

Python Journey Skills Immersion Series

Fast Track to Python for Data Science and/or Machine Learning (TTPS4873)

Gain Hands-on Experience using Python for Data Analytics | Intro to Python, Pandas, Numpy, Matplotlib and More

Course Snapshot

- **Course:** Fast Track to Python for Data Science and / or Machine Learning (TTPS4873)
- **Duration:** 3 days
- **Audience & Skill-Level:** This **introductory-level** is for data analysts, engineers or anyone new to Python, tasked with utilizing Python for data analytics tasks.
- **Format / Hands-on:** This course combines engaging instructor-led presentations and practical demonstrations with hands-on programming exercises, challenge labs, use case exploration and engaging group activities. Student machines are required.
- **Flexible Delivery Options:** This course can be delivered for your team or organization **online-live (virtual), onsite in-person, self-paced** or across our immersive **blended learning experience platform (LXP)**.
- **Public Schedule:** This course is currently available on our Public Open Enrollment Schedule.
- **Customizable:** We're flexible! This course agenda, topics, labs, hours and delivery modalities can be adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

Overview

Fast Track to Python for Data Science and/or Machine Learning is a three-day, hands-on course geared to equip you with the knowledge and skills necessary to handle various data science projects efficiently using Python, one of the most popular languages in the industry. Python's ease of use, extensive libraries, and robust community make it a fantastic choice for professionals seeking to enhance their data science capabilities. From automating small tasks to building complex data models, Python can enable you to streamline your work or provide significant insights for your organization.

Working in a hands-on learning environment led by our expert instructor, you'll also gain experience with Python's core topics like flow control, sequences, arrays, dictionaries, and handling files. You'll delve into functions, sorting, essential demos, the standard library, and even dates and times. You'll learn how to manage syntax errors and exceptions effectively, enhancing your code's resilience and your productivity. You'll delve into how Python it operates within web notebooks such as iPython, Jupyter, and Zeppelin, where you'll practice writing, testing, and debugging your Python code.

You'll also gain practical experience with Python and key data science libraries, enabling you to optimize data handling and create insightful visualizations. You'll explore working with large number sets and transforming data in numpy, reading, writing, and reshaping data with pandas, and creating data visualizations with matplotlib. You'll also gain experience optimizing data handling processes, creating insightful visualizations, or making data-driven decisions.

By the end of this journey, you'll have a solid understanding of Python for data science, including data analysis, manipulation, and visualization, ready to apply these new skills in your work. This course aims not just to teach Python but also to lay a strong foundation for you to continue building upon, enhancing your proficiency in Data Science and enabling you to contribute effectively to your team's data projects.

Learning Objectives

Working in a hands-on learning environment, guided by our expert team, attendees will learn about and explore:

- **Understand Python's Core Topics:** Gain a firm grasp of fundamental Python concepts such as flow control, sequences, arrays, dictionaries, and file handling. This understanding forms the cornerstone of your Python programming journey.
- **Navigate Key Python Libraries:** Develop proficiency in leveraging the power of Python's primary libraries, numpy and pandas. By the end of the course, you'll be confidently transforming, reshaping data, and handling large number sets.
- **Generate Insightful Visualizations:** Learn how to create meaningful and visually appealing data visualizations using matplotlib. These skills will enable you to better communicate data-driven insights.
- **Efficient Data Handling:** Acquire techniques to optimize your data handling processes, enhancing productivity and making your workflow more efficient.

- **Manage Errors Effectively:** Become proficient in handling common challenges like syntax errors and exceptions, enhancing the reliability and robustness of your Python code.
- **Hands-on Experience with Web Notebooks:** Gain practical experience using interactive web notebooks like iPython, Jupyter, and Zeppelin. These tools offer a dynamic platform for writing, testing, and debugging your Python code, enriching your learning experience.

Audience & Pre-Requisites

This course is geared for data analysts, developers, engineers or anyone tasked with utilizing Python for data analytics tasks. While there are no specific programming prerequisites, students should be comfortable working with files and folders and should not be afraid of the command line and basic scripting.

