Machine Learning Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504)

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

Machine Learning Foundation®is a hands-on introduction to the mathematics and algorithms used in Data Science, as well as creating the foundation and building the intuition necessary for solving complex machine learning problems.® The course provides a good kick start in several core areas with the intent on continued, deeper learning as a follow on. This ®"skills-centric® course is about®50% hands-on lab and 50% lecture,®with extensive practical exercises designed to reinforce fundamental skills, concepts and best practices taught throughout the course.® Throughout the course students will learn about and explore popular machine learning algorithms, their applicability and limitations and practical application of these methods in a machine learning environment.

About This Course

Machine Learning Foundation is a hands-on introduction to the mathematics and algorithms used in Data Science, as well as creating the foundation and building the intuition necessary for solving complex machine learning problems. The course provides a good kick start in several core areas with the intent on continued, deeper learning as a follow on. This ®"skills-centric® course is about 50% hands-on lab and 50% lecture, with extensive practical exercises designed to reinforce fundamental skills, concepts and best practices taught throughout the course. Throughout the course students will learn about and explore popular machine learning algorithms, their applicability and limitations and practical application of these methods in a machine learning environment.

Although this course is highly technical in nature, it is a foundation-level machine learning class for Intermediate skilled team members who are relatively new to AI and machine learning. This course as-is is not for advanced participants.

Who Should Attend

Although this course is highly technical in nature, it is a foundation-level machine learning class for Intermediate skilled team members who are relatively new to AI and machine learning. This course as-is is not for advanced participants.

Prerequisites & Entry Requirements

General Prerequisites:

This course is geared for Data Analysts, Programmers, Administrators, Architects, and Managers interested in a deeper exploration of common algorithms and best practices in machine learning.

Attending students should have:

-Strong foundational mathematics skills in Linear Algebra and Probability, to start learning about and using basic machine learning algorithms and concepts

-Basic Python Skills. Attendees without Python background may view labs as follow along exercises or team with others to complete them. (NOTE: This course is also offered in R or Scala please inquire for details)

-Basic Linux skills, including familiarity with command-line options such as ls, cd, cp, and su

Learning Outcomes

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

This ®"skills-centric® course is about 50% hands-on lab and 50% lecture, with extensive practical exercises designed to reinforce fundamental skills, concepts and best practices taught throughout the course. Throughout the course students will learn about and explore popular machine learning algorithms, their applicability and limitations and practical application of these methods in a machine learning environment. This course reviews key foundational mathematics and introduces students to the algorithms of Data Science.

Working in a hands-on learning environment, students will explore:

-Popular machine learning algorithms, their applicability and limitations

-Practical application of these methods in a machine learning environment

-Practical use cases and limitations of algorithms

-Core machine learning mathematics and statistics

-Supervised Learning vs. Unsupervised Learning

-Classification Algorithms including Support Vector Machines, Discriminant Analysis, NaÃƒ®ve Bayes, and Nearest Neighbor

-Regression Algorithms including Linear and Logistic Regression, Generalized Linear Modeling, Support Vector Regression, Decision Trees, k-Nearest Neighbors (KNN)

-Clustering Algorithms including k-Means, Fuzzy clustering, Gaussian Mixture

-Neural Networks including Hidden Markov (HMM), Recurrent (RNN) and Long-Short Term Memory (LSTM)

-Dimensionality Reduction, Single Value Decomposition (SVD), Principle Component Analysis (PCA)

-How to choose an algorithm for a given problem

-How to choose parameters and activation functions

-Ensemble methods

Detailed Course Outline

Core Machine Learning Mathematics Review

Statistics Overview and Review

Mean, Median, Variance, and deviation

Normal / Gaussian Distribution

Probability Review

Probability Theory

Discrete Probability Distributions

Continuous Probability Distributions

Measure-Theoretic Probability Theory

Central Limit and Normal Distribution

Probability Density Function

Probability in Machine Learning

Supervised Learning

Supervised Learning Explained

Classification vs. Regression

Examples of Supervised Learning

Key supervised algorithms

Unsupervised Learning

Unsupervised Learning

Clustering

Examples of Unsupervised Learning

Key unsupervised algorithms (overview)

Regression Algorithms

Linear Regression

Logistic Regression

Support Vector Regression

Decision Trees

Random Forests

Classification Algorithms

Bayes Theorem and the NaÃƒ¯ve Bayes classifier

Support Vector Machines

Discriminant Analysis

k-Nearest Neighbor (KNN)

Clustering Algorithms

k-Means Clustering

Fuzzy Clustering

Gaussian Mixture Models

Neural Networks

Neural Network Basics

Hidden Markov Models (HMM)

Recurrent Neural Networks (RNN)

Long-Short Term Memory Networks (LSTM)

Choosing Algorithms

Choosing between Supervised and Unsupervised algorithms

Choosing between Classification Algorithms

Choosing between Regressions

Choosing Neural Networks

Choosing Activation Functions

Ensemble Methods

Ensemble Theory and Methods

Ensemble Classifiers

Bucket of Models

Boosting

Stacking

Optional: Topics Survey

Machine Learning in Python: NumPy, Pandas, SciKit-ML, and MatPlotLIb; NLTK, Keras

Machine Learning in R

Machine Learning in Java

Machine Learning with Apache Madlib

Hadoop, MapReduce, and Mahout

Spark and MLLib

TensorFlow

Additional Course Details

Nexus Humans Machine Learning Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504) 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 Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504) 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 Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504)?

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 Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504) 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 Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504) 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 Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504)?

Yes, we provide corporate training, dedicated training, and closed classes for Machine Learning Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504). 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: AI; Machine Learning

Q: Why choose Nexus Human for Machine Learning Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504)?

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 Foundation (Math Focus) : Statistics, Algorithms, Neural Networks & More (TTML5504) training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

Nexus Human

Professional Training & Development

Email: info@nexushuman.com

Website: www.nexushuman.com

Phone: +353 1 889 8700 (Ireland) | +44 20 8142 8961 (UK)

© 2026 Nexus Human. All rights reserved. This brochure was generated on 14/11/2026.