**Machine Learning Basics**

**Machine Learning Basics – Course Syllabus**

**Introduction :**

1. [Getting Started with Machine Learning](https://www.geeksforgeeks.org/getting-started-machine-learning/)
2. [An Introduction to Machine Learning](https://www.geeksforgeeks.org/introduction-machine-learning/)
3. [What is Machine Learning ?](https://www.geeksforgeeks.org/ml-machine-learning/)
4. [Introduction to Data in Machine Learning](https://www.geeksforgeeks.org/ml-introduction-data-machine-learning/)
5. [Demystifying Machine Learning](https://www.geeksforgeeks.org/demystifying-machine-learning/)
6. [ML – Applications](https://www.geeksforgeeks.org/machine-learning-introduction/)
7. [Best Python libraries for Machine Learning](https://www.geeksforgeeks.org/best-python-libraries-for-machine-learning/)
8. [Artificial Intelligence | An Introduction](https://www.geeksforgeeks.org/artificial-intelligence-an-introduction/)
9. [Machine Learning and Artificial Intelligence](https://www.geeksforgeeks.org/machine-learning-versus-artificial-intelligence/)
10. [Difference between Machine learning and Artificial Intelligence](https://www.geeksforgeeks.org/difference-between-machine-learning-and-artificial-intelligence/)
11. [Agents in Artificial Intelligence](https://www.geeksforgeeks.org/agents-artificial-intelligence/)
12. [10 Basic Machine Learning Interview Questions](https://www.geeksforgeeks.org/10-basic-machine-learning-interview-questions/)

**Data and It’s Processing:**

1. [Introduction to Data in Machine Learning](https://www.geeksforgeeks.org/ml-introduction-data-machine-learning/)
2. [Understanding Data Processing](https://www.geeksforgeeks.org/ml-understanding-data-processing/)
3. [Python | Create Test DataSets using Sklearn](https://www.geeksforgeeks.org/python-create-test-datasets-using-sklearn/)
4. [Python | Generate test datasets for Machine learning](https://www.geeksforgeeks.org/python-generate-test-datasets-for-machine-learning/)
5. [Python | Data Preprocessing in Python](https://www.geeksforgeeks.org/data-preprocessing-machine-learning-python/)
6. [Data Cleansing](https://www.geeksforgeeks.org/data-cleansing-introduction/)
7. [Feature Scaling – Part 1](https://www.geeksforgeeks.org/ml-feature-scaling-part-1/)
8. [Feature Scaling – Part 2](https://www.geeksforgeeks.org/ml-feature-scaling-part-2/)
9. [Python | Label Encoding of datasets](https://www.geeksforgeeks.org/ml-label-encoding-of-datasets-in-python/)
10. [Python | One Hot Encoding of datasets](https://www.geeksforgeeks.org/ml-one-hot-encoding-of-datasets-in-python/)
11. [Handling Imbalanced Data with SMOTE and Near Miss Algorithm in Python](https://www.geeksforgeeks.org/ml-handling-imbalanced-data-with-smote-and-near-miss-algorithm-in-python/)

