AIMS Cameroon- Machine Learning Course Schedule (Jan. 30-Feb. 18, 2023)

Course Instructor: Olawale Awe, PhD.

Week 1: Machine Learning Fundamentals/Supervised Machine Learning

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| S/N | Date | Lecture Topics |
| 1 | Tuesday  (31/01/2023)  (2Hrs) | Fundamentals of Machine Learning: Supervised vs Unsupervised Learning |
| 2 | Thursday  (02/02/2023)  (4Hrs) | Introduction to R for Machine Learning  Data Import, Manipulation, Partition, Preprocessing, Wrangling and Imputation. Feature Engineering and Variable Selection.  Loading Multiple Machine Learning Packages in R.  Assignment 1 |
| 3 | Friday  (03/02/2023)  (2Hrs) | Review of Naïve Bayes, KNN, SVM,  Model performance metrics, ROC, AUC with some practical hands-on in R.  Quiz 1 |
| 4 | Saturday  (04/02/2023)  (2Hrs) | Supervised Machine Learning Algorithms: LDA, Decision Trees, Random Forest and Ensemble Methods. |

Week 2: Unsupervised Machine Learning Fundamentals

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| S/N | Date | Lecture Topics |
| 1 | Tuesday  (07/02/2023)  (2Hrs) | Unsupervised Machine Learning.  Clustering: K-Means vs Hierarchical Clustering  Applications in Finance and Climate  Quiz 2 |
| **2** | Thursday  (09/02/2023)  (4Hrs) | Dimension Reduction: Factor Analysis and Confirmatory Factor Analysis  Assignment 2 |
| **3** | Friday  (10/02/2023)  (4Hrs) | Principal Component Analysis (PCA) and Association Analysis  Practical Sessions  Quiz 3 |

Week 3: Reinforcement Learning and Various Topics

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| S/N | Date | Lecture Topics |
| 1 | Tuesday  (14/02/2023)  (4Hrs) | Introduction to Reinforcement Learning, Time Series Algorithms/Prediction, ANN, Fuzzy Neural Network  Group Assignment |
| **2** | Thursday  (16/02/2023)  (2Hrs) | Text Mining  Practical Sessions in R/Python  Quiz 4 |
| **2** | Friday  (17/02/2023)  (2Hrs) | Course Overview/Applications to various fields  Revision and Questions |
| **4** | Saturday  (17/02/2023)  (2Hrs) | Project Presentations |