



Bachelor of Science in **Data Science & Analytics**

USIU-Africa is accredited in Kenya by the Commission for University Education (CUE) & the United States of America by WASC Senior College and University Commission respectively.

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**United States
International
University-Africa**

Education to take you places

PROGRAM DESCRIPTION

The Data Science and Analytics program equips students with mathematical and computer science skills to analyze and interpret data. It covers computer science, mathematics, modeling, and statistics, preparing students to extract insights from large datasets for informed decision-making. The curriculum includes data management, algorithmics, and analytics, enabling students to design data-driven systems for private and public sectors. Graduates gain problem-solving, analytical, computational, and communication skills to transform data into actionable insights.

LEARNING OUTCOMES

Upon successful 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

15 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 Senior Seminar

FUNDAMENTALS OF INFORMATION LITERACY

3 UNITS

FIL 1010 Fundamentals of Information Literacy

LANGUAGE STUDIES

12 UNITS

ENGLISH LANGUAGE

6 UNITS

ENG 1106 Composition I (WI)

ENG 2206 Composition II (WI)

FOREIGN LANGUAGE

6 UNITS

Students must have credit for a foreign language or must take a two-course foreign language sequence of one language.

USIU-Africa offers courses in Arabic (ARB1000), French (FRN1000), Japanese (JPN1000), Spanish (SPN1000), Swahili (SWA1000), Chinese (CHI1000) and Kenya Sign Language (KSL1000).

DISCIPLINARY GENERAL EDUCATION ELECTIVES

6 UNITS

IST 1020 Introduction to Information Systems

MTH 1109 College Algebra

SCHOOL-BASED GENERAL EDUCATION ELECTIVES

6 UNITS

Students are required to pick 2 electives from the other Schools. The electives are as follows:

BUS 1010 Introduction to Business Organizations

3 Units

SOC 1101 Introduction to Sociology

3 Units

ENV 2001	Sustainable Resource Management	3 Units
PHL 3310	Ethics and Value Theory	3 Units
MGT 3010	Principles of Management Practice	3 Units
NSC 3304	Biology and Environment	3 Units

CORE COURSES

111 UNITS

LOWER LEVEL CORE COURSES

57 UNITS

DSA 1060	Introduction to Data Science	3 Units
DSA 1080	Programming for Data Science	3 Units
MTH 1040	Linear Algebra	3 Units
STA 1020	Probability and Statistics I	3 Units
MTH 1110	Calculus	3 Units
APT 1050	Database Systems	3 Units
MTH 2215	Discrete Mathematics	3 Units
MTH 1050	Differential Equations	3 Units
MTH 2030	Numerical Analysis and its Applications	3 Units
STA 1040	Statistical Computing	3 Units
STA 2010	Probability and Statistics II	3 Units
MTH 2020	Optimization Techniques	3 Units
MTH 1060	Analytical and Computational Techniques	3 Units
APT 2060	Data Structures and Algorithms	3 Units
STA 2030	Statistical Inference	3 Units
STA 2060	Stochastic Processes	3 Units
DSA 2040	Data Warehousing and Mining	3 Units
DSA 2050	Data Science Methodology	3 Units
DSA 2020	Artificial Intelligence	3 Units

UPPER LEVEL CORE COURSES

54 UNITS

STA 3010	Statistical Modeling	3 Units
STA 3020	Multivariate Statistical Analysis	3 Units
STA 3040	Mathematical Modeling and Simulation	3 Units
MTH 3010	Mathematical Finance	3 Units
DSA 3020	Principles of Machine Learning	3 Units
STA 3050	Time Series Analysis and Forecasting	3 Units
DSA 3050	Business Intelligence and Data Visualization	3 Units
DSA 3030	Big Data Architecture	3 Units
APT 3040	Object Oriented Analysis, Design & Programming	3 Units
STA 4030	Bayesian Inference and Decision Theory	3 Units
DSA 4010	Big Data Analytics	3 Units
DSA 3900	Data Science Project Proposal	3 Units
DSA 4020	Natural Language Processing	3 Units
DSA 4030	Big Data Security and Ethics	3 Units
DSA 4050	Deep Learning and Computer Vision	3 Units
DSA 4060	Recommender Systems	3 Units
DSA 4900	Data Science Project Implementation	3 Units
DSA 4910	Data Science Internship	3 Units



PR Code

```
function multiply(a, b) {  
  return a * b;  
}
```

```
function divide(a, b) {  
  return a / b;  
}
```

```
function randomOperator() {  
  const operators = ["+", "-", "*", "/"];  
  const index = Math.floor(Math.  
  return operators[index];  
}
```

```
function calculator() {  
  const num1 = Math.flo
```

Functional extension

System will be updated after 8 hours

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System will be updated after 8 hours

PE: 07:51:00

System will be updated after 8 hours

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CAREER OPPORTUNITIES

A Bachelor of Science in Data Science and Analytics opens up a wide range of career opportunities:

1. Data Scientists
2. Data Analysts
3. Data Managers
4. Data System Developers
5. Computer Programers
6. Data Engineers
7. Data Architects
8. Information Analysts
9. Statisticians
10. Business Intelligence Developers

ADMISSION REQUIREMENT

Kenya Certificate of Secondary Education (KCSE) or its equivalent with a minimum aggregate of C+ (Plus) and a minimum grade of C+ in Mathematics.

CONTACTS

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