

INTRODUCTION

Machine learning is the science or application of computer algorithms to automate analytical model building through experience and the use of data. Machine learning is a branch of artificial intelligence where computers act without being explicitly programmed by learning, growing, changing by themselves every time new data is fed. It is considered by researchers as the best way to develop human level artificial intelligence. In today's world, machine learning is so pervasive that we use it every day without recognizing it. It is used in areas such as speech recognition, face recognition, effective web searches and so many other areas. In this course, you will learn about effective machine learning techniques, gain practice implementing them and how to apply them to your specific problem.

COURSE OBJECTIVES

This course is of importance as it provides knowledge on machine learning, data mining and statistical pattern recognition. Moreover, learners will learn how to apply learning algorithms to building smart robots (i.e perception, control), database mining, medical informatics, text understanding (web search) and other areas drawing from the numerous case studies and applications.

Target groups:

- Statisticians
- IT Professionals
- ICT Professionals
- data managers
- Software Developers and Architects,
- Business Intelligence Professionals
- Project Managers,
- Aspiring Data Scientists,
- University students looking to begin a career in Big Data Analytics

COURSE STRUCTURE AND REGULATIONS

Duration:

The course takes a total of four (4) weeks.

Course outline:

There are twelve required modules:

Module one:

Introduction to Machine Learning

Module Two:

Machine Learning Tools.

Module Three:

Using Python for Machine Learning.

Module Four:

Training Simple Machine Learning Algorithm for Classification.

Module Five:

A tour of Machine Learning Classifiers Using scikit-learn.

Module Six:

Building Good Training datasets-Data Pre-processing.

Module Seven:

Compressing data via Dimensionality Reduction.

Module Eight:

Model Evaluation and Hyper parameter Tuning.

Module Nine:

Combining Different Modules for Ensemble Learning

Module Ten:

Applying Machine Learning to Sentiment Analysis.

Module Eleven:

Predicting Continuous Target Variables with Regression Analysis.

Module Twelve:

Working with Unlabeled Data-clustering Analysis.

Mode of Study:

This is a part time program at JKUAT main campus.

Regulations:

All JKUAT University Regulations shall apply.

Evaluation:

Evaluation will be based on:

- Individual performance and participation throughout the course.
- Assessment for each assignment.
- An oral presentation of results in the course.
- A project within the four (4) weeks.

CERTIFICATION:

On successful completion of the short course, the participant will receive a certificate of attendance on Machine Learning from JKUAT.

REQUIREMENTS

A student to be admitted must satisfy the following requirements;

1. Attendance in all parts of the course is required.
2. Partake an assignment after every module.
3. Students will be required to complete case study exercises in individual/small groups throughout the course.

STAFF AND FACILITIES

The course is taught and examined by the staff of JKUAT together with the Senate approved specialist lecturers in the relevant subject areas. There are sufficient computer resources to support the programme.

HOW TO APPLY

Advertisement of course is through online platforms and the press. The application forms are then obtainable from JKUAT upon payment of a non-refundable fee of Kshs. 200.00 for Kenyan Citizens and Kshs. 260.00 for Non-Citizens.

TUITION FEES

For Kenyan participants, tuition fees is Kshs. 10,000 and Kshs. 13,000 for international participants. Payable to the following bank account:

BANK DETAILS:

BANK NAME: KCB BANK LTD
BRANCH: JKUAT BRANCH
ACCOUNT NAME: JKUAT IT CENTRE
ACC. NO: 1102698210

ACCOMMODATION

Accommodation may not be available and students are expected to make their own arrangements. The office of the Dean of Students may recommend suitable hostels for accommodation.

For more information contact,
The Dean,
School of Mathematics and Physical Sciences,
P.O Box 62000-00200 NAIROBI
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Fax: (067) 52164/52030
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Or

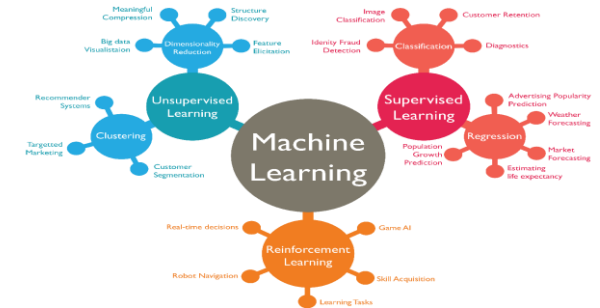
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(JKUAT)

DEPARTMENT OF STATISTICS AND
ACTUARIAL SCIENCES

**Data Science –
Machine Learning**



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