COURSE SYLLABUS

Python Data Science & Machine Learning Bootcamp

Master Python for data analysis, machine learning, and automation. Build predictive models, create dynamic dashboards, and unleash the power of data visualization. Launch your career in data science and Python engineering, equipped with Python, NumPy, Pandas, and Matplotlib.

For more information, visit
https://www.creativelive.com/learning-path/python-programming



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Course Outline

This package includes these courses

- Python for Data Science Bootcamp (30 Hours)
- Python Machine Learning Bootcamp (30 Hours)
- Python for Automation (6 Hours)
- Python Data Visualization & Interactive Dashboards (30 Hours)

Choose one free elective. Contact us after registration to select your dates.

- Python for AI: Create AI Apps with Flask & OpenAI
- Python Machine Learning Advanced

Python for Data Science Bootcamp

Build a strong foundation in Python programming and data analysis through real-world projects that prepare you for advanced topics like machine learning and predictive modeling.

- Learn Python fundamentals, including variables, data types, functions, loops, and control flow for building robust programs
- Work with complex data structures like dictionaries and lists to efficiently organize and access data
- Use NumPy and Pandas to import, clean, and manipulate datasets for analysis and exploration
- Generate descriptive statistics and apply filtering, grouping, and pivoting techniques for deeper insights
- Visualize data with Matplotlib and create clear, customized charts such as bar graphs, histograms, and scatter plots
- Gain the practical skills needed to transition into machine learning with a solid understanding of data science workflows

Python Machine Learning Bootcamp

Gain hands-on experience building predictive models using Python in this practical machine learning course, designed to help

you understand core algorithms and apply them to real-world data.

- Explore foundational techniques including linear/logistic regression, k-nearest neighbors, decision trees, and random forest
- Understand regression vs. classification problems and when to apply each approach
- Apply cross-validation, train/test splits, and performance metrics to evaluate and refine models
- Use feature engineering to improve accuracy while managing overfitting and bias-variance tradeoffs
- Implement algorithms using Python's core data science libraries: NumPy, Pandas, and scikit-learn
- Complete a final portfolio project demonstrating your ability to apply machine learning to real-world problems

Python for Automation

Learn how to automate web tasks and extract valuable online data using Python, with practical training in web scraping, data storage, and script scheduling.

- Understand how websites are structured using HTML and CSS to identify elements for data extraction
- Learn Python fundamentals, including variables, data types, conditionals, loops, and list manipulation
- Use the Requests and Beautiful Soup libraries to perform web scraping and target specific content
- Write loops to automate scraping across multiple web pages and streamline repetitive tasks
- Store scraped data in various formats, including text files and CSVs, for analysis and reporting
- Schedule Python scripts to run regularly, enabling continuous data collection and workflow automation

Python Data Visualization & Interactive Dashboards

Transform raw data into interactive visual insights by building dashboards with Python’s top visualization tools. This course blends analysis, design, and deployment to help you showcase data professionally.

- Work with real-life datasets using Python’s core libraries, including NumPy for numerical computing and Pandas for data manipulation
- Create static and interactive visualizations using Matplotlib, Seaborn, and Plotly to clearly communicate trends and patterns
- Build multi-component dashboards using Dash Enterprise, incorporating callbacks, sliders, date pickers, and more
- Practice hands-on development by applying new skills to personalized projects with guided instructor support
- Publish your dashboards online using GitHub and Heroku to demonstrate your work to potential employers or clients
- Explore best practices for styling and structuring visual narratives that are clear, persuasive, and engaging