**Supervised learning :**

1. [Getting started with Classification](https://www.geeksforgeeks.org/getting-started-with-classification/)
2. [Basic Concept of Classification](https://www.geeksforgeeks.org/basic-concept-classification-data-mining/)
3. [Types of Regression Techniques](https://www.geeksforgeeks.org/types-of-regression-techniques/)
4. [Classification vs Regression](https://www.geeksforgeeks.org/ml-classification-vs-regression/)
5. [ML | Types of Learning – Supervised Learning](https://www.geeksforgeeks.org/ml-types-learning-supervised-learning/)
6. [Multiclass classification using scikit-learn](https://www.geeksforgeeks.org/multiclass-classification-using-scikit-learn/)
7. **Gradient Descent :**
   * [Gradient Descent algorithm and its variants](https://www.geeksforgeeks.org/gradient-descent-algorithm-and-its-variants/)
   * [Stochastic Gradient Descent (SGD)](https://www.geeksforgeeks.org/ml-stochastic-gradient-descent-sgd/)
   * [Mini-Batch Gradient Descent with Python](https://www.geeksforgeeks.org/ml-mini-batch-gradient-descent-with-python/)
   * [Optimization techniques for Gradient Descent](https://www.geeksforgeeks.org/optimization-techniques-for-gradient-descent/)
   * [Introduction to Momentum-based Gradient Optimizer](https://www.geeksforgeeks.org/ml-momentum-based-gradient-optimizer-introduction/)
8. **Linear Regression :**
   * [Introduction to Linear Regression](https://www.geeksforgeeks.org/ml-linear-regression/)
   * [Gradient Descent in Linear Regression](https://www.geeksforgeeks.org/gradient-descent-in-linear-regression/)
   * [Mathematical explanation for Linear Regression working](https://www.geeksforgeeks.org/mathematical-explanation-for-linear-regression-working/)
   * [Normal Equation in Linear Regression](https://www.geeksforgeeks.org/ml-normal-equation-in-linear-regression/)
   * [Linear Regression (Python Implementation)](https://www.geeksforgeeks.org/linear-regression-python-implementation/)
   * [Simple Linear-Regression using R](https://www.geeksforgeeks.org/simple-linear-regression-using-r/)
   * [Univariate Linear Regression in Python](https://www.geeksforgeeks.org/univariate-linear-regression-in-python/)
   * [Multiple Linear Regression using Python](https://www.geeksforgeeks.org/ml-multiple-linear-regression-using-python/)
   * [Multiple Linear Regression using R](https://www.geeksforgeeks.org/multiple-linear-regression-using-r/)
   * [Locally weighted Linear Regression](https://www.geeksforgeeks.org/ml-locally-weighted-linear-regression/)
   * [Python | Linear Regression using sklearn](https://www.geeksforgeeks.org/python-linear-regression-using-sklearn/)
   * [Linear Regression Using Tensorflow](https://www.geeksforgeeks.org/linear-regression-using-tensorflow/)
   * [A Practical approach to Simple Linear Regression using R](https://www.geeksforgeeks.org/a-practical-approach-to-simple-linear-regression-using-r/)
   * [Linear Regression using PyTorch](https://www.geeksforgeeks.org/linear-regression-using-pytorch/)
   * [Pyspark | Linear regression using Apache MLlib](https://www.geeksforgeeks.org/pyspark-linear-regression-using-apache-mllib/)
   * [ML | Boston Housing Kaggle Challenge with Linear Regression](https://www.geeksforgeeks.org/ml-boston-housing-kaggle-challenge-with-linear-regression/)
9. [Python | Implementation of **Polynomial Regression**](https://www.geeksforgeeks.org/python-implementation-of-polynomial-regression/)
10. [**Softmax Regression** using TensorFlow](https://www.geeksforgeeks.org/softmax-regression-using-tensorflow/)
11. **Logistic Regression :**
    * [Understanding Logistic Regression](https://www.geeksforgeeks.org/understanding-logistic-regression/)
    * [Why Logistic Regression in Classification ?](https://www.geeksforgeeks.org/ml-why-logistic-regression-in-classification/)
    * [Logistic Regression using Python](https://www.geeksforgeeks.org/ml-logistic-regression-using-python/)
    * [Cost function in Logistic Regression](https://www.geeksforgeeks.org/ml-cost-function-in-logistic-regression/)
    * [Logistic Regression using Tensorflow](https://www.geeksforgeeks.org/ml-logistic-regression-using-tensorflow/)
12. [**Naive Bayes** Classifiers](https://www.geeksforgeeks.org/naive-bayes-classifiers/)
13. **Support Vector:**
    * [Support Vector Machines(SVMs) in Python](https://www.geeksforgeeks.org/classifying-data-using-support-vector-machinessvms-in-python/)
    * [SVM Hyperparameter Tuning using GridSearchCV](https://www.geeksforgeeks.org/svm-hyperparameter-tuning-using-gridsearchcv-ml/)
    * [Support Vector Machines(SVMs) in R](https://www.geeksforgeeks.org/classifying-data-using-support-vector-machinessvms-in-r/)
    * [Using SVM to perform classification on a non-linear dataset](https://www.geeksforgeeks.org/ml-using-svm-to-perform-classification-on-a-non-linear-dataset/)
14. **Decision Tree:**
    * [Decision Tree](https://www.geeksforgeeks.org/decision-tree/)
    * [Decision Tree Regression using sklearn](https://www.geeksforgeeks.org/python-decision-tree-regression-using-sklearn/)
    * [Decision Tree Introduction with example](https://www.geeksforgeeks.org/decision-tree-introduction-example/)
    * [Decision tree implementation using Python](https://www.geeksforgeeks.org/decision-tree-implementation-python/)
    * [Decision Tree in Software Engineering](https://www.geeksforgeeks.org/decision-tree-in-software-engineering/)
15. **Random Forest:**
    * [Random Forest Regression in Python](https://www.geeksforgeeks.org/random-forest-regression-in-python/)
    * [Ensemble Classifier](https://www.geeksforgeeks.org/ensemble-classifier-data-mining/)
    * [Voting Classifier using Sklearn](https://www.geeksforgeeks.org/ml-voting-classifier-using-sklearn/)
    * [Bagging classifier](https://www.geeksforgeeks.org/ml-bagging-classifier/)