Skillsoft
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MACHINE LEARNING FOUNDATIONS | WORKING WITH STATISTICS, ALGORITHMS, AND NEURAL NETWORKS | MATH EMPHA

Course Code: 7603

Learn about the math, statistics, probability, and algorithms in machine learning.

This foundation-level hands-on course focuses on the mathematics and algorithms used in Data Science. You'll learn core skills and explore machine learning algorithms along with their practical application and limitations. With this knowledge, you'll build the intuition necessary to solve complex machine learning problems.

What You'll Learn

Join an engaging hands-on learning environment, where you'll learn:

- Core machine learning mathematics and statistics
- Supervised Learning vs. Unsupervised Learning
- Classification Algorithms including Support Vector Machines, Discriminant Analysis, Naïve Bayes, and Nearest Neighbor
- Regression Algorithms including Linear and Logistic Regression, Generalized Linear Modeling, Support Vector Regression, Decision Trees, and k-Nearest Neighbors (KNN)
- Clustering Algorithms including k-Means, Fuzzy clustering, and Gaussian Mixture
- Neural Networks including Hidden Markov (HMM), Recurrent (RNN), and Long-Short Term Memory (LSTM)
- Dimensionality Reduction, Single Value Decomposition (SVD), and Principle Component Analysis (PCA)
- How to choose an algorithm for a given problem
- How to choose parameters and activation functions
- Ensemble methods

This course has a 50% hands-on labs to 50% lecture ratio with engaging instruction, demos, group discussions, labs, and project work.

Who Needs to Attend

Experienced Data Scientists, Data Analysts, Developers, Administrators, Architects,

and Managers interested in a deeper exploration of common algorithms and best practices in machine learning.

This course focuses on the mathematics aspect of machine learning as opposed to more general skills and concepts. It is also offered using R or Scala – please inquire for details.

Prerequisites

Before attending this course, you should have:

- Strong foundational mathematics skills in Linear Algebra and Probability
- Basic Python skills
- Basic Linux skills
- Familiarity with command line options such as ls, cd, cp, and su

This course is for intermediate skilled professional. This is not a basic class.

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CLASSROOM LIVE	$1,895 USD	3 Day

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VIRTUAL CLASSROOM LIVE	$1,895 USD	3 Day

Virtual Classroom Live 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

Regression Algorithms

- Linear Regression

- Logistic Regression
- Support Vector Regression
- Decision Trees
- Random Forests

Classification Algorithms

- Bayes Theorem and the Naïve 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)

Ensemble Methods

- Ensemble Theory and Methods
- Ensemble Classifiers
- Bucket of Models
- Boosting
- Stacking

Virtual Classroom Live Labs

Skill-focused, Hands- on Learning: This class is “technology-centric”, designed to train attendees in essential skills, coupling the most current, effective techniques with the soundest industry practices.

These hands-on classes have a high lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

This 3-day course spends about 1/3 of the course in hands-on exercises using already-implemented key algorithms and implementations.

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PRIVATE GROUP TRAINING	3 Day

Visit us at www.globalknowledge.com or call us at 1-866-716-6688.

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