Machine Learning Essentials with Python (TTML5506-P)

Category: AI, Data & Analytics | **Vendor:** Trivera Tech

Duration: 24.00 hours (3 days) **19.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

Dive into the fascinating world of AI and Machine Learning with our three-day, comprehensive course, "Machine Learning Essentials with Python". This course, perfect for basic Python developers, equips you with the skills to leverage Python for intelligent applications like data analysis, predictive modeling, automation, and chatbots, transforming your project capabilities. Participants will get hands-on experience with popular machine learning algorithms, exploring their potential applications and limitations.

About This Course

Dive into the fascinating world of AI and Machine Learning with our three-day, comprehensive course, "Machine Learning Essentials with Python". This course, perfect for basic Python developers, equips you with the skills to leverage Python for intelligent applications like data analysis, predictive modeling, automation, and chatbots, transforming your project capabilities. Participants will get hands-on experience with popular machine learning algorithms, exploring their potential applications and limitations.

Our highly-experienced instructors will share their practical expertise, guiding you through learning these new skills and

empowering you to confidently apply them in your job or role. Throughout the course you'll explore learning and using

Supervised and Unsupervised Learning techniques, Data Wrangling and Preprocessing, Ensemble Learning, and Model

Evaluation and Validation. Hands-on labs replicating real-world scenarios form a core part of the learning experience, ensuring you acquire practical, applicable skills. Each hands-on lab will provide you with practical experience using innovative skills with cutting edge tools, applied in a practical and meaningful way.

If time permits, you'll also explore innovative technologies such as Generative AI with GPT-4, as well as practical AI integration into applications, highlighting the tools and technologies transforming the AI landscape. By the end of the course, you will not only have gained a deep understanding of AI and Machine Learning concepts but also the ability to apply these in your work context, leading to more complex and impactful projects.

Who Should Attend

This intermediate level course is geared for experienced programmers, data analysts, and aspiring data scientists new to AI and machine learning. Basic python experience is required.

Prerequisites & Entry Requirements

General Prerequisites:

This course is ideally suited for Python developers, data analysts, and aspiring data scientists looking to expand their skills into
AI and Machine Learning. It is also highly beneficial for product managers and business leaders aiming to acquire a hands-on
understanding of AI's impact on product development and business strategy.

Learning Outcomes

Upon successful completion of this course, participants will be able to:

This course combines engaging instructor-led presentations and useful demonstrations with valuable hands-on labs and engaging group activities. Throughout the course you'll learn how to:

- Master the Python Programming for Data Science: Gain an in-depth understanding of Python's role in data science and AI, including proficiency in using key Python data science libraries like Pandas, NumPy, and Matplotlib.
- Understand the Fundamentals of AI and Machine Learning: Develop a strong grasp of AI and Machine Learning concepts, their applications, and how to differentiate between AI, Machine Learning, and Deep Learning.
- Dive into Supervised and Unsupervised Learning Techniques: Acquire hands-on skills to conduct Regression Analysis, Binary Classification, and k-means Clustering - key methods in Supervised and Unsupervised Learning.
- Apply Data Wrangling and Preprocessing Techniques: Learn to handle missing data, outliers, and categorical data
effectively and perform feature scaling and normalization - crucial steps in Machine Learning projects.
- Create and Evaluate Machine Learning Models: Get a grip on the lifecycle of AI projects, including model creation,
evaluation, validation, and the application of Ensemble Learning techniques.
- Understand and implement crucial data preprocessing techniques in Python: Attendees will acquire the ability to handle missing data, outliers, and categorical data, essential for creating reliable machine learning models.
- Develop competency in creating and interpreting data visualizations: Students will learn how to leverage Python's
powerful libraries such as Matplotlib and Seaborn to create compelling visualizations and extract meaningful insights from data.
- Construct a machine learning pipeline for real-world applications: Participants will gain the practical know-how to carry a machine learning project from initial data collection through to final model deployment, using Python.
- (Optional / Bonus Topics): Implement AI into Real-World Applications: By the end of the course, you'll be able to build applications that integrate AI functionalities, using popular Python frameworks and modern AI technologies, like GPT-4.

Detailed Course Outline

Python for Data Science Quick Refresher

Review and application of Python basics

Relevance of Python in Data Science

Exploring Python data science libraries: Pandas, NumPy, Matplotlib

Introduction to Jupyter Notebook, Anaconda

Lab: Solving basic data science problems using Python

Introduction to AI and Machine Learning

Understanding the foundations and significance of AI and Machine Learning

Differentiating between AI, Machine Learning, and Deep Learning

Overview of the business applications of AI and Machine Learning

Exploring types of Machine Learning: Supervised, Unsupervised, Reinforcement

Deep dive into common Machine Learning algorithms ¢ Introduction to TensorFlow and PyTorch

