Seneca POLYTECHNIC

2024-2025

HONOURS BACHELOR OF DATA SCIENCE AND ANALYTICS (DSA)

About the Program

The Honours Bachelor of Data Science and Analytics program is the first-of-its-kind in Ontario. This four-year degree program was designed to meet the growing need for data-driven business solutions. You will learn to identify and interpret data using algorithms and acquire skills to draw meaningful conclusions. Your knowledge will be enhanced through theory and applied learning with the help of case studies, guest speakers and a co-op work experience. As a graduate of this program, you will be uniquely positioned to make an impact by combining solid business strategies with an in-depth knowledge of computer science, statistics and analytics.

Credential Awarded

Honours Bachelor Degree

Duration

8 Semesters (4 Years)

Starts

January, September

Advanced Entry

Graduates of a diploma program may be eligible to complete this degree faster through one of our pathway options (https://www.senecapolytechnic.ca/programs/fulltime/DSA/pathways.html).

Program and Course Delivery

This program is offered in Seneca's hybrid delivery format with some courses available in Seneca's flexible delivery format. Some coursework is online and some must be completed in person. Students will need to come on campus to complete in-person learning requirements. For courses offered in the flexible delivery format, professors use innovative learning spaces and technology to teach students in a classroom or lab and broadcast in real time to students attending remotely. In flexible courses, students have the choice of coming on campus or learning online.

Skills

Throughout this program you will develop the following skills:

- Management skills that demonstrate initiative, personal responsibility, and accountability to work in the field of data science
- Communication and negotiation skills to work in diverse inter-professional group environments
- Problem solving, reasoning, and critical thinking skills to engage in evidence-informed and ethical practice and decision-making

Work Experience

Mandatory Degree Co-op

A work experience that includes at least one term in a formal work environment. In most cases the work term(s) is a paid position that is completed between two academic semesters and requires a minimum of 420 hours of work. Students must be in good standing and meet all identified requirements prior to participating in the work experience. The successful completion of the co-op work term(s) is required for graduation. Eligibility for participation does not guarantee that a work position will be secured. Additional fees are required for those participating in the mandatory co-op stream regardless of success in securing a work position.

Your Career

As a graduate of this program, you may pursue future career options, such as:

- Data Analyst
- Business Intelligence Analyst
- Big Data Engineer
- Data Architect
- Database Developer

Affiliations/Accreditations

- Business Technology Management Accreditation Council (BTMAC)
- Certified Analytics Professional (CAP)
- Dell EMCDS
- Systems Applications and Products (SAP)

Program of Study

Course Code	Course Name	Weekly Hours
Semester 1		
BDA100	Introduction to Data Science	3
BDM100	Discrete Mathematics	3
BDM150	Statistical Methods for Data Science	3
BDP100	Introduction to Programming	3
ENG106	Writing Strategies	3
Semester 2		
BDA200	Security, Privacy and Ethics in Data Science	2
BDD200	Structured Database Design	3
BDM200	Mathematical Methods for Data Science	4
BDP200	Programming for Data Science	3
LSO440	Globalization in the 20th Century and Beyond	3
Semester 3		
BDA300	Data Preparation	3
BDA350	Introduction to Algorithms and Analyzing Data	3
BDD300	Advanced Database Design	3
BDM300	Data Mining	3
plus: Liberal Studies Course (1)		3
Semester 4		
BDA420	High Performance Computing	3
BDA450	Simulation and Modelling	3
BDB400	Business Intelligence I	3
BDM400	Introduction to Data Visualization	3
LSP400	Presentation Skills	3

Semester 5		
BDA500	Machine Learning	3
BDB500	Strategic Analysis and Evidence Based Decision-Making	3
BDM500	Predictive Analytics	3
BDM550	Text Mining	3
plus: Liberal Studies Course (1)		3
Semester 6		
BDA600	Social Media Analytics	3
BDB600	Business Intelligence II - Case Analysis	3
BDB650	Project Management	3
BDM600	Advanced Data Visualization	3
WTP200	Work Term Preparation	1
plus: Liberal Studies Course (1)		3
Work-Integrated Learning Term		
DSA771	Data Science Analytics, Co-op	35
Semester 7		
BDA700	Health Analytics	3
BDB700	Risk Management	3
BTM710	Research Methods	3
plus: Professional Options (1)		3-4
plus: Liberal Studies Course (1)		3
Semester 8		
BDA800	Business Analytics	3
BDA850	Intelligent Systems Analytics	3
BDC800	Capstone Project	3
plus: Professional Options (1)		3-4
plus: Liberal Studies Course (1)		3