Take Before: Students should have skills at least equivalent to the following course(s) or should have attended as a pre-requisite:

- TTDS6000: Understanding Data Science | A Technical Overview – 1 day (helpful but not required)

Follow On Courses: Our core Python, data science and machine learning training courses provide students with a solid foundation for continued learning based on role, goals, or their areas of specialty. Our learning paths offer a wide variety of related follow-on courses such as:

- TTPS4876 Next Level Python in Data Science / Intermediate (5 days)
- TTPS4880 Hands-On Practical Python for Data Wrangling & Transformation (3 days)
- TTPS4883 Forecasting, Behavioral Analysis, and What-If Scenarios with Python (3 days)
- TTML5506-P Machine Learning Essentials with Python (3 days)

Next Steps / Follow-on Courses: We offer a wide variety of follow-on courses and learning paths for Python, Big Data, AI, Machine Learning, AI for Business, GPT-3.5 / GPT 4, Applied AI, Azure OpenAI, Google BARD, AI for developers, testers, data analytics, machine learning, deep learning, programming, intelligent automation and many other related topics. Please see our catalog for the current **Python** or **AI & Machine Learning Courses, Learning Journeys & Skills Roadmaps**, list courses and programs.

Enhanced Learning Services: Please also ask about our **Pre-Training Class OnRamp & Prep / Primer offerings, Skills Gap Assessment Services, Case Studies, Knowledge Check Quizzes, Skills Immersion Programs & Camps, Collaborative Mentoring Services** and **Extended Learning Support & Post Training** services.

Course Topics / Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation.

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| <p>1. An Overview of Python</p> <ul style="list-style-type: none"> • Why Python? • Python in the Shell • Python in Web Notebooks (iPython, Jupyter, Zeppelin) • Demo: Python, Notebooks, and Data Science <p>2. Getting Started</p> <ul style="list-style-type: none"> • Using variables • Builtin functions • Strings • Numbers • Converting among types • Writing to the screen • Command line parameters • Running standalone scripts under | <p>Unix and Windows</p> <p>3. Flow Control</p> <ul style="list-style-type: none"> • About flow control • White space • Conditional expressions • Relational and Boolean operators • While loops • Alternate loop exits <p>4. Sequences, Arrays, Dictionaries and Sets</p> <ul style="list-style-type: none"> • About sequences • Lists and list methods • Tuples • Indexing and slicing • Iterating through a sequence | <ul style="list-style-type: none"> • Sequence functions, keywords, and operators • List comprehensions • Generator Expressions • Nested sequences • Working with Dictionaries • Working with Sets <p>5. Working with files</p> <ul style="list-style-type: none"> • File overview • Opening a text file • Reading a text file • Writing to a text file • Reading and writing raw (binary) data |
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6. Functions

- Defining functions
- Parameters
- Global and local scope
- Nested functions
- Returning values

7. Sorting

- The sorted() function
- Alternate keys
- Lambda functions
- Sorting collections
- Using operator.itemgetter()
- Reverse sorting

8. Errors and Exception Handling

- Syntax errors
- Exceptions
- Using try/catch/else/finally
- Handling multiple exceptions
- Ignoring exceptions

9. Essential Demos

- Importing Modules
- Classes
- Regular Expressions

10. The standard library

- Math functions
- The string module

11. Dates and times

- Working with dates and times
- Translating timestamps
- Parsing dates from text
- Formatting dates
- Calendar data

12. numpy

- numpy basics
- Creating arrays
- Indexing and slicing
- Large number sets
- Transforming data

- Advanced tricks

13. Python and Data Science

- Data Science Essentials
- Working with Python in Data Science

14. Working with Pandas

- pandas overview
- Dataframes
- Reading and writing data
- Data alignment and reshaping
- Fancy indexing and slicing
- Merging and joining data sets

15. Working with matplotlib

- Creating a basic plot
- Commonly used plots
- Ad hoc data visualization
- Advanced usage
- Exporting images

Setup Made Simple! Learning Experience Platform (LXP)

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels and rich extended learning and post training resources are provided for you in our “easy access, no install required” online **Learning Experience Platform (LXP)**, remote lab and content environment. Access periods vary by course. We’ll collaborate with you to ensure your team is set up and ready to go well in advance of the class. Please inquire about set up details and options for your specific course of interest.

For More Information

For more information about our training services (instructor-led, self-paced or blended), collaborative coaching services, robust Learning Experience Platform (LXP), Career Experiences, public course schedule, partner programs, courseware licensing options or to see our complete list of course offerings, solutions and special offers, please visit us at www.triveratech.com, email Info@triveratech.com or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

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