

# ► BIG DATA FAQs

## WHY BIG DATA?

Big data analytics has been dubbed “the sexiest job of the 21st century” according to a 2012 article published in the *Harvard Business Review*.

An analysis of labour market trends conducted by the Information and Communications Technology Council of Canada in 2015 suggests that one in five new data-related jobs will involve a big data component, and that the number of people employed in big data analytics will increase by 29 per cent (from 33,600 to 43,300) between 2016 and 2020 alone.

There are currently more than 400 open positions for “data scientists” in the Toronto area alone, with more than 900 positions available across Canada. Under the broader category of “data analyst,” these numbers increase to 1,200 and 2,500 respectively.

## WHY GEORGIAN COLLEGE?

### The right time

Be among the first graduates in this dynamic and growing field of research.

### The right mix of skills

Learn the mix of technical, business and communications skills you need to succeed.

### The right experiences

Get the most from your education with our applied learning model, providing you with experience in working with real organizations to solve real-world challenges.

### The right connections

Benefit from the connections you’ll make with employers and expert faculty.

### The right place

Enjoy a collegial atmosphere, small class sizes (25 to 30 students), caring faculty and a nice campus setting in a small city with a reasonable cost of living and great quality of life.

## WHAT IS BIG DATA ANALYTICS?

Simply put, big data analytics refers to the process of extracting meaningful insights that support decision-making by examining very large and complex sets of data. One of the main things that set big data analytics apart from other forms of analysis is sheer size of the datasets being examined. Big data also can exist in different formats (e.g., a mix of text, numeric, and video data) or in different places (e.g., separate technologies, systems, or databases).<sup>i</sup> So here,

we are talking about datasets that are as large and complex as to be impossible to examine in an efficient and meaningful way without the application of technologies, as well as the knowledge and expertise to use those technologies and interpret the results in an effective way. This is where the expertise of a person trained in big data analytics comes in.

## WHAT ARE SOME REAL-WORLD EXAMPLES OF BIG DATA AND HOW IT IS USED?

There are many examples, but here’s just a few:

- In the energy sector, the Weather Company is currently using big data analytics to help utility company managers better predict, plan for, and respond to weather-related risks to infrastructure assets, thereby improving efficiency and delivering better service to customers.<sup>ii</sup>
- In the health care sector, big data analytics is being used to help sequence and analyze genomes to assist in the fight against cancer, infections, and non-communicable diseases, as well as to analyze clinical datasets to understand the cost effectiveness of new drugs and treatments.<sup>iii</sup>
- In the entertainment sector, companies like Disney are using big data analytics to track consumer behaviour on websites and on site to improve service offerings, efficiency, and profits.<sup>iv</sup>

Big data is also being used in manufacturing (e.g., quality control analysis), engineering (e.g., structural stress analysis), marketing (e.g. social media brand perception analysis), agriculture (e.g., crop analysis), information management (e.g., digitized, searchable archival records), and many other sectors.

## WHAT DOES A BIG DATA ANALYST DO?

Analysts working in the field of big data use a mix of business knowledge, analytical abilities, technical expertise, and communication skills to collect, interpret and communicate findings from the analysis of big data to support decision-making, often within organizations. Many analysts work for larger business and government organizations (with large datasets to analyze and the resources to do it), though opportunities also exist in smaller technology-based companies or business consultancies. Their day-to-day work can involve working independently (as technical experts), as well as in teams (supporting projects involving different parts of an organization). Typical job titles include data scientist, data engineer, business intelligence specialist, and information systems officer, among others. As their career progresses, big data analysts also may advance into higher level roles as project managers, directors, or beyond.

## WHAT SKILLS DO BIG DATA ANALYSTS NEED TO HAVE?

Employers have been clear<sup>v</sup> that in hiring a big data analyst, they are looking for a combination of business, technical, and people skills. Learning the basics of SQL or Hadoop online is not enough. They want people who know about the industry environment they are working in, the types of data they have, and the information that would be of greatest value to them. They also want people with a demonstrated ability to work with diverse stakeholders to collect and analyze the information, and then to distill and communicate the findings in a clear and succinct way to create actionable insights for their organization.

## HOW CAN I LEARN ALL THAT?

Georgian College has launched a one-year graduate certificate in big data analytics, designed to equip students with the right mix of technical, business, and communications skills to launch a career in this field. Taught by faculty from the Computer Studies, Business and Research Analyst programs, the program builds on Georgian's established record of providing real-world, applied learning opportunities that equip students with the skills, experiences, and connections they need to succeed in new careers.

## WHAT ARE SOME OF THE SPECIFIC THINGS THAT WILL BE TAUGHT IN THE PROGRAM?

The program includes courses on data manipulation (e.g., editing datasets), information encoding standards (e.g., migrating and/or synchronizing data to combine different datasets), business processing modelling (e.g., understanding how data is used to support decisions in different types of organizational contexts), mathematics for data analytics (e.g., using statistics for predictive analytics), data visualization (e.g., understanding how to interpret and present the results of data analytics), among other related subjects. As part of the course of studies, students will work on real data with real-world clients, culminating in the completion of a big data analytics project in which they will design, develop and implement a big data analytics research project to fulfill a real organizational or community need.

### Endnotes

<sup>i</sup> SAS (n.d.), Big Data: What it is and why it matters; and IBM (n.d.), What is Big Data?

<sup>ii</sup> Hertell, B. (2016), How analytics is helping utility companies weather storms.

<sup>iii</sup> Canadian Health Infoway (2013), Big Data Analytics in Health.

<sup>iv</sup> Coyne, E.M. (2015), The Disney take on the value of big data. For other examples, see Cloudera (2011), Ten common Hadoopable problems.

<sup>v</sup> Based on input from the program advisory board, faculty members and other industry professionals

## DOES THIS MEAN I NEED TO KNOW A LOT ABOUT MATH AND COMPUTER PROGRAMMING?

It helps to have some background in that, but you don't need to be an expert. That's what we're here for! Our program is designed in a way that will help people with limited backgrounds in math and computer programming to increase their expertise from the foundations to more advanced methods and applications. Moreover, not all roles in big data involve extensive use of advanced statistics and computer programming. Some are more geared towards data collection and information management, project management, and data visualization, while many analytics programs are moving more towards point-and-click interfaces.

## WHAT ARE THE CAREER PROSPECTS LIKE?

The Big Data Analytics program was developed based on input from leaders in industry, academia, and government. We know it is designed to provide people with skills that are in high demand. There are currently more than 1,200 open positions for data analysts in the Toronto area alone posted to LinkedIn, with more than 2,600 positions available across Canada. Other related search terms such as "data scientist" and "data engineer" reveal many more. According to payscale.com, the median salary for data analysts (an entry-level position) is about \$52,000 per year, while those in positions such as senior data analyst or data scientist have a median salary around \$69,000 and \$71,000 per year, respectively. Those in more senior positions such as analytics manager, director of information systems, and chief information officer have median salaries ranging between \$80,000 and \$138,000 per year.

### WANT TO LEARN MORE?

Visit our program website at [GeorgianCollege.ca/bdat](http://GeorgianCollege.ca/bdat) or contact:

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