**CONTINUING EDUCATION**
Course Outline

# Data Analyst Certificate Part 2: Python for Data Analysis

Python is a versatile and easy-to-use language that's used by data analysts for data mining and data analytics. Learn the basics of Python by exploring the variables, expressions, functions and classes. Create basic programming structures using decisions and loops. Create code for data processing using Pandas for analytics.

## Who Should Take This Course?

This hands-on course is designed for students who have a keen interest in learning about Python programming. This is the fifth required course in the Data Analyst Certificate.

## Course Objectives

- Describe core Python programming concepts
- Define and use lists, strings, dictionaries and functions in a Python script
- Construct simple Python scripts that open files for reading and writing
- Construct Pandas queries
- Write a script that interfaces with a SQL database
- Use an Integrated Development Environment (IDE) to create and manage code

## Course Info

- Length: 24 hours
- Format: Classroom instruction, demonstration and labs
- Prerequisites: Data Analyst Certificate Part 1: SQL Server (4 Class Series), or SQL Server Certificate (3 Class Series) or proven SQL Server experience

## Course Content

**Describe core Python programming concepts**
- Explain the history of Python
- Describe Python Modules
- Download and install Anaconda Python
- Use Jupyter Notebooks
- Describe Python's Data Types

**Define and use lists, strings, dictionaries and functions in a Python script**
- Utilize Data Structures like Lists and Dictionaries
- Manipulate data in lists
- Manipulate dictionaries
- Practice Data Operations

- Demonstrate the use of Control Flow Statements
- Create functions to reuse and simplify code

**Construct simple Python scripts that open files for reading and writing**
- Create a script that reads a local file
- Create a script that writes to a local file
- Create a script that loads data from a csv into a list
- Create a script that writes data from a dictionary into a csv file
- Use Import OS to access operating system commands

**Construct Pandas queries**
- Understand numerical Python, NumPy, a special library for fast computation in Python
- Import a dataset from a csv, Excel and JSON files using Pandas
- Create a query using Pandas to return key results
- Create slicers using Pandas to manipulate a data frame
- Compare queries in Pandas with queries in SQL

**Write a script that interfaces with a SQL database**
- Access SQL databases.
- Connect to a SQL database table
- Create a table using Pandas
- Update a table using Pandas

**Use an Integrated Development Environment (IDE) to create and manage code**
- Configure the IDE to use Python
- Create a development environment with folders and files
- Execute code within the IDE
- Interact with Jupyter within the IDE

## Assessment /Evaluation

This course is not assigned a letter or numerical grade.  However, in some cases, skill assessments may be administered during the course to gauge progress and comprehension.

## Course Completion/Continuing Education Unit (CEU) Letter

If your company requires proof of course completion, or if you would like to have proof for your own records, you may request a Course Completion/Continuing Education Unit (CEU) letter **after the final session of your course**.  You must attend* 80 percent of the course (or 100 percent of a single-day course) to qualify for the letter. You can request a Course Completion/CEU letter online.

## Certificates of Completion for Certificate Programs

To receive a Certificate of Completion for the Data Analyst Certificate, you must take all eight required courses; attend 80 percent of each course (calculated by number of sessions in each course), except the Capstone courses, where 100 percent attendance is required; participate in class; and successfully complete the SQL Server Capstone project and the Data Analyst Certificate Capstone project by the deadlines given.  (Please note: Saturday sessions lasting longer than four hours will count as two sessions.) If you complete a certificate program by taking courses individually (not through a series), you can request a Certificate of Completion online.

*Attendance for CEU letters and certificate programs is verified via the sign-in sheets provided at each class session.  It is your responsibility to sign-in.

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The accommodations authorized on your forms should be discussed with your instructor. All discussions will remain confidential. Accommodations are not provided retroactively, so it is essential to discuss your needs at the beginning of the quarter. Additionally, only accommodations approved by Disability Support Services will be provided. This syllabus is available in alternate formats upon request. Green River College is an equal opportunity educator and employer. Learn more at **www.greenriver.edu/accessibility**.