

Python Fundamentals | 2023 |

PROGRAM OVERVIEW

In this course, students will master the basic concepts of the Python language through a blended learning offering (which will include both self-study and classroom instruction). By the end of this program, students will be able to apply various basic concepts, sentences, object-oriented programming, and descriptive statistics. Students who wish to delve deeper into data learning will be able to use this course as an introduction to the core Python specializations (data engineering, data translator, and data science).

SYLLABUS DESCRIPTION



Basic Concepts

Learn how to create a development environment, structure types, operations, operators, statements, functions, loops and consolidate your understanding of the fundamentals of structured programming.

Object-Oriented Programming

Learn the fundamentals of object-oriented programming, as well as how to implement it in Python: Objects, attributes, methods, classes and instances, as well as inheritance, abstraction and polymorphism.



Descriptive Statistics

Learn how to manipulate files, work with large volumes of data, obtain standard deviation, mean, mode, among other trend measures, and perform their visual representation.

SYLLABUS DETAILS

Module 1: Creating the development environment

Students will set up their own local development environment, using Github, Anaconda and/or Atom tools.

- Students will understand the use of each tool (Jupyter Notebook, Atom, Git, Anaconda, GitHub).
- Students will understand the different advantages of using them.
- Students will understand how to create a development environment.

Module 2: Introduction to Python

Students will understand the differences between Python and other programming languages.

- They will know the history and purpose of Python.
- As well as how to make the first programs in that language.

Module 3: Structure Types

Students will learn to identify the different data types that exist in Python.

- Students will be able to perform operations according to the previously identified data types
- Students will be able to determine the cost/benefit ratios when performing operations with different methods.

Module 4: Numpy

Students will be able to perform matrix operations with numpy.

- The student will understand the differences between the use of native lists and numpy one-dimensional arrays.
- The student will learn how to automate the creation of arrays.
- The student will apply basic mathematical methods of numpy.

Module 5: Operations / Operators

Students will be able to identify the differences between operators and operations.

- Students will be able to perform operations on previously identified data types.
- Students will be able to determine the cost/benefit ratios when performing operations with different methods.

Module 6: Cycles

Students will learn and be able to apply different cycles, functions and sentences.

- Students will learn to use operators and operations in conditional loops.

- Students will learn how to perform iterative cycles with conditions, which can vary according to the needs of the project.

Module 7: File Manipulation

Students will be able to extract, edit and save information in different file extensions.

- Students will be able to create files (.csv, .txt, .json, .xls, etc.) from variables.
- Students will be able to upload files (.csv, .txt, .json, .xls, etc.)
- Students will be able to browse and load/save files (.csv, .txt, .json, .xls, etc.) where it is deemed most convenient (file management through the operating system)

Module 8: Object Oriented Programming

Students will learn about the object-oriented programming paradigm.

- Students will become familiar with the basic principles of OOP.
- Students will be able to determine the cost/benefit ratios of this paradigm in order to determine which of the two parameters is more functional for the project.

Module 9: Pandas

Students will learn how to apply techniques aimed at organizing, presenting and describing large data sets.

- Students will be able to manipulate Big Data with data tables.
- Students will learn how to perform measures of central tendency, measures of dispersion, measures of position and frequency distribution.
- Students will be able to implement the different graphs provided by Pandas Library for graphical support of descriptive statistics.

Module 10: Use case

Students will have the opportunity to observe the development of a use case adapted to the needs of the business.

- Students will learn about data description techniques, even with missing data.
- Students will learn how to obtain KPIs
- Students will learn how to visually present their findings and conclusions, as well as how to interpret the results of data analysis.

¡Thank you!

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