Bachelor of Science in

Applied Biochemistry

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.

www.usiu.ac.ke

@USIU-Africa

@ExperienceUSIU

USIU AFRICA

United States International University-Africa

Education to take you places

PROGRAM DESCRIPTION

Applied Biochemistry applies biochemical techniques to solve challenges in health, nutrition, forensics, agriculture, and environmental sustainability. It focuses on **Industrial Biochemistry** (medical, industrial, and analytical applications), **Medical Biochemistry** (disease mechanisms and drug development), and **Forensic Biochemistry** (biological evidence for law enforcement). The program aligns with the university's mission, fostering critical thinking, career readiness, and ethical leadership. Its goal is to produce skilled graduates for industries, healthcare, research, and education.

LEARNING OUTCOMES

Upon completion of the Bachelor of Science in Applied Biochemistry program, students will be able to:

1. Analyze the cellular processes that govern life.
2. Use integrated knowledge in biological chemistry to solve biochemical problems.
3. Conduct biomedical research and communicate scientific information using set standards for reporting and citation.
4. Apply biochemical knowledge and techniques in criminal justice, agriculture, manufacturing and business processes.
5. Design innovative biochemical products and services using ethically-sound practices.

DEGREE REQUIREMENTS 192 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 1010 Introduction to Information Systems
MTH 1109 College Algebra

SCHOOL-BASED GENERAL EDUCATION ELECTIVES 6 UNITS

ENT 1010 Introduction to Entrepreneurship
SOC 1101 Introduction to Sociology

CORE COURSES — 153 UNITS

LOWER LEVEL CORE COURSES — 88.5 UNITS

CHE 1305	Inorganic Chemistry I (Basic Inorganic Chemistry)	4.5 Units
BCM 1341	Cellular Biology	3 Units
BCM 1320	Laboratory Practice and Instrumentation	4.5 Units
CHE 2307	Physical Chemistry	4.5 Units
CHE 1306	Inorganic Chemistry II (Atomic Structure and Chemical bonding	3 Units
CHE 2305	Introduction to Organic Chemistry	4.5 Units
CHE 2300	Carbonyl Compounds and Derivatives	4.5 Units
BCM 1342	Biochemistry of Biomolecules	4.5 Units
BCM 2345	Enzymology	3 Units
BCM 1343	Metabolism and Associated Disorders	4.5 Units
BCM 2110	Membrane Biochemistry and Cellular Signaling	3 Units
MIC 2175	Bacteriology	4.5 Units
BCM 2140	Introduction to Plant Biochemistry	3 Units
BCM 2220	Immunochemistry and Hematology	4.5 Units
BCM 2250	Protein Biochemistry and Nitrogen Metabolism and Associated Disorders	4.5 Units
MIC 2260	Introduction to Parasitology and Disease Vectors	4.5 Units
BCM 1330	Vitamins, Minerals and Trace Elements	3 Units
BCM 2330	Biochemical Endocrinology	3 Units
BCM 2280	Molecular Biology	4.5 Units
MIC 2366	Virology and Mycology	3 Units
BCM 2344	Biochemistry of Specialized Organs and Tissues	4.5 Units
BCM 3120	Basic Chemometrics	3 Units
BCM 2340	Genetics and Evolution	3 Units

UPPER LEVEL CORE COURSES — 64.5 UNITS

BCM 3325	Quality Control and Quality Analysis	4.5 Units
BCM 3110	Microbial Biochemistry	4.5 Units
BCM 3210	Gene Technology and Biotechnology	3 Units
BCM 3130	Nutritional Biochemistry	3 Units
BCM 3140	Biochemistry of Plant Secondary Metabolism and Phytohormones	3 Units
BCM 3150	Bioethics and Biosafety in Biomedical Research	3 Units
BCM 3200	Medical Genetics	3 Units
BCM 3230	Industrial Biochemistry	3 Units
BCM 3250	Principles of Bioinformatics	3 Units
BCM 3300	Clinical Biochemistry	4.5 Units
PHT 3350	Principles of Pharmacognosy	3 Units
BCM 3355	Proposal Writing	3 Units
BCM 3330	Integrated Laboratory Skills Workshops	9 Units
BCM 3360	Comparative Biochemistry	3 Units
BCM 4100	Bioremediation and Waste Management	3 Units
BCM 4120	Principles of Forensic Biochemistry	4.5 Units
BCM 4130	Data collection, Analysis and Thesis	4.5 Units

CAREER OPPORTUNITIES

A Bachelor of Science in Applied Biochemistry opens up a wide range of career opportunities in various fields, including healthcare, research, industry, and education.

Here are some potential career paths:

1. Research Scientist
2. Clinical Biochemist
3. Pharmaceutical Researcher
4. Quality Control Analyst
5. Biotechnologist
6. Science Educator
7. Environmental Biochemist
8. Forensic Scientist
9. Medical Science Liaison
10. Regulatory Affairs Specialist

ADMISSION REQUIREMENT

KCSE: Mean grade of C+ (plus) or its equivalent with a grade of C+ in the cluster subjects.

CONTACTS

P.O. Box 14634 - 00800,
USIU Road, Off Thika Road (Exit 7),
Nairobi, Kenya

+254 730 116 290 /291 /247 /300 /397 /503 /522

admit@usiu.ac.ke

+254 755 844 849