	<p>3.6 Calculate the expected frequencies and chi-square statistic to test for statistical significance and interpret the results.</p>
<p>4. Use correlation and simple regression to summarize a linear relationship.</p>	<p>4.1 Construct scatter plots and state the direction, form, and strength of the relationship they illustrate.</p> <p>4.2 Calculate the correlation coefficient r and illustrate its meaning and properties.</p> <p>4.3 Compare correlation and causation.</p> <p>4.4 Calculate regression coefficients for a linear regression line and use the line to interpolate/extrapolate.</p> <p>4.5 Use the Excel Trendline tool to fit common types of mathematical functions used in predictive modeling.</p>
<p>5. Create multiple regression and time series models to predict into the future.</p>	<p>5.1 Create multiple regression models using the Regression tool in Excel to find least squares regression coefficients.</p> <p>5.2 Apply a systematic approach to build good regression models.</p> <p>5.3 Develop regression models using categorical data by creating dummy variables.</p> <p>5.4 Define a time series and explain the trend, seasonal, cyclic, and irregular components.</p> <p>5.5 Identify the appropriate choice of forecasting model based on the characteristics of a time series.</p> <p>5.6 Apply moving averages, exponential smoothing, and regression models to time series data using forecasting tools in Excel.</p>
<p>6. Develop spreadsheet models and apply linear optimization to solve problems.</p>	<p>6.1 Explain how to use simple mathematics and influence diagrams to develop predictive analytic models.</p> <p>6.2 Apply principles of spreadsheet engineering to ensure quality while designing and implementing spreadsheet models to solve business problems.</p> <p>6.3 Use one-way tables, two-way tables, Scenario Manager, and Goal Seek for conducting what-if analysis in spreadsheet models.</p> <p>6.4 Describe the different categories of constraints that are typically used in optimization models.</p> <p>6.5 Develop a mathematical model for an optimization problem.</p>

Learning Outcome	Objectives
	6.6 Use the Solver add-in to solve linear optimization models in Excel for a variety of applications in prescriptive analytics.

Essential Employability Skills

Communication

- communicate clearly in written, spoken, and visual form that fulfills purpose/ needs of audience.

Numeracy

- execute mathematical operations accurately.

Critical Thinking and Problem Solving

- apply a systematic approach to solve problems.
- use a variety of thinking skills to anticipate and solve problems.

Information Management

- locate, select, organize, and document information using appropriate technology and info systems.
- analyze, evaluate, and apply relevant information from a variety of sources.

Interpersonal

- not applicable

Personal

- not applicable

Delivery Method

- Classroom: Course is delivered through scheduled synchronous teaching that may be face-to-face and/or virtual.
- HyFlex: Course includes both synchronous and asynchronous learning and the student can move between both components seamlessly.

Learning Activities

- Lectures
- Class Discussions
- Labs
- Group Work
- Self-Directed Learning
- Presentations
- In-Class Exercises
- Case Studies

Resources Required

Books

James R. Evans, *Business Analytics*, 3rd, Pearson

ISBN: 9780136880844

Price: \$

Second Hand Permissible:

Additional Supplies

EXCEL

For use in this course, students must have access to Microsoft Excel on a personal computer (Windows PC is preferred). This is available FREE through www.office.com using your Cambrian College credentials.

Evaluation Plan

Grading Scheme

A	80% - 100%
B	70% - 79%
C	60% - 69%
D	50% - 59%
F	0% - 49%

Evaluation Method	Value (%)
Applied Activities (G)	60%
There will seven (7) applied activities in this course that will involve practicing descriptive, predictive, and prescriptive analytics in Microsoft Excel.	
Test/Exam	40%
Midterm Test @ 20% Final Test @ 20%	
Please see your professor for test details and dates.	

ADDITIONAL INFORMATION

A course outline is the College's commitment to the students. It supports educators, students, employers and other external stakeholders in determining the depth of knowledge and level of performance that a student will be able to demonstrate upon successful completion of a course. Both instructor and student are obligated to follow the content of the course outline. It is your responsibility to meet these outcomes as assigned.

Note: You should maintain a copy of this course outline for your records. You may require this course outline if you seek transfer credits or further studies at other institutions.

Cambrian Email Addresses

All email correspondence with currently registered students must be via the students' College-issued email, as per the College's [IT Acceptable Use Policy](#). Students must familiarize themselves with the IT Acceptable Use Policy, as it outlines the acceptable use of College information systems and technology, and mitigates risks to the College's IT infrastructure.

