SI Analytics

Python for Data Analysis & Visualization

A 10-Week Live Cohort Bootcamp

From Python Fundamentals to Interactive Dashboards

Delivered by **SI Analytics**

Build real-world analytics, visualization, and dashboarding skills using **Python, Pandas, Plotly, and Quarto**.

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Bootcamp Overview

Python for Data Analysis and Visualization is a structured, mentor-guided **10-week live cohort program** designed to take learners from foundational Python concepts to professional-grade data analysis, visualization, and dashboard deployment.

This bootcamp emphasizes:

- Practical, hands-on learning
- Real datasets and applied analytics
- Strong data storytelling and visualization principles
- Reproducible workflows using modern tools

Participants graduate with **job-ready skills** and a **public portfolio of analytics projects** that demonstrate real-world competence and analytical depth.

Bootcamp Features

✔ Weekly live instructor-led sessions

✔ Structured pre-work and guided code-along exercises

✔ Hands-on workshop assignments with detailed feedback

✔ Mentor-guided practical sessions

✔ Private learning community and peer collaboration

✔ Real-world datasets and applied case studies

✔ Capstone dashboard project

✔ Shareable SI Analytics Certificate of Completion

✔ Lifetime access to curated learning resources

Duration
10 Weeks

Format
Live + Guided Self-Paced Learning

Learning Structure

How the Bootcamp Works

Each week of the Python for Data Analysis and Visualization bootcamp follows a consistent, learner-friendly structure designed to balance flexibility with accountability and steady progress.

1 **Pre-work (2–3 hours)**

Pre-recorded videos, guided readings, and structured code-along exercises to prepare learners for the live session.

2 **Live Workshop (2 hours)**

Instructor-led deep dives with hands-on practice, real-time problem solving, and guided demonstrations.

3 **Post-Workshop Assignment**

Applied task submitted for review and feedback to reinforce learning and build practical competence.

4 **Optional Support Session**

Alternate live session for learners who cannot attend the primary workshop, ensuring inclusivity and continuity.

> This structure balances **flexibility** with **accountability**, ensuring steady progress and meaningful skill development throughout the program.

Module 1

Python Foundations

This module establishes a strong foundation in Python programming and analytical thinking. Learners are introduced to core concepts and workflows that form the backbone of modern data analysis.

KEY TOPICS

- Python syntax and core programming concepts
- Data types, control structures, and functions
- Working in VS Code and Jupyter environments
- Introduction to Quarto for reproducible analysis
- Exploratory data analysis concepts
- Responsible use of AI tools for coding support

Outcome: Learners gain confidence writing clean, readable Python code for data analysis and building reproducible analytical workflows.

Module 2

Data Visualization with Python

This module focuses on communicating insights through effective and interactive data visualizations. Learners explore principles of visual storytelling while building dynamic charts and dashboards suitable for analytical reporting and web publishing.

KEY TOPICS

- Data visualization principles and storytelling
- Plotly for interactive charts
- Customizing layouts, colors, and themes
- Annotations, labels, and legends
- Building multi-chart views and dashboards

Outcome: Learners create polished, interactive visualizations suitable for reports, presentations, and web-based dashboards.

Module 3

Data Wrangling with Pandas

This module equips learners with the skills needed to clean, transform, and analyze real-world datasets. Emphasis is placed on building efficient, reproducible data workflows using Python's powerful pandas library.

KEY TOPICS

- Data cleaning and preprocessing
- Filtering, grouping, and aggregation
- Feature engineering and transformations
- Handling missing data and data types
- Merging and reshaping datasets

Outcome: Learners confidently manipulate complex datasets for exploratory analysis, modeling, and downstream visualization workflows.

Module 4

Git & GitHub for Analytics Projects

This module introduces version control and collaborative workflows that are essential for modern analytics projects. Learners gain practical experience managing code, tracking changes, and publishing work using Git and GitHub.

KEY TOPICS

- Git fundamentals and GitHub workflows
- Repository creation and management
- Collaboration and code reviews
- Publishing analysis projects online
- Portfolio-ready project organization

Outcome: Learners manage, version, and share analytics projects professionally, building a strong foundation for collaborative work and public portfolios.

Module 5 & Capstone

Dashboards with Quarto

This module focuses on building professional, interactive dashboards using Quarto. Learners combine data analysis, visualization, and storytelling to produce polished dashboards suitable for web publishing and stakeholder communication.

KEY TOPICS

- Quarto dashboard layouts
- Interactive visualizations and tables
- Theming and branding dashboards
- Publishing dashboards to GitHub Pages

CAPSTONE PROJECT

Participants design and deploy a **fully interactive data analysis dashboard**, showcasing their end-to-end skills from data preparation and analysis to visualization, storytelling, and deployment.

Outcome: A public, shareable analytics portfolio piece that demonstrates professional competence in Python-based data analysis and dashboard development.

Grading & Assessment

Grading Rubric

Final performance in the Python for Data Analysis and Visualization bootcamp is assessed using a balanced combination of participation, practical assignments, and a comprehensive capstone project.

Pre-work and quizzes	**15%**
Code-along submissions	**15%**
Workshop assignments	**20%**
Workshop participation	**10%**
Final capstone project	**40%**

Passing Requirement: Learners must achieve a minimum overall score of **80%** to successfully complete the bootcamp and receive the SI Analytics Certificate of Completion.

Why SI Analytics?

SI Analytics is a global analytics education and innovation hub committed to **quality**, **rigor**, and **practical impact**. We design learning experiences that bridge theory and practice, empowering professionals to apply analytics confidently in real-world contexts.

◆ Expert-led instruction grounded in real-world analytics

◆ Strong emphasis on visualization and storytelling

◆ Mentor-guided learning and a supportive global community

◆ Proven track record across public health, business, and development sectors

◆ Learner-centered, outcomes-driven program design

We do not just teach tools.
We build analytical thinkers and problem solvers.

Instructors & Mentors

Dr. Olugbenga Asaolu

Strategic Evidence & Data Science
Leader

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Dr. Elysee Yuyishime

Data Scientist & Global Health
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