

IST 1025: INTRODUCTION TO PROGRAMMING	3 UNITS
APT 1050: DATABASE SYSTEMS	3 UNITS
APT 2060: DATA STRUCTURES AND ALGORITHMS	3 UNITS
DSA 2020: PRINCIPLES OF MACHINE LEARNING	3 UNITS
DSA 2040: DATA WAREHOUSING AND MINING	3 UNITS
DSA 3010: ARTIFICIAL INTELLIGENCE	3 UNITS
DSA 3040: NATURAL LANGUAGE PROCESSING	3 UNITS
APT 3040: OBJECT ORIENTED PROGRAMMING	3 UNITS
DSA 3030: BUSINESS INTELLIGENCE AND BIG DATA ANALYTICS	3 UNITS
DSA 3050: BIG DATA SECURITY	3 UNITS
DSA 3060: PARALLEL MACHINE LEARNING	3 UNITS
DSA 3070: DATA VISUALIZATION	3 UNITS
DSA 3900: APPLIED PROJECT IN DATA SCIENCE 1	3 UNITS
DSA 4900: APPLIED PROJECT IN DATA SCIENCE 2	3 UNITS
DSA 4910: DATA SCIENCE INTERNSHIP	3 UNITS

ADMISSION REQUIREMENTS

The minimum University entrance qualifications are:

- C+ for Kenya Secondary Certificate of Secondary Education (KCSE) holders or
- At least two principal passes in KACE or EACE or
- Five (5) upper level passes at IGCSE/IB
- Five (5) credits in any 5 subjects at 'O' Level or 'A' Level passes of C at GCE
- KNEC diploma or equivalent.

CAREER OPTIONS

- Data Scientists
- Data Analysts
- Data Managers
- Data System Developers
- Computer Programers
- Data Engineers
- Data Architects
- Information Analysts
- Statisticians
- Business Intelligence Developers

CONTACTS

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BSc. Data Science & Analytics

Accredited in Kenya & the United States of America by the Commission for University Education (CUE) and WASC Senior College and University Commission respectively



PROGRAM DESCRIPTION

The Data Science and Analytics program aims to produce uniquely trained graduates with the core mathematical and computer science knowledge and skills needed to present, analyze and ultimately understand data sets. This program is designed to equip students with expertise knowledge and skills in multiple technical disciplines from computer science, mathematics, modelling (applied mathematics) and statistics. The program inculcates in students the requisite knowledge, skills and attitudes required to unearth value and meaning from large voluminous data to help businesses and organizations make data informed decisions. Throughout the training, students will learn the essentials of data science and analytics through the study of data management, algorithmics and data analysis. Students will design and build data-driven systems for decision-making in the private or public sector, offering a thorough training in predictive, descriptive, and prescriptive analytics. Graduates of the program will develop problem-solving, critical, analytical, and computational and communication skills that will enable them to turn vast quantities of data into insight.

PROGRAM LEARNING OUTCOMES

Upon completion of the program, students will be able to:

1. Solve analytical problems based on sound data science principles;
2. Develop analytical models and demonstrate their power and limitations;
3. Apply programming and computational tools to analyze and visualize data sets;
4. Deploy machine algorithms to data mining;
5. Apply data science techniques to organization's data management.



DEGREE REQUIREMENTS 150 UNITS

GENERAL EDUCATION 39 UNITS

SIGNATURE COURSES 12 UNITS

STRATEGIES FOR UNIVERSITY SUCCESS 3 UNITS

SUS 1010: STRATEGIES FOR UNIVERSITY SUCCESS

RESEARCH METHODS 3 UNITS

GRM 2000: INTRODUCTION TO RESEARCH METHODS

COMMUNITY SERVICE OR COMMUNITY PROJECT 3 UNITS

CMS 3700: COMMUNITY SERVICE

THE SENIOR EXPERIENCE 3 UNITS

SEN 4800: INTEGRATED SEMINAR

WRITTEN, ANALYTICAL, CRITICAL THINKING SKILLS 12 UNITS

ENGLISH LANGUAGE 6 UNITS

ENG 1106: COMPOSITION I (WI)

ENG 2206: COMPOSITION II (WI)

FOREIGN LANGUAGE 6 UNITS

Student must have a credit transfer for a foreign language or must take up to two- course foreign language sequence of one language. USIU-Africa offers courses in Arabic, French, Japanese, Spanish, Swahili and Chinese.

QUANTITATIVE AND TECHNOLOGICAL SKILLS 6 UNITS

IST 1010: INTRODUCTION TO INFORMATION SYSTEMS

MTH 1109: COLLEGE ALGEBRA

GENERAL EDUCATION ELECTIVES 9 UNITS

(Choose three courses- at least two should be from lower levels)

BUS1010: INTRODUCTION TO BUSINESS ORGANIZATIONS 3 UNITS

SOC2201: INTRODUCTION TO SOCIOLOGY 3 UNITS

PHL 3310: ETHICS AND VALUE THEORY 3 UNITS

MGT 3010: PRINCIPLES OF MANAGEMENT PRACTICE 3 UNITS

NSC3304: BIOLOGY AND ENVIRONMENT 3 UNITS

PROGRAM CORE COURSES (37 Courses)

i. Mathematics and Statistics Courses (21 courses) 63 UNITS

STA 1020: PROBABILITY AND STATISTICS I 3 UNITS

STA 1040: STATISTICAL COMPUTING 3 UNITS

MTH 1030: CALCULUS 3 UNITS

MTH 1040: LINEAR ALGEBRA 3 UNITS

MTH 1050: DIFFERENTIAL EQUATIONS 3 UNITS

MTH 1060: ANALYTICAL AND COMPUTATIONAL FOUNDATION 3 UNITS

STA 2010: PROBABILITY & STATISTICS II 3 UNITS

MTH 2030: NUMERICAL ANALYSIS AND ITS APPLICATION 3 UNITS

STA 2030: STATISTICAL INFERENCE 3 UNITS

MTH 2215: DISCRETE MATHEMATICS 3 UNITS

MTH 2020: OPTIMIZATION TECHNIQUES 3 UNITS

STA 2050: SURVEY DESIGN AND ANALYSIS 3 UNITS

STA 2060: STOCHASTIC PROCESSES 3 UNITS

STA 3010: STATISTICAL MODELING 3 UNITS

STA 3030: DESIGNS AND ANALYSIS OF EXPERIMENTS 3 UNITS

STA 3040: MATHEMATICAL MODELING AND SIMULATION 3 UNITS

STA 3050: BAYESIAN INFERENCE AND DECISION THEORY 3 UNITS

MTH 3010: MATHEMATICAL FINANCE 3 UNITS

STA 4010: SURVIVAL ANALYSIS 3 UNITS

STA 4020: TIME SERIES ANALYSIS AND FORECASTING 3 UNITS

STA 4050: APPLIED MULTIVARIATE STATISTICAL ANALYSIS 3 UNITS

ii. Computer/ Data Science Courses (16 COURSES) 48 UNITS

DSA 1060: INTRODUCTION TO DATA SCIENCE 3 UNITS