



# Cambrian College

## School of Business and Information Technology, Creative Arts, Design, Music and Hospitality

### Course Outline

Cambrian College would like to acknowledge that we are situated on the traditional lands of the Robinson Huron Treaty, and acknowledge our host, Atikameksheng Anishnawbek, as well as our ancestors of this land, and the Anishnaabe people.

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: ☐

Degree Breadth Course: ☐

Eligible for PLAR: ☐

### 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: May 27, 2021

Prepared By: Sidney Shapiro

Approved by: 

BRIAN LOBBAN  
Dean, School Of Business And Information Technology,  
Creative Arts, Design, Music And Hospitality

Effective: Fall 2021, Winter 2022, Spring 2022

**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	<b>College Standards</b> <ol style="list-style-type: none"> <li>1. Collect, manipulate and mine data sets to meet organizational need.</li> <li>2. Recommend different systems architectures and data storage technologies to support data analytics.</li> <li>3. Design and apply data models that meet the needs of a specific operational/ business process.</li> <li>4. Develop software applications to manipulate data sets, correlate information and produce reports.</li> <li>5. Design and present data visualizations to communicate information to business stakeholders.</li> <li>6. Apply data analytics, business intelligence tools and research to support evidence-based decision making.</li> <li>7. Identify and assess data analytics business strategies and workflows to respond to new opportunities or provide project solutions.</li> </ol>

**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	<ol style="list-style-type: none"> <li>1.1 Design and implement programs to access various Application Programming Interfaces (API)</li> <li>1.2 Create software to capture and analyze data</li> <li>1.3 Construct an API</li> <li>1.4 Produce software to read, write and manipulate spreadsheet data</li> </ol>
2. Discuss features of connected data sources	<ol style="list-style-type: none"> <li>2.1 Compare various API technologies</li> <li>2.2 Identify appropriate sources of data</li> </ol>

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

## 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

- Classroom: Course is delivered through scheduled synchronous teaching that may be face-to-face and/or virtual.
- Online: Course is fully delivered through asynchronous teaching.
- Hybrid: Course combines scheduled synchronous and unscheduled asynchronous teaching.
- 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
- Presentations
- In-Class Exercises
- Case Studies
- eLearning Components

## Evaluation Plan

### Grading Scheme

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

Evaluation Method	Value (%)
<b>Applied Activities (G)</b>	<b>100%</b>
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

### College

#### Modifications to the Course Evaluation Plan

Under exceptional circumstances, Cambrian reserves the right to alter the Course Evaluation Plan. Upon approval from the Dean, faculty members will notify students of any modification to the Course Evaluation Plan and post to the course Learning Management System site (Moodle).

#### Academic Policies

Students must adhere to all academic policies. These are available on myCambrian as well as the College website at <https://cambriancollege.ca/about/official-documents-and-policies/academic-policies/>.

#### Accessibility Services

Cambrian is committed to creating an inclusive learning environment where we support our students' success. Students who are registered with the Glen Crombie Centre can access accessibility and/or counselling services by:

1. Registering and scheduling an appointment through Clockwork in the Student Portal in myCambrian.
2. Contacting 705-566-8101 ext. 7420 or 7311, or
3. E-mailing [accessibilityservices@cambriancollege.ca](mailto:accessibilityservices@cambriancollege.ca) or [Counselling@cambriancollege.ca](mailto:Counselling@cambriancollege.ca)

#### Attendance

Regular attendance is strongly encouraged as it contributes to student success. Some courses have specific lab/participation requirements. Students are expected to be aware of, and adhere, to these requirements.

**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 for these recordings is to allow students enrolled in this course, whether they attend the particular class in person, virtually, or at all, to review class content and activity. The use of class recordings is for personal use only and shall not be shared or transferred.

These recordings may also be reviewed by faculty members to prepare future classes, to evaluate students, to collaborate in program/course development/review, or to provide feedback to students or other faculty. Any questions about this collection may be addressed to your respective Dean.

**Copyright**

Students may not submit work or partake in activities that infringe on the Canadian Copyright Act, or the related Cambrian College Fair Dealing Guidelines and Copying Guidelines. The guidelines may be viewed at: <http://cambriancollege.libguides.com/copyrightinfo> or by contacting the Library for questions related to copyright: [library@cambriancollege.ca](mailto:library@cambriancollege.ca)

**Wabnode Centre for Indigenous Services**

Students are encouraged to come to Wabnode to meet our Elders and to access personal counselling and connect with academic tutoring. Our team is also able to provide students with information related to funding and scholarship and bursary opportunities for Indigenous students. We encourage students to come to Wabnode and find out about opportunities to share in cultural, sports and community activities. Students can also contact Wabnode at [wabnode@cambriancollege.ca](mailto:wabnode@cambriancollege.ca)

**Out-of-Class Assistance**

The faculty will inform students of their Out-of-Class availability through the Learning Management System site (Moodle).

**Prior Learning Assessment and Recognition (PLAR)**

Students wishing to have work or life experience considered through Prior Learning Assessment and Recognition should contact [pathways@cambriancollege.ca](mailto:pathways@cambriancollege.ca)

**Testing Practices 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 service 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 particulars 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 Confidentiality of 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 Barrydowne Rd., Sudbury ON P3A 3V8, 1-705-566-8101.

**Tests and Evaluations**

Students are required to write tests and/or complete evaluations as scheduled. Exceptions may be made in the event of an emergency or a sanctioned event (e.g., varsity sports, field trip, religious observances, etc.). In non-emergency situations, students are expected to contact the faculty member in the event that they can not be present for a test/evaluation to explain the reason for their absence. At the discretion of the faculty member, an alternate time for the test/evaluation may be allowed.

**Transfer Credit**

Students wishing to have courses from other programs or institutions assessed for equivalency and/or transfer credit should contact [transfercredits@cambriancollege.ca](mailto:transfercredits@cambriancollege.ca).

**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: <https://cambriancollege.ca/about/official-documents-and-policies/equity-human-rights-and-accessibility/>