COURSE SYLLABUS

Data Analytics & AI Certificate Online (Self-Paced)

Self-paced: Learn data analysis, SQL, visualization, machine learning, and AI application development through projects in Excel, Python, and Tableau.

Group classes (Live Online) and onsite training are available for this course. For more information, email corporate@nobledesktop.com or visit: https://training-nyc.com/certificates/data-analytics-ai-certificate-self-paced



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Course Outline

This package includes these courses

- Excel for Data Analytics Course Online (Self-Paced) (18 Hours)
- Data Analytics Foundations Course Online (Self-Paced) (12 Hours)
- Tableau Course Online (Self-Paced) (12 Hours)
- SQL Course Online (Self-Paced) (18 Hours)
- Python for Data Science Course Online (Self-Paced) (30 Hours)
- Python Machine Learning Course Online (Self-Paced) (30 Hours)
- Python Data Visualization & Interactive Dashboards Online (Self-Paced) (24 Hours)
- Python for Automation Course Online (Self-Paced) (6 Hours)
- Python Machine Learning Advanced (Self-Paced) (30 Hours)
- Python for AI Course Online (Self-Paced) (30 Hours)
- Data Science Capstone Projects (Self-Paced) (0 hours)

AI for Data Analytics (Self-Paced)

Excel for Data Analytics Course Online (Self-Paced)

Practice Excel formulas, charts, data validation, PivotTables, date calculations, macro recording, auditing, and cell protection for data analysis.

Data Analytics Foundations Course Online (Self-Paced)

Build a strong analytical foundation through hands-on training in statistical concepts, forecasting techniques, and data modeling methods used across industries for smarter decision-making.

- Understand core statistical concepts including measures of central tendency, data dispersion, and the normal curve
- Explore descriptive and inferential statistics, including probability distributions like binomial and Poisson

- Learn to analyze and forecast data using correlation, linear regression, and multiple regression techniques
- Apply predictive analytics with tools like trendlines, moving averages, and scenario modeling
- Create clear data visualizations using charts, histograms, icon sets, color scales, sparklines, and pivot tables
- Discover prescriptive analytics techniques such as Solver and linear programming to optimize decision-making

Tableau Course Online (Self-Paced)

Connect to datasets, use calculations, and create charts and geographic maps in Tableau. Develop dashboards and stories, then explore publishing and export options.

SQL Course Online (Self-Paced)

Use PostgreSQL and DBeaver to retrieve and summarize data. Practice joins, aggregates, subqueries, CASE expressions, string functions, views, and functions.

Python for Data Science Course Online (Self-Paced)

Learn Python data types, functions, loops, and objects. Analyze data with pandas and NumPy, visualize it with Matplotlib, and explore linear regression.

Python Machine Learning Course Online (Self-Paced)

Prepare data, select features, train regression and classification models, and evaluate performance using Python, pandas, and scikit-learn.

Python Data Visualization & Interactive Dashboards Online (Self-Paced)

Prepare data with NumPy and pandas, create visualizations with Matplotlib, Seaborn, and Plotly, and build and deploy interactive Dash dashboards.

Python for Automation Course Online (Self-Paced)

Learn how to use Python to extract data from websites and write loops for processing large numbers of pages. This course covers HTML and CSS, Python fundamentals, web scraping techniques, data storage, and scheduling.

- Learn Python syntax and how to construct programs and scripts
- Write scripts that automate manual tasks and update Excel files automatically
- Identify and correct common errors in your code
- Schedule your programs to run automatically on a regular basis
- Apply web scraping techniques through real-life exercises and examples

Python Machine Learning Advanced (Self-Paced)

Clean and vectorize text, compare sentiment analysis methods, and build a recommendation system. Combine NLP and Flask in a Movie Recommender App.

Python for AI Course Online (Self-Paced)

Learn how to build AI-powered web applications using Flask and the OpenAI API. This course covers web development fundamentals, API integration, and AI-driven features for interactive applications.

- Set up Flask projects and create routes for handling web requests and rendering templates
- Design and style web applications using HTML, CSS, and Flask's templating system
- Integrate the OpenAI API to implement AI-powered features like sentiment analysis
- Handle user input with dynamic forms and process data for real-time interactions
- Implement error handling and debugging techniques to ensure smooth application performance
- Deploy and test Flask applications for real-world use and AI-enhanced functionality

Data Science Capstone Projects (Self-Paced)

Three capstone projects run through this program, each one meant for your portfolio:

Machine Learning & AI Capstone

- Select a structured dataset, clean it, and engineer features from it in order to train machine learning models such as logistic regression and random forest, then evaluate how they perform and present the results in clear visualizations.
- Present your work professionally, laying out the data processing workflow you followed, the modeling techniques you chose, and the insights you uncovered with Python libraries like pandas, scikit-learn, and Matplotlib.

Python for AI Capstone *(Choose One of Two)*

- AI Chat Assistant: Create an interactive chat assistant that lives on a webpage, with Flask and JavaScript handling the OpenAI API integration behind context-aware user interactions.
- Collectibles Identification App: Build a Flask web app that accepts uploaded images of collectible items, calls on OpenAI to identify them and produce descriptive metadata, and displays the logged session history dynamically.

Python Data Visualization Capstone

- Take global CO_2 emissions data together with GDP and population figures, clean and analyze it, and bring out trends and correlations in visualizations made with Matplotlib, seaborn, and plotly.
- Construct a responsive Dash dashboard for exploring the emissions data interactively, one that conveys regional trends, GDP-emission correlations, and emission anomalies clearly.

You work on the capstone projects on your own schedule, returning to the course materials as often as you need in order to check your progress and resolve questions as they come up.

Student work is available to view: examples of data science capstone projects.