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## Course Outline

### ENVS 019: Data Analytics for Carbon Management

**Hours:** # 15 hours

**Delivery Mode:** Online Asynchronous with two one-hour virtual synchronous sections.

#### Description

This course introduces the foundations of Carbon Markets, Policy, data analytics and visualization for carbon management decision-making. It focuses on practical skills for interpreting carbon data and communicating insights effectively. Learners will work with emissions datasets using Power BI and Power Query to load, prepare, analyze, and visualize carbon information. Through a series of scaffolded activities and assignments, learners will build a dashboard that highlights emissions trends, comparisons, and net emissions impacts. By the end of the course, learners will be able to use data analytics tools to help support evidence-based carbon management decisions, improve reporting clarity, and communicate carbon performance insights to interested parties.

#### Learning Outcomes

Upon completion of this course, you will be able to:

- Explain the frameworks and Canadian policy that shape the requirements for carbon data collection and reporting.
- Develop a carbon analytics framework to support carbon management decision-making.
- Build and validate a basic carbon emissions report in Power BI.
- Prepare carbon datasets for analysis using Power BI.
- Create analytical measures that support carbon performance analysis.
- Develop an interactive dashboard that communicates carbon performance and supports decision-making.

#### Pre-requisite

ENVS 011: Introduction to Carbon Capture and Storage (CCS)

#### Required Equipment and Supplies

Students are responsible for providing their own computer.

#### Required Technology and Software

Ensure that your computer meets [SAIT's Minimum Technical Requirements](#) to access materials in Brightspace and for online learning success.

Students are required to install Power BI and Power Query (free) software for this course.

## Assessments

Students who earn a D (50%) or higher will pass this course.

NOTE: This course qualifies for a SAITMicro badge. Please visit our [SAITMicro](#) page to learn more.

- Students who wish to earn a micro-credential and digital SAITMicro badge for this course must achieve a minimum grade of Letter A- (80%) or higher.

| Assessments                                                                                   | Value       |
|-----------------------------------------------------------------------------------------------|-------------|
| Assignment 1: <b>Carbon Analytics Framework and Initial Emissions</b>                         | 30%         |
| Assignment 2: <b>Preparing and Analyzing Carbon Data for Prairie Energy Operations Ltd</b>    | 30%         |
| Assignment 3: <b>Executive Carbon Management Dashboard for Prairie Energy Operations Ltd.</b> | 40%         |
| <b>Total:</b>                                                                                 | <b>100%</b> |

## Unit 1: Carbon Frameworks and Canada's Carbon Market

### Learning Outcome:

Explain the frameworks and Canadian policy that shape the requirements for carbon data collection and reporting.

### Learning Objectives:

- Explain Canada's carbon pricing strategy and the role of Carbon Capture, Utilization and Storage (CCUS).
- Identify how ESG reporting connects to organizational emission sources.
- Describe the purpose of a carbon policy impact assessment.

## Unit 2: Carbon Analytics and Decision Making

### Learning Outcome:

Develop a carbon analytics framework to support carbon management decision-making.

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### **Learning Objectives:**

- Determine key decision makers and their data requirements for carbon reporting and analysis.
- Formulate analytical questions regarding ESP, Carbon Markets, policy and procedure that support carbon management decisions.

## **Unit 3: Preparing and Managing Carbon Data**

### **Learning Outcome:**

Prepare carbon datasets for analysis.

Create analytical measures that support carbon performance analysis.

### **Learning Objectives:**

- Load and review carbon-related data using Power Query.
- Standardize emission units and formats across datasets.
- Document data sources and data preparation decisions used to improve data quality.
- Create relationships between datasets required for carbon analysis.
- Create measures that aggregate carbon emissions data.

## **Unit 4: Analyzing and Preparing Carbon Metrics for Decision Makers**

### **Learning Outcome:**

Develop a report that communicates carbon performance, effectively displays data and supports decision-making.

### **Learning Objectives:**

- Design dashboard layouts that align with interested party information needs.
- Create dashboard pages that communicate carbon performance indicators.
- Configure interactive filters and slicers to support data exploration.
- Apply dashboard design principles to improve readability and usability.
- Validate dashboard outputs for accuracy and consistency.
- Present carbon management insights supported by dashboard evidence.

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## Contact Information:

For more information about this course or others, please contact:

### **Continuing Education and Professional Studies**

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