

## Fundamentals of Machine Learning Course

As artificial intelligence becomes more commonly adopted across industries and business functions the demand for professionals who are able to solve complex business problems and create business value using machine learning has become increasingly critical. This course focuses on predictive modeling, a specific application of machine learning that is driving virtually all enterprise artificial intelligence applications today. It covers the concepts underpinning the machine learning process, empowering participants with the end-to-end expertise needed to deliver robust, accurate predictive models and predictions.

This course is delivered in the form of case-studies and hands-on labs that enhance participants' learning and expose participants to practical machine learning environments. It does not require a technical background (including coding), making it accessible to individuals in all business functions across all industries.

### Audience

This course is intended for individuals seeking to develop an understanding of machine learning for predictive modeling, including:

- Business leaders seeking to exploit data to gain competitive advantage
- Executives and professionals in business intelligence, analytics, IT
- Business analysts and data analysts who are seeking new skills
- Subject matter experts in all areas of business looking to build a career in artificial intelligence
- Recent graduates in data science (or similar program) looking to move into artificial intelligence

### Prerequisites

This course requires

- Neither a strong background in mathematics nor experience in computer programming
- Ability to use basic computer programs and business applications

### Course Outcomes

Upon successful completion, participants will be able to:

- Build robust, accurate predictive models using machine learning by
  - Effectively working with data
  - Exploring data
  - Data preparation
  - Modeling setups
  - Evaluating models
  - Making predictions
- Learn advanced topics in business application of machine learning
- Extend their knowledge into areas such as text analytics, time series forecasting and image analytics
- Learn advanced topics such as machine learning theory and algorithms

### Delivery

One full day (6 hours) Live onsite or online using Zoom, Teams or Google Meet

## Curriculum

### 1. Introduction to Artificial Intelligence and Machine Learning

- Artificial intelligence, machine learning and predictive modeling
- Types of machine learning
- How supervised learning works
- Types of machine learning problems
- Practical machine learning
- Knowledge check
- Key takeaways

### 2. Data Understanding

- Structure of a dataset
- Hands-on lab introduction
- Machine learning platform and dataset
- Description of dataset
- Import the data
- Summary of dataset
- Data summary
- Feature statistics
- Data distributions
- Data insights
- Data analysis report
- Key takeaways

### 3. Data Preparation

- Train/test split
- Handle missing values
- Handle outliers
- Dimensionality reduction
- Feature transformation
- Feature engineering
- Data leakage
- Data preparation report
- Key takeaways

### 4. Building and Evaluating Models: Classification

- Overfitting and underfitting
- Hold-out validation
- k-fold cross validation
- Key classification algorithms
- Classification performance metrics
- Modeling approach
- Baseline performance
- Model evaluation
- Model tuning
- Ensemble methods
- Model selection

- Model deployment
- Key takeaways

#### 5. Building and Evaluating Models: Linear Regression

- Overview of linear regression
- Key regression algorithms
- Regression performance metrics
- Regression assumptions
- Hands-on lab introduction
- Machine learning platform and dataset
- Data analysis
- Data preparation
- Model evaluation
- Model improvement
- Residual analysis
- Model deployment
- Key takeaways

#### 6. Course Conclusion

- What was covered
- Topics for further study

### Registration

To book your seat register at [www.sdscope.com/events](http://www.sdscope.com/events), email [events@sdscope.com](mailto:events@sdscope.com) or call +263 77 341 9956

### Fee per Participant

US\$80 paid in advance

### Award

Certificate of Completion

### Course Instructor



Shepherd Fungayi CEO SDscope

**Certified Machine Learning Master**

**Certified Data Engineering Master**

**DataRobot 10x: Applied Data Science Academy Certificate**

Started professional career as a telecommunications engineer over 20 years ago

Experience in building data-driven services

Experience in delivering IT, analytics and machine learning projects in telecommunications and financial services industries

LinkedIn Profile: [www.linkedin.com/in/shepherd-fungayi](http://www.linkedin.com/in/shepherd-fungayi)

### Contact Details

SDscope

6<sup>th</sup> Floor Batanai Gardens

57 Jason Moyo Avenue

Harare

Zimbabwe

Phone: +263 242 794 086

Mobile: +263 77 341 9956

Email: [events@sdscope.com](mailto:events@sdscope.com)

Website: [www.sdscope.com/mlfundamentals](http://www.sdscope.com/mlfundamentals)