

BIG DATA ANALYTICS

Program Outline

Major:	BDAT
Length:	1 Year
Delivery:	2 Semesters
Credential:	Ontario College Graduate Certificate
Effective:	2017-2018
Location:	Barrie
Start:	Fall (Barrie), Winter (Barrie), Summer (Barrie)

Description

Big Data allows users to visualize past, present, and future patterns by linking and presenting information in meaningful ways. Data Analytics offers deeper insight into the meaning of data sets by telling the story behind the information. This enables stakeholders to make more informed decisions, predict trends and better understand the needs and sentiments of customers. This program provides students with a unique blend of theoretical knowledge and applied skills. Students learn how to collect, curate, manipulate, encode, and store data sets so they can be analyzed and mined in such a way that they can be reused and repurposed to solve challenges that don't yet exist.

Career Opportunities

Graduates of this program are able to collect, organize and correlate data for a wide range of industries including government, applied research, human resources, health care, and sales and marketing. Leveraging prior background, skills, and experience, students may be employed in roles such as Data Analyst, Data Visualization Developer, Business Intelligence (BI) Specialist, Analytics Specialist, BI Solutions Architect or Business Analytic Specialist.

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

- collect, manipulate and mine data sets to meet an organizational need;

- recommend different systems architectures and data storage technologies to support data analytics;
- design data models that meet the needs of a specific business process;
- develop software applications to manipulate data sets, correlate information and produce reports;
- design and present data visualizations to communicate information to business stakeholders;
- apply business analytics and business intelligence tools to support evidence-based decision making;
- employ environmentally sustainable practices within the field of data analytics;
- apply basic entrepreneurial strategies to identify and respond to new opportunities.

The Program Progression:

Fall Intake - Barrie

Sem 1 | Sem 2

Fall | Winter

2017 | 2018

Winter Intake - Barrie

Semester 1 | Semester 2

Winter | Summer

2018 | 2018

Summer Intake - Barrie

Sem 1 | Sem 2

Summer | Fall

2018 | 2018

Admission Requirements:

Post-secondary diploma, degree or equivalent. It is recommended that the applicant have a specialty in science, technology, engineering, mathematics, or business.

Graduation Requirements:

12 Mandatory Courses

Graduation Eligibility:

To graduate from this program, a student must attain a minimum of 60% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester. The passing weighted average for promotion through each semester and to graduate is 60%.

Mandatory Courses

BDAT1000	Data Manipulation Techniques
BDAT1001	Information Encoding Standards
BDAT1002	Data Systems Architecture
BDAT1003	Business Processes and Modelling
BDAT1004	Data Programming
BDAT1005	Mathematics for Data Analytics
BDAT1006	Data Visualization
BDAT1007	Social Data and Mining Techniques
BDAT1008	Data Collection and Curation
BDAT1009	Enterprise Analytics
BDAT1010	Business Intelligence
BDAT1011	Data Analytics Project

Course Descriptions:**BDAT1000 Data Manipulation Techniques 42.0 Hours**

Large, complex, and diverse data sets require manipulation to parse, split, edit and establish correlations between sets. In this course students examine common methods and tools that can be utilized to efficiently parse, query and display raw data sets. Students learn how to programmatically extract data from a variety of file formats and sources.

BDAT1001 Information Encoding Standards 42.0 Hours

Information is stored, transmitted and represented in many different forms and file formats. In this course students evaluate and compare common technologies and standards that are used to encode and transmit information. Students gain hands-on experience selectively migrating and synchronizing data between different systems that can be utilized by a variety of different applications.

BDAT1002 Data Systems Architecture 42.0 Hours

Data intensive applications present unique challenges for systems architects and require specialized technology solutions to support real time and deep data analytics. In this

course students learn how to install, configure and administer common architecture solutions that are used to manage scalable and reliable distributed systems in real time or near real-time.

BDAT1003 Business Processes and Modelling 42.0 Hours

Understanding business processes helps data engineers design and develop information systems that are aligned with organizational needs and goals. By examining and modeling common business workflows, processes and management strategies, students gain a deeper understanding of the diverse data needs of organizations. Students examine the data needs of common core business processes such as sales, marketing, accounting, quality improvement, product/service delivery, product development, and human resources.

BDAT1004 Data Programming 42.0 Hours

Understanding the data-driven programming methodology and having a sound programming background are foundational skills for anyone interested in working with data. This course introduces students to the principles of programming and application design. In addition, students are exposed to the concepts of data structures and algorithms. Using a hands-on approach, students gain experience developing data-driven software applications.

BDAT1005 Mathematics for Data Analytics 42.0 Hours

This course is specifically focused towards supporting the mathematical principles required to apply the concepts of data analysis and big data analytics. Students work through a series of hands-on assignments covering topics such as probability, distributions, regression, topological analysis, and descriptive and inferential statistics.

BDAT1006 Data Visualization 42.0 Hours

Large and complex data sets often make it difficult for stakeholders to really understand the story behind the data. Accurate and appropriate visualizations highlight the main features of an information set, as well as clearly and effectively communicate information to users. In this course, students produce visualizations such as histograms, graphs, plots and treemaps that could be used in reports, dashboard widgets or infographics.

BDAT1007 Social Data and Mining Techniques 42.0 Hours

In today's globally connected world, there are countless sources of information that can be mined, correlated and leveraged by an organization. The open data movement provides organizations with the ability to access scientific, government and social research that could greatly enhance their operational and strategic effectiveness. Students in this course learn how to collect, gather, and interpret social influencers, as well as access and utilize numerous open and proprietary data sources.

BDAT1008 Data Collection and Curation 42.0 Hours

The collection and preservation of data allows data scientists to reuse and repurpose data sets for different applications. This course provides a strong emphasis on proper auditing techniques during the collection process to ensure validity, accuracy, completeness, consistency, and uniformity of the data. Students learn different collection methodologies that can be used to gather information, as well as proper storage techniques that can be used to make the information accessible, accurate and readily available for future use.

BDAT1009 Enterprise Analytics 42.0 Hours

Enterprise analytics focus on the effective use of data and information to help organizations make quality decisions. Evidence-based decision making requires large amounts of high quality data to accurately reflect on past experiences and predict trends and future needs. Utilizing different analytical methodologies, students learn how descriptive, predictive, and prescriptive analytics can be applied to a variety of industries such as commerce, finance, health care, marketing, supply chain, retail, and transportation. Ultimately, students develop a Performance Evaluation Framework for their topic of choice that replicates that of actual industry scorecards.

BDAT1010 Business Intelligence 42.0 Hours

Business intelligence is a set of technologies and methodologies that are capable of analyzing large amounts of data to help identify or create business opportunities. In this course, students gain experience in extracting data from a variety of sources, as well as manipulating and combining this information with other data to produce meaningful output in various formats.

BDAT1011 Data Analytics Project 42.0 Hours

Working alone or in a small team, students research, design, develop, and implement an applied big data analytics research project to satisfy a real organizational or community need. Students are expected to apply all of their knowledge and skills to produce a functioning prototype of their project idea.

P- BDAT1000 Data Manipulation Techniques and P- BDAT1003 Business Processes and Modelling

Course Description Legend

P = Prerequisite; C = Concurrent prerequisite; CO= Corequisite

Information contained in College documents respecting programs is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs. The college reserves the right to add or delete programs, options, courses, timetables or campus locations subject to sufficient enrolment, and the availability of courses.

