Data Analysis and AI Specialist

PROGRAM OBJECTIVES

The Data Analysis and AI Specialist (DAAS) program is designed to equip you with the essential skills and knowledge required to thrive in the rapidly evolving fields of data science, analytics, and artificial intelligence. You will gain a strong foundation in statistical analysis, data visualization, and machine learning techniques while learning how data-driven insights can inform decision-making, optimize processes, and solve complex real-world problems across industries. The curriculum emphasizes practical experience through hands-on projects, ensuring that graduates are proficient in using cutting-edge tools and programming languages such as Python and SQL. Featuring a delivery modality with synchronous, instructor-led remote classes and built-in self-study periods, this program is designed to meet the needs of diverse student body by ensuring your success through dedicated self-study periods and instructor office hours. Students are prepared for the workplace, by being equipped with learning how to leverage AI technology, engaging in solving real-world scenarios.

CAREER OPPORTUNITIES

Careers in data analytics, business intelligence, operations, finance, healthcare, marketing, and technology are available to successful graduates who combine strong academic skills with professional drive and dedication. Graduates may pursue roles such as Data Analyst, Business Intelligence Analyst, Reporting Analyst, or Operations Analyst, with opportunities for advancement into senior or specialized positions as experience grows.

PREREQUISITES

1. Students have Grade 12 or equivalent or meets criteria for Mature Student Status.
2. Mature students must be 19 years of age, pass a qualifying test, and provide a Letter of Intent OR resume that supports their skills and aptitudes to be successful in the program.
3. The approved qualifying test for this program is the Wonderlic test. A passing score for this program is 22.
4. For students who completed high school in a non-English-speaking jurisdiction, or who cannot obtain their high school records from an English-speaking jurisdiction, English language proficiency must be demonstrated through one of the following:

a. Completion of post-secondary education (college or university) in Canada or another English-speaking jurisdiction,
b. Academic IELTS: Minimum score of 6.5 with no individual band score lower than 6,
c. TOEFL: Overall score of 79,
d. Canadian Academic English Language Assessment (CAEL): Minimum overall band score of 70.

GRADUATION REQUIREMENTS

A student must obtain an overall grade, in each module of at least 60% in order to graduate and receive a diploma.

PROGRAM OVERVIEW

Course	Hrs	Wks
Student Success Strategies	20	1
Digital Literacy for Professionals	40	2
Career Planning and Preparation -Level 1	20	1
Ethics and Communication for Data Science and AI	80	4
Introduction to SQL Databases	80	4
Introduction to Python Programming	100	5
Statistics for Data Analysis	60	3
Data Analysis with Python	80	4
Data Analysis with SQL	80	4
Data Visualization	100	5
Data Analysis and Visualization Capstone	60	3
Predictive Analytics	60	3
Machine Learning	120	6
Computer Vision	80	4
AI Capstone	60	3
Career Planning and Preparation -Level 2	20	1
Total	**1060**	**53**

**Work terms/internships are scheduled for a minimum of 20 hours per week, but the total number of hours worked and the timing of hours scheduled are at the discretion of the employer/host to a maximum of 40 hours per week.

NOTE: In order to continuously improve our programs, Eastern College reserves the right to modify programs at any time. Program delivery order may vary depending on program start date. This diploma program may not be available at all campuses.

COURSE DESCRIPTIONS

Student Success Strategies

This course stresses the importance of developing non-technical skills to enhance personal, academic, and career success. The course will address strategies that are important for all adult learners, such as managing finances, maintaining health and wellness, understanding learning styles, setting goals, and honing practical study skills (such as memory, reading, and test-taking techniques). In addition, this course emphasizes strategies needed to succeed in your program, such as navigating technology efficiently, interacting and engaging with peers and facilitators/instructors, and managing learning time and space.

Digital Literacy for Professionals

This course introduces essential concepts and principles for navigating and working in a digital environment. Key topics include using devices, managing information, creating and editing content, communicating and collaborating with digital tools, and ensuring online safety and responsibility. You will also apply best practices for folder organization and file naming conventions.

Career Planning and Preparation - Level 1

This course will introduce you to and provide practice in using the tools required for a successful job search. The concepts covered in this course will help you maintain a career-focused approach throughout your studies so that you are better prepared to conduct a job search after graduating. Specifically, you will learn how to identify your soft and hard skills and how to articulate your abilities in a clear and concise Elevator Pitch that will appeal to employers and resonate with industry contacts. You will learn about the job search resources available to you including using career websites, creating LinkedIn profiles, accessing the “hidden” job market, and networking. You will examine sample résumés and cover letters and begin the process of creating your own professional résumés and cover letters that align with current conventions for content, organization, and formatting. You will also learn about the role of references, thank you letters, workplace philosophies, and strategies for success including maintaining a professional image and using proper etiquette when communicating with potential employers and industry contacts.

Ethics and Communication for Data Science and AI

In the rapidly evolving fields of data science and artificial intelligence (AI), professionals must not only possess strong communication skills but also navigate complex ethical challenges. This course explores ethics and communication in the practice of data analysis and AI development, equipping you with the tools to engage in responsible, transparent, and impactful work.

Introduction to SQL Databases

This course provides a comprehensive introduction to the fundamentals of SQL databases, focusing on the essential skills required to design, query, and manage relational databases. You will explore key concepts in database design, including how to create and structure tables to ensure efficient data storage and retrieval. By the end of the course, you will have gained the practical skills and theoretical understanding needed to effectively work with SQL data in future course.

