

Data Science & AI Certificate (High School)

Learn Python, SQL, automation, and machine learning in this beginner-friendly data science program. Build skills in Python programming, data analysis, SQL querying, and predictive modeling while preparing for future opportunities in data science, analytics, and Python engineering.

Group classes in NYC and onsite training is available for this course. For more information, email corporate@nobledesktop.com or visit: <https://www.nextgenbootcamp.com/certificates/data-science-ai-certificate>



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Course Outline

This package includes these courses

- Python for Data Science Bootcamp (30 Hours)
- SQL Bootcamp (18 Hours)
- Python for Automation (6 Hours)
- Python Data Visualization & Interactive Dashboards (24 Hours)
- Python Machine Learning Bootcamp (30 Hours)
- Data Science Capstone Projects (Self-Paced) (18 Hours)

Attend the Python for AI course for free as part of this certificate. Choose your date after you register for the program.

Python for AI: Create AI Apps with Flask & OpenAI

Python for Data Science Bootcamp

- Learn Python basics, including variables, data types, functions, loops, and control flow, to start building programs
- Work with lists and dictionaries to organize information and access data more easily
- Use NumPy and Pandas to import, clean, and explore datasets in Python
- Apply filtering, grouping, and pivoting techniques to find patterns and better understand data
- Create charts with Matplotlib, including bar graphs, histograms, and scatter plots
- Build a strong foundation in data science and prepare for beginner machine learning topics

SQL Bootcamp

- Explore database information, including tables, columns, and rows, using DBeaver, a popular free database app
- Write SQL queries to pull specific information from database tables

- Combine data from multiple tables using JOIN statements
- Filter, group, and sort data to find the information you need
- Use advanced SQL tools, including subqueries, string functions, and CASE statements
- Learn how views and functions can make working with database information easier

Python for Automation

- Understand how websites are structured with HTML and CSS to identify elements for data extraction
- Learn Python fundamentals, such as variables, data types, conditionals, loops, and list manipulation
- Use the Requests and BeautifulSoup libraries to perform web scraping and target specific content
- Write loops to automate web scraping across multiple pages and streamline repetitive tasks
- Store scraped data in different formats, such as text files and CSVs, for analysis and reporting
- Schedule Python scripts to run on a regular basis, enabling continuous data collection and automating workflows

Python Data Visualization & Interactive Dashboards

- Work with real-world datasets using Python libraries like NumPy for calculations and Pandas for organizing and analyzing data
- Create charts and visualizations with Matplotlib, Seaborn, and Plotly to show trends and patterns clearly
- Build interactive dashboards with Dash Enterprise using tools like callbacks, sliders, and date pickers
- Apply new skills through hands-on projects with guided support
- Publish dashboards online using GitHub and Heroku to showcase your work
- Learn best practices for organizing, styling, and presenting data in a clear and engaging way

Python Machine Learning Bootcamp

- Learn beginner-friendly machine learning techniques, including linear and logistic regression
- Understand the difference between predicting numbers and sorting data into categories
- Build models using k-nearest neighbors, decision trees, and random forests
- Learn how to test model performance using training sets, test sets, cross-validation, and common accuracy metrics
- Explore ways to improve machine learning models while avoiding common issues like overfitting
- Use Python libraries like NumPy, Pandas, and scikit-learn to organize data and build algorithms
- See how machine learning is used by companies like Netflix, Spotify, and Amazon
- Complete a final project that shows how machine learning can be used to solve real-world problems

Data Science Capstone Projects (Self-Paced)

Throughout this program, you will complete three capstone projects to showcase in your portfolio:

Machine Learning & AI Capstone

- Choose, clean, and engineer features from a structured dataset to train machine learning models (e.g., logistic regression, random forest), evaluate performance, and visualize results clearly.
- Deliver a professional presentation detailing your data processing workflow, modeling techniques, and insights discovered using Python libraries like pandas, scikit-learn, and Matplotlib.

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

- AI Chat Assistant: Build an interactive chat assistant embedded on a webpage, using Flask and JavaScript to integrate with OpenAI's API for context-aware user interactions.
- Collectibles Identification App: Develop a Flask-based web app allowing image uploads of collectible items, leveraging OpenAI to identify

items, generate descriptive metadata, and dynamically display logged session history.

Python Data Visualization Capstone

- Clean, analyze, and visualize global CO₂ emissions alongside GDP and population data, highlighting trends and correlations through insightful visualizations with Matplotlib, seaborn, and plotly.
- Build a responsive Dash dashboard enabling interactive exploration of emissions data, clearly communicating insights such as regional trends, GDP-emission correlations, and emission anomalies.

You will work on your capstone projects both in and outside of class, using scheduled mentoring sessions to review your progress, ask questions, and get personalized feedback from your instructor.