Professional Options

Course Code	Course Name	Weekly Hours
BTM600	Digital Entrepreneurship	3
BTP400	Object-Oriented Software Development II - Java	4
DPS950	Introduction to Microsoft Cloud Technologies	4
DPS960	Advanced Data Analytics Tools	4
MRT481	Data Mining for Direct Marketing	3
SEA100	Exploration of Artificial Intelligence	4

Seneca has been granted consent by the Minister of Colleges and Universities to offer this applied degree for a seven-year term starting April 29, 2019. Seneca shall ensure that all students admitted to the above-named program during the period of consent will have the opportunity to complete the program within a reasonable time frame.

Program Learning Outcomes

This Seneca program has been validated by the Credential Validation Service as an Ontario College Credential as required by the Ministry of Colleges and Universities.

As a graduate, you will be prepared to reliably demonstrate the ability to:

- Prepare data for analysis by gathering, cleaning, and storing it into application specific data models.
- Generate knowledge through the analysis of big data sets by using statistical, mathematical, and computational methodologies and techniques.
- Sustain tactical and strategic business intelligence by interpreting, analyzing, and visualizing big data sets using software tools, data models, and algorithms.
- Create predictive models using statistical, data mining and machine learning techniques to support data driven decision-making.
- Develop material for a range of audiences, using visualization techniques, and communications technologies.
- Apply project management methodologies, tools, and techniques for big data projects in cross-functional, intercultural, and multi-disciplinary teams.
- Conduct research to provide evidence to support data-driven decision-making and alignment with organizational strategy.
- Adhere to ethical and legal guidelines to ensure data security, integrity, and confidentiality in the delivery of data-driven business intelligence.
- Apply interpersonal, teambuilding, and leadership skills when participating in diverse organizational environments.

Admission Requirements

Ontario Secondary School Diploma (OSSD) or equivalent, including six Grade 12 U or M courses with a minimum overall average of 65%, or a mature applicant (https://www.senecapolytechnic.ca/registrar/canadian-applicants/admission-requirements/mature-applicants.html).

Required courses with minimum final grade of 65% in each:

- English: Grade 12 ENG4U
- Mathematics: any two Grade 12 U (MDM4U and MHF4U are recommended)

Learn about Seneca's free English upgrading course (https://www.senecapolytechnic.ca/registrar/canadian-applicants/admission-requirements/upgrading-options/english-12u-equivalency.html) and math upgrading course (https://www.senecapolytechnic.ca/registrar/canadian-applicants/admission-requirements/upgrading-options/math-12u-equivalency.html) for applicants who don't meet the high school requirements, as well as recommended upgrading for applicants who don't meet their academic subject requirements. (https://www.senecapolytechnic.ca/registrar/canadian-applicants/admission-requirements/upgrading-options.html)

Advanced Entry

Advanced entry offers a pathway for graduates from the following Ontario diploma/advanced diploma programs with a GPA of 70% or higher:

- Business Administration – Marketing (https://www.senecapolytechnic.ca/programs/fulltime/BAM.html)
- Computer Programming & Analysis (https://www.senecapolytechnic.ca/programs/fulltime/CPA.html)

Learn more about advanced entry (https://www.senecapolytechnic.ca/programs/fulltime/DSA/pathways.html)

International Student Information

International admissions requirements vary by program and in addition to English requirements (https://www.senecapolytechnic.ca/international/

apply/how-to-apply/admission-requirements/english-requirements.html), programs may require credits in mathematics, biology, and chemistry at a level equivalent to Ontario's curriculum, or a postsecondary degree or diploma, equivalent to an Ontario university or college. Program-specific pre-requisite courses and credentials are listed with the admission requirements on each program page. To review the academic requirements please visit: Academic Requirements - Seneca, Toronto, Canada (senecapolytechnic.ca) (https://www.senecapolytechnic.ca/international/apply/how-to-apply/admission-requirements/academic-requirements.html).

Pathways

As a leader in academic pathways, we offer a range of options that will allow you to take your credential further in another Seneca program or a program at a partner institution.

To learn more about your eligibility, visit the Academic Pathways (https://www.senecapolytechnic.ca/pathways.html) web page.

Last updated: August 3, 2025 at 10:31 a.m.