Cambrian College

School of Business, Creative Industries, and Information Technology
Course Outline

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 Wahnapitae First Nation and the Metis Nation of Ontario.

Course Title	Connected Data				
Course Code:	BTA1016	Credit Value:	3	Credit Hours:	42
Programs:	BAPG Business Analytics				
Equivalencies		Prerequisites		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: ☑

Experiential Learning: ☐

Degree Breadth Course: ☐

Research Intensive Course Designation: ☐

COURSE DESCRIPTION

In this course, students will explore the world of connected data using Application Programming Interfaces (API), JSON (JavaScript Object Notation), REST Service Endpoints, and other connected technologies using Python Programming. Students will learn how to collect, clean, and access financial, open, and proprietary data sources using application programming interfaces. Students will explore data extraction, string matching, data analysis, sentiment analysis, interoperability, web crawlers, and other data manipulation methods and connect data between various resources using a variety of technologies.

Date: _____ July 20, 2023 _____

Approved by: _____ *Pamela Teed* _____

PAMELA TEED
Chair, School Of Business, Creative
Industries, And Information Technology

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Effective: Fall 2023, Winter 2024, Spring 2024

RELATIONSHIP TO PROGRAM VOCATIONAL LEARNING OUTCOMES

PROGRAM LEVEL	
This course contributes to your program by allowing you to demonstrate the following vocational learning outcomes:	
Program(s)	**Vocational Learning Outcomes**
Business Analytics	**College Standards** 1. Collect, manipulate and mine data sets to meet organizational need. 2. Recommend different systems architectures and data storage technologies to support data analytics. 3. Design and apply data models that meet the needs of a specific operational/ business process. 4. Develop software applications to manipulate data sets, correlate information and produce reports. 5. Design and present data visualizations to communicate information to business stakeholders. 6. Apply data analytics, business intelligence tools and research to support evidence-based decision making. 7. Identify and assess data analytics business strategies and workflows to respond to new opportunities or provide project solutions.

COURSE CURRICULUM

Topics/Concepts Covered in This Course

- Develop software
- Discuss features of connected data sources
- Connect various types of data
- Analyze data
- Research Financial Data

COURSE LEVEL: Learning Outcomes and Objectives	
To earn credit for this course, you must reliably demonstrate your ability to:	
Learning Outcome	**Objectives**
1. Develop software	1.1 Design and implement programs to access various Application Programming Interfaces (API) 1.2 Create software to capture and analyze data 1.3 Construct an API 1.4 Produce software to read, write and manipulate spreadsheet data
2. Discuss features of connected data sources	2.1 Compare various API technologies 2.2 Identify appropriate sources of data

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Learning Outcome	Objectives
	2.3 Determine the optimal approach to utilize API data
3. Connect various types of data	3.1 Analyze API data structure
	3.2 Convert JSON (JavaScript Object Notation) to Python and other formats
	3.3 Construct programs to connect to data of different types
	3.4 Capture streaming and historical data using various methods
4. Analyze data	4.1 Conduct sentiment analysis on social media data
	4.2 Develop software to analyze data from spreadsheets
	4.3 Discuss the role of scraping and web crawling in obtaining data
	4.4 Utilize pivot tables and arrays for financial data in Python
5. Research Financial Data	5.1 Discuss appropriate tools for financial data forecasting
	5.2 Compare various types of financial data over time
	5.3 Clean and organize financial data for analysis
6. Create Dashboards	6.1 Implement a client facing dashboard
	6.2 Analyze and transform data
	6.3 Program data pipelines to connect data from an API to a dashboard

Essential Employability Skills

Communication
- respond to written, spoken, or visual messages in a manner that ensures effective communication.

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
- show respect for the diverse opinions, values, belief systems, and contributions of others.

Personal
- manage the use of time and other resources to complete projects.
- take responsibility for one's own actions, decisions, and consequences.

Delivery Method

- HyFlex: Course includes both synchronous and asynchronous learning and the student can move between both components seamlessly.

Learning Activities

- Lectures
- Class Discussions
- Labs
- Research
- Self-Directed Learning
- In-Class Exercises
- Case Studies
- eLearning Components

Resources Required

Additional Supplies

Minimum Technology Requirements
A personal laptop computer that meets this program's minimum technology requirements and regular access to a reliable Internet connection.

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)	**100%**
There will be multiple assessments in this course. Please see your instructor for details as these may be in the form of written case studies, presentations, individual or group projects, or another form not listed.	

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"

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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 Advisors
- Bookstore and Campus Store
- Cambrian International
- Cambrian Pride Centre
- Career Centre
- Enrolment Centre
- First Step Centre
- Glenn Crombie Centre for Accessibility, Counselling, and Wellness (GCC)
- Library and Learning Commons
- Pathways
- Scholarships and Bursaries
- Student Government
- Student Health
- 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

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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.