Bring Your Own Device (BYOD) and Apps Anywhere

Cambrian College is a BYOD institution, which means that students bring the device of their choice that meets program-specific minimum requirements. Program-specific requirements can be viewed in the "Plan Your Future" section on program web pages. AppsAnywhere is an easy-to-use app store-like platform providing students a way to access their College apps and software on demand, anywhere, anytime both on and off campus.

These both enrich the student learning experience in and out of the classroom, while providing maximum flexibility.

Policies

It is the student's responsibility to be aware of the College's [Academic Policies](#). The Academic Policies apply to all applicants to Cambrian and all current students enrolled in any program or course offered by Cambrian, in any location. Academic policies, procedures, and forms can be found on the Cambrian website.

Academic and Student Services

Cambrian has a variety of student and academic services to support students during their academic journey at the College.

- [Academic Success Centre](#)
- [Bookstore and Campus Store](#)
- [International Student Support Services](#)
- [KPMG Pride Centre](#)
- [Career Centre](#)
- [Registrar's Office \(Enrolment Centre\)](#)
- [First Step Centre](#)
- [Accessibility Services](#)
- [Library](#)
- [Pathways](#)
- [Available Scholarships and Bursaries](#)
- [Cambrian Student Council \(CSC\)](#)
- [Cambrian Indigenous Student Circle \(CISC\)](#)
- [Cambrian Athletic Association \(CAA\)](#)
- [Student Life Centre](#)
- [Test Centre](#)
- [The Learning Centre \[Tutoring Services\]](#)
- [Wabnode Centre for Indigenous Services](#)
- [Women's Resource Centre](#)

Copyright

Copyright is the exclusive legal right given to a creator to reproduce, publish, sell, or distribute his/her work. All members of the Cambrian community are required to comply with Canadian copyright law, which governs the reproduction, use and distribution of copyrighted materials. This means that the copying, use and distribution of copyright-protected materials, regardless of format, are subject to certain limits and restrictions. For example, photocopying or scanning an entire textbook is prohibited, nor is uploading class materials to course sharing sites.

See the [Cambrian Library website](#) for additional information regarding copyright and for details on allowable limits.

Audio/Visual Capture

Sounds and images from this class, and contributions made by a participant, virtually or in-person, are recorded under the authority of the Ontario Colleges of Applied Arts and Technology Act, 2002. The main purpose of these recordings is to allow students enrolled in the course to review content and engage in activities, whether they attend any given class in person, virtually, or at all. Class recordings are for personal use only and shall not be shared or transferred. Faculty may also review these recordings to prepare for future classes, evaluate students, collaborate in program reviews, or provide feedback to faculty and/or students. Any questions about the use of multimedia recordings may be addressed to your respective Dean.

Equity, Diversity, and Inclusivity

Cambrian is committed to building and preserving an equitable, diverse, and inclusive learning community where students, faculty, and staff may achieve their full potential in an environment characterized by equality of respect and opportunity. All students and employees have the right to live and work in an environment that is free from discrimination and harassment. Therefore, Cambrian College will not tolerate any form of discrimination or harassment in its employment, education, accommodation, or business dealings. For more information, please visit: [Equity, Human Rights, and Accessibility](#).

Prior Learning Assessment and Recognition (PLAR)

Students wishing to have work or life experience that meets course learning outcomes considered for credit through Prior Learning Assessment and Recognition should contact the [Pathways Office](#).

Transfer Credit

Students wishing to have courses from other programs or institutions assessed for equivalency and/or transfer credit should visit the [Transfer Credits page](#) on the Cambrian website. The student should maintain a copy of this course outline for their records. Students may require this course outline if seeking transfer credits or further studies at other institutions.

Test Proctoring at Cambrian

Many courses include major tests and/or final exams. The practice at Cambrian requires that these types of test situations involve proctoring to ensure academic integrity. Online tests/exams may employ a proctoring services to enable you to take your exam from a location of your choosing within a period specified by your instructor. When you are taking an online test/exam, the proctoring service may capture your video, screen, audio, and web surfing data to protect academic integrity. Cambrian College collects, uses, discloses, and retains personal information in compliance with the Freedom of Information and Protection of Privacy Act (FIPPA). Your personal information is being collected under the authority of the Ontario Colleges of Applied Arts and Technology Act S.O. 2002, c.8, Sched. F. This information will be used for the purpose of administering a test/exam through an online proctoring service acting as an authorized agent of the College. Please refer to Cambrian's [Official Student Records Policy](#) for more details. If you have any questions regarding the collection of your personal information, please contact Vice President Academic, Cambrian College, 1400 Barry Downe Rd., Sudbury ON P3A 3V8, 1-705-566-8101 ext. 6245.