



Education within

Un ministère de Calvary Chapel-Port-au-Prince

(509) 2209-5686 - administration@uespoir.edu.ht - www.uespoir.edu.ht

Syllabus

Titre Du Cours

Data Analysis Course

I. Description :

In this course, students will learn the fundamental concepts of data inference and analysis by working with real-world data. By the end of the semester, they will be able to analyze large datasets and present their findings effectively.

II. Course Objectives:

- Understand the basic principles of data analysis.
- Acquire skills in data manipulation and preparation.
- Master techniques of statistical analysis and inference.
- Be capable of presenting results in a clear and informative manner.

III. Course Content:

Session 1: Introduction to Data Analysis

- Definition of data analysis
- Types and sources of data
- Steps in the data analysis process

Session 2: Data Collection and Cleaning

- Methods of data collection
- Data cleaning (handling missing values, outliers, etc.)
- Data normalization and transformation

Sessions 3-4: Data Exploration

- Descriptive statistics

- Data visualization (histograms, bar graphs, box plots, etc.)
- Exploratory data analysis (EDA)

Sessions 5-6: Statistical Inference

- Probability theory
- Probability distributions (normal, binomial, etc.)
- Confidence intervals and hypothesis testing

Sessions 7-8: Correlation and Regression Analysis

- Correlation analysis
- Simple and multiple linear regression
- Interpretation of regression results

Sessions 9-10: Advanced Methods in Data Analysis

- Dimensionality reduction (PCA)
- Clustering analysis (K-means, hierarchical clustering)
- Introduction to machine learning

Sessions 11-12: Communicating Results

- Visual presentation of results
- Writing technical reports
- Communicating conclusions to stakeholders

Session 13: Final Project

- Presentation of student projects
- Assessment of data analysis skills
- Reflection on learning and future prospects

IV. Assessment :

- Class participation: 10%
- Practical assignments: 30%
- Individual projects: 40%
- Final exam: 20%

V. Recommended Bibliography:

- "Introduction to Data Science" by Jeffrey Stanton
- "Data Science for Business" by Foster Provost and Tom Fawcett
- "Python for Data Analysis" by Wes McKinney