Introduction to Python Programming

This course offers a comprehensive introduction to Python programming. In addition to core Python programming concepts, you will develop good programming practices, ensuring the programs are robust and reliable. By the end of the course, you will have gained the practical skills and theoretical understanding needed to effectively work with Python in future courses.

Statistics for Data Analysis

This course offers a thorough introduction to the statistical techniques essential for analyzing data and drawing meaningful conclusions. The course covers both the statistical methods commonly used in data analysis, including sampling distributions, hypothesis testing, regression analysis, classification, and statistical machine learning.

Data Analysis with Python

This course is designed to introduce you to the powerful tools and techniques available in Python for data analysis and visualization. You will learn how to collect, clean, and prepare data for analysis. Additionally, you will leverage the core Python libraries and techniques that form the foundation of data analysis, including Pandas for data manipulation, Seaborn for visualization, as well as the tools for building predictive models and presenting insights from data.

Data Analysis with SQL

In this course you will learn the essential skills and techniques required to analyze and manipulate data using SQL, one of the most widely used languages for data management and analysis. More specifically, this course covers the full process of preparing, analyzing, and interpreting data using SQL. You will gain hands-on experience in structuring SQL queries, profiling data, cleaning and reshaping datasets, and performing advanced analytical tasks such as time series analysis, cohort analysis, and anomaly detection.

Data Visualization

In this course, you will learn the principles and techniques of data visualization, a crucial skill for anyone working with data. Data visualization is not only about creating charts, but also about effectively conveying information and insights to audiences through compelling, informative visuals. This course will provide you with a comprehensive understanding of how to visualize data for both exploration and explanation, enabling you to create visuals that tell impactful stories, communicate insights effectively, and support informed decision-making.

NOTE: In order to continuously improve our programs, Eastern College reserves the right to modify programs at any time. Program delivery order may vary depending on program start date. This diploma program may not be available at all campuses.

Data Analysis and Visualization Capstone

This Capstone course is designed to provide you an opportunity to apply your skills in data analysis, statistical methods, and data visualization to a substantial, real-world project. You will tackle a complex data problem, using advanced analysis techniques to uncover insights, build predictive models, and communicate findings through compelling visualizations. The focus will be on turning data into actionable insights for decision-making, and you will be expected to design and implement your analysis with careful attention to ethical issues, data integrity, and clarity in communication. At the end of the course, you will have a project that you can showcase to faculty, peers, and industry professionals.

Predictive Analytics

This course introduces you to the field of predictive analytics, focusing on the application of machine learning techniques to solve business problems and generate actionable insights. You will learn how to harness data to make informed predictions, improve decision-making, and optimize business outcomes. The course covers key concepts in machine learning such as the Cross-Industry Standard Process for Data Mining (CRISP-DM) lifecycle, data exploration, and feature design, as well as advanced techniques like deep learning and reinforcement learning.

Machine Learning

This course offers a comprehensive introduction to machine learning, equipping you with the fundamental concepts and techniques used to build and deploy machine learning models. You will learn the core principles behind different types of machine learning, including supervised and unsupervised learning, classification, and regression, as well as advanced topics such as neural networks, deep learning, and reinforcement learning. The course emphasizes practical, hands-on experience with popular machine learning libraries like Scikit-Learn and PyTorch, allowing you to implement algorithms, evaluate models, and apply machine learning techniques to real-world problems.

Computer Vision

This course provides an in-depth introduction to computer vision, focusing on the use of machine learning techniques to interpret and analyze visual data. More specifically, this course covers foundational and advanced topics in computer vision, from image classification and object detection to cutting-edge applications like image generation and captioning. You will gain hands-on experience with tools like Keras for building machine learning models and will explore the latest techniques in deep learning and transformer architecture for vision tasks.

AI Capstone

The AI Capstone is the final course in the AI-focused curriculum, designed to provide you with hands-on experience in solving real-world problems using artificial intelligence. You will apply your knowledge of AI and machine learning techniques to a project that involves the design, development, and deployment of an AI-based solution. At the end of the course, you will have a project that you can showcase to faculty, peers, and industry professionals.

Career Planning and Preparation - Level 2

NOTE: In order to continuously improve our programs, Eastern College reserves the right to modify programs at any time. Program delivery order may vary depending on program start date. This diploma program may not be available at all campuses.

This module builds concepts and skills introduced in the Career Planning and Preparation Level 1 module. In this subsequent module, you will update and refine your résumé and LinkedIn Profile. You will continue writing cover letters and learn the value of customizing cover letters to specific job postings. You will have the opportunity to apply this knowledge as you conduct a job search and write a cover letter tailored to an ideal job post. Through research, you will create a list of top employers and target current industry opportunities. You will learn about current methods for applying to job postings using technology. You will also gain an understanding of the job interview process, typical interview questions and possible responses, and expectations of both the interviewer and interviewee. In addition, you will engage in practical application of the interview process through role-play. Topics such as negotiating salary, self-management, and on-the-job success for placements and post-graduate employment will be also covered.

NOTE: In order to continuously improve our programs, Eastern College reserves the right to modify programs at any time. Program delivery order may vary depending on program start date. This diploma program may not be available at all campuses.