



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 fibonacci(n) {
 if (n <= 1) return n;
 const fib1 = 0, fib2 = 1;
 for (let i = 2; i <= n; i++) {
 const next = fib1 + fib2;
 fib1 = fib2;
 fib2 = next;
 }
 return fib2;
}

function calculateArea(
 const num1 = Math.PI *
 (radius ** 2);
}

Functional extension

System will be updated after 5 hours

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) in Mathematics.

CONTACTS

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