



**Southern Alberta
Institute of Technology**
1301 16th Avenue NW
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sait.ca

EDGE UP – Data Analytics Certificate of Achievement

SAIT offers a 17-week (~480 hour) full-time program in Data Analytics in association with Calgary Economic Development, with support from Future Skills Canada.

Graduates of the EDGE Up Data Analytics program will develop the knowledge, skills, and aptitude to apply fundamental principles of data analytics to support business decision-making processes, creating accurate and meaningful data to provide actionable insights.

The ideal candidate for the Data Analytics program has an interest in working with data and is intrigued by the power of data and how it can be analyzed to support good business decision-making.

Program Outcomes:

- Understand database concepts and how to design and implement databases to maintain data integrity.
- Develop skills to query data using SQL scripting.
- Manipulate data to develop a data repository that can then be analyzed in a business context that is relevant to decision-making.
- Use industry recognized programs and tools to extract meaning from data (Cognos, Power BI, Tableau).
- Present data that communicate data analysis effectively and accurately for a business audience using visualizations (dashboards) and reports.
- Develop skills in Python programming, specific to data analysis functions.
- Introduce cloud principles for managing data in the cloud, using Microsoft Azure as the platform.

Courses:

- Introduction to Databases (~96 hours)
- Preparing Data for Analysis (~84 hours)
- Data Analytics Tools (~90 hours)
- Programming for Data Analytics (~48 hours)
- Managing Data in the Cloud (~54 hours)
- Data Analytics Capstone Project (~102 hours)



Program Timeline: September 1 – December 23, 2021 (tentative)

Program Details:

- Program schedule is 8:00am-3:00pm Monday to Friday (except for stat holidays)
- Time commitment (instructional and assignment/project work): 40-50 hours per week
- Virtual delivery via Zoom or MS Teams
- [Online learning expectations](#) for success in the program
- All students will require a computer or laptop for their program with the following specifications:

Standards	Hardware	Software
Processor	i7	Windows 10 Pro 64-bit (MacOSX is not supported) Antivirus/malware protection
RAM (memory)	16 GB RAM or greater	
Hard drive storage	512 GB SSD or greater	
Video card	On-board integrated	
Screen size	15" or greater	
Screen resolution	1920 x 1080 or greater	

Course Descriptions:

Introduction to Databases

- This course explains foundational methodologies for relational database design. The skills and concepts taught in this class will prepare you to design a database using relational database management tools. The focus of this training is to understand good database design and learning the methodologies necessary to arrive at that design.

Preparing Data for Analysis

- This course will introduce the Extract, Transform and Load (ETL) processes. You will implement control flow, data flow, and logging as you create and debug Integration Services packages to enable the ETL process. Students will plan, design, implement and optimize the infrastructure for a data warehouse solution. Students will create the logical design and physical storage for



multidimensional solutions. Students will implement KPIs (Key Performance Indicators) and associated actions, stored procedures and data sets.

Data Analytics Tools

- Power BI has quickly become one of the premier reporting tool amongst business users and BI professionals. This course is designed to show you how to use the capabilities within Power BI to easily ingest, cleanse, store and report on data from a variety of sources with very little effort. Participants will import data into Power BI, shaping and combining data from various sources, model the data to support end user self-service and finally create interactive data visualizations that can be easily shared across multiple platforms including mobile devices.
- The IBM Skills Academy material will cover essential analytics models to collect and analyze data efficiently. This will require skills in predictive analytics models, such as data mining, data collection and integration, nodes, and statistical analysis. Tools for market research and data mining in order to predict problems and improve outcomes will be used.

Managing Data in the Cloud

- This course will introduce students to the principles of cloud computing. You will become familiar with how these principles have been implemented in Microsoft Azure. In addition, this course will explain how to implement the core Azure infrastructure, consisting of virtual networks and storage. With this foundation, you will learn how to create the most common Azure services, including Azure Virtual Machines, Web Apps, and Azure SQL Database. The course will conclude by describing features of Azure AD and methods of integrating it with on-premises Active Directory.

Programming for Data Analytics

- With python being one of the most popular programming languages, the ability to read and write this legacy language is becoming increasingly important in the software industry. Python is used to power web services such as YouTube, DropBox, Google, Reddit, Yahoo, Pinterest, and Instagram and many small companies are taking advantage of this powerful, fully featured programming language. This course will provide you with a basic understanding of python. It covers installation of the integrated development environment as well as the use of variables, operators, loops and decision making. You will also learn to manipulate data, file I/O and exception handling. Prior programming experience would be beneficial but is not required.



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- Python is also a powerful language in data analytics. After becoming familiar with the basics of Python programming, you will apply your skills to data analytics examples.

Data Analytics Capstone Project

- The capstone project provides you with the opportunity to work on an industry-supported project and address a problem or issue using what you have learned about data analytics. The capstone project requires you to demonstrate an integration of technical skill and knowledge, competencies and development/execution strategies.