Lab: Exploring Python libraries for Machine Learning

Supervised Learning: Regression and Classification

Understanding Simple Linear, Multiple Regression, and Binary Classification

Understanding the business context in Binary Classification

Lab: Conducting Regression Analysis and Classification using Python

Unsupervised Learning: Introduction to Clustering

Understanding the concept of Clustering in Unsupervised Learning

Diving deep into k-means clustering algorithm

Lab: Implementing k-means Clustering

Data Wrangling and Preprocessing Techniques

Understanding the importance of data wrangling and preprocessing in Machine Learning

Techniques for handling missing data, outliers, and categorical data

Feature scaling and normalization techniques

Lab: Applying data preprocessing techniques on a dataset

Practical Machine Learning Project Walkthrough

Gaining insights into the lifecycle of AI projects in the industry

Common challenges in implementing AI projects and solutions

Step-by-step walkthrough of a real-life AI project from end-to-end

Lab: Implementing a small-scale machine learning project

Model Evaluation and Validation

Understanding model assessment metrics for both Regression and Classification

Learning to split data for model training and testing

Lab: Evaluating model performance on test data

Introduction to Ensemble Learning

Learning the concept of Ensemble Learning and its importance

Understanding simple methods for Ensemble Learning

Lab: Implementing simple Ensemble Learning techniques

Explainable AI and Ethical Considerations in AI

Understanding the importance of interpretability in Machine Learning

Exploring techniques for making AI transparent

Discussing ethical considerations in AI and ML

Lab: Visualizing Feature Importance in a model

Introduction to Neural Networks

Grasping the basics of Neural Networks

Learning about Feedforward and Backpropagation processes

Lab: Building a basic Neural Network with Python

Data Visualization Techniques with Python

Understanding the importance of data visualization in Machine Learning

Exploring Python libraries for data visualization: Matplotlib, Seaborn

Lab: Visualizing datasets using various plots

Machine Learning Pipeline and Model Deployment

Understanding the concept of ML pipeline: Data collection, Preprocessing, Modeling, Evaluation, Deployment

Lab: Creating a simple Machine Learning pipeline

Bonus Chapters / Time Permitting (or Day Four)

Bonus Chapter: Exploring Generative AI with GPT-4

Understand Generative AI and how it powers GPT-4, using Python for interacting with these models

Learn about the evolution of GPT models, and the specific advancements of GPT-4 in handling complex Python programming tasks

Understand the potential applications of GPT-4 and how to implement them using Python

Discuss the ethical considerations and Python coding practices for using powerful models like GPT-4 responsibly

Lab: Creating a conversational bot using GPT-4 with Python

Bonus Chapter: Basics of Integrating AI into Applications

Understand the concept of AI integration into simple applications

Learn about the role of APIs in leveraging AI capabilities in applications

Explore how Python can be used to connect applications to AI functionalities

Discuss various simple AI plugins and extensions that can be integrated using Python

Lab: Building a basic application integrating a pre-trained AI model

Lab: Integrating a GPT-4 powered feature into a basic Python application

Bonus Chapter: Integrating AI into Web Applications

Understand the concept of AI integration into web applications

Learn about the Flask and Django frameworks for Python web development

Discuss the role of APIs in leveraging AI capabilities in web applications

Explore various AI plugins and extensions for web development

Lab: Integrating a GPT-4 powered chatbot into a web application

Additional Course Details

Nexus Humans Machine Learning Essentials with Python (TTML5506-P) training program is a workshop that presents an invigorating mix of sessions, lessons, and masterclasses meticulously crafted to propel your learning expedition forward.

This immersive bootcamp-style experience boasts interactive lectures, hands-on labs, and collaborative hackathons, all strategically designed to fortify fundamental concepts.

Guided by seasoned coaches, each session offers priceless insights and practical skills crucial for honing your expertise. Whether you're stepping into the realm of professional skills or a seasoned professional, this comprehensive course ensures you're equipped with the knowledge and prowess necessary for success.

While we feel this is the best course for the Machine Learning Essentials with Python (TTML5506-P) course and one of our Top 10 we encourage you to read the course outline to make sure it is the right content for you.

Additionally, private sessions, closed classes or dedicated events are available both live online and at our training centres in Dublin and London, as well as at your offices anywhere in the UK, Ireland or across EMEA.

Frequently Asked Questions

Q: What delivery options are available for Machine Learning Essentials with Python (TTML5506-P)?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 3-day Machine Learning Essentials with Python (TTML5506-P) course provides up to 19.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Machine Learning Essentials with Python (TTML5506-P) training?

The training takes place over 3 day(s), with each day lasting approximately 24.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Machine Learning Essentials with Python (TTML5506-P)?

Yes, we provide corporate training, dedicated training, and closed classes for Machine Learning Essentials with Python (TTML5506-P). Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Machine Learning

Q: Why choose Nexus Human for Machine Learning Essentials with Python (TTML5506-P)?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Machine Learning Essentials with Python (TTML5506-P) training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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