About the programme:

Bachelor of Science in Applied biology is designed to promoting the discovery and application of scientific knowledge in a manner that prepares the students to contribute effectively, intellectually and ethically as citizens of a dynamic scientific community. Students trained in the department find placement in bio-medical research, environmental and health institutions. They can also find suitable jobs in the food and beverage, pharmaceutical industries, educational institutions and as technical sales representatives besides self-employment.

The curriculum is need-driven and strives to offer a hands-on training in scientific skills to fill the gap between technologists and researchers/professionals in various biological disciplines.

Programme options:

Microbiology

Students majoring in this option become versed in the role of microbes in nature, including nitrogen fixation, photosynthesis, degradation of pollutants infectious diseases, food spoilage, and disruption of industrial processes; a wide area of genetics, and genetic engineering, its applications in agriculture, medicine and biotechnology and includes practical techniques in these disciplines.

Bio-management and utility

This option is designed to stimulate students to conceptualize the dynamic fields of Economic Botany and Applied Zoology. Key and unanswered aspects of biodiversity conservation, bio-management and utility are addressed. Emphasis is on the understanding of animals and plants in relation to their environment and application of zoological and botanical knowledge to problems such as pest control, cancer research, pollutants in food chains and beneficial uses in agriculture, herbal medicine, and plant.

Economic Botany

The Economic Botany degree provides a distinct body of knowledge suitable for the understanding of plants in relation to their uses. The emphasis throughout is on the application of botanical knowledge to Agriculture, herbal medicine, and plant genetic resources conservation and biodiversity management.

Zoology

The Zoology degree provides a unified and distinct body of knowledge suitable for the understanding of animals in relation to their environment. The emphasis throughout is on the application of zoological knowledge to problems such as pest control, cancer research, pollutants in food chains and biodiversity conservation.

Target group

High School or A-level school leavers, certificate and ordinary and Higher Diploma holders in biological sciences and biomedical sciences who would like to acquire or learn scientific skills in various biological disciplines in the programme.

Admission Requirements

Minimum requirements for admission to the Applied Biology Programme is a C + in Biology at KCSE, or equivalent qualification and a C pass in Chemistry or Mathematics OR grade B in the pre-university General Biology course. In addition, the student must satisfy the minimum entrance requirements for the Kenya Methodist University.

Programme Structure

YEAR 1

Semester 1

Core Courses

BOTN 101	General Botany	3
MBIO 101	General Microbiology	3
ZOOL 101	Invertebrate Zoology	3
ZOOL 105	Vertebrate Zoology	3

University Common Courses (Compulsory)

THEO 111	Christian Beliefs	3
COMM 111	Communication Skills	3
Total		18

Semester 2

Core courses

CHEM 101	General Chemistry	3
MBIO 106	Laboratory Methods & Techniques	3
BIOL 115	General Ecology	3
ZOOL 110	Cell Biology and Genetics	3

University Common Courses (Compulsory)

COMP 100	Computer Applications	3
MATH 130	Basic Statistics	3
Total		18

YEAR 2

Semester 1

Core Courses

BIOC 201	Biochemistry	3
MATH 231	Biostatistics	3
BOTN 210	Plant Morphology and Anatomy	3
ZOOL 210	Animal Anatomy and Physiology	3

University Common Courses (Compulsory)

BUSS 114	Entrepreneurship	3
SOST 131	Introduction to Sociology	3
Total		18

Semester 2

Core Courses

BIOL 225	Evolutionary Biology	3
BOTN 201	Plant Biochemistry and Physiology	3
BOTN 205	Plant Systematics	3
MBIO 205	Advanced Microbiology	3
ENVI 201	Environmental Science	3

University Common Courses (Compulsory)

HSCI 225	HIV/AIDS	3
Total		18

Microbiology Option

YEAR 3

Semester 1

Core courses

ZOOL 201	Parasitology	3
BIOL 330	Biological Seminars	3
MBIO 310	Immunology	4
MBIO 305	Pathogenic Microbiology	3
MBIO 315	Microbiology and Human Welfare	3

Electives (One)

MBIO 320	Molecular and Cellular Biology	3
BOTN 310	Plant Genetic Resources	3
Total		19

Semester 2

Core courses

ZOOL 205	General Entomology	3
BIOL 335	Biological Techniques	3
BIOL 301	Research Methodology	3
BIOC 301	Medical Biochemistry	3
MBIO 325	Host-Microbe Interaction	3

Electives (One)

BOTN 330	Plant Pathology	3
ZOOL 335	Wildlife Biology	3
Total		18

2-3 Months Laboratory Attachment

*BIOL 499	Attachment	3

YEAR 4

Semester 1

Core courses

BIOL 450	Research Project	6
BOTN 410	Plant Cell & Tissue Culture	3
MBIO 415	General Virology	3
MBIO 420	Microbial Physiology and Genetics	3

Electives (One)

BIOL 415	Biodiversity Conservation	3
ECOT 440	Ecotourism Development and Management	3
BOTN 420	Pharmacognosy	3
Total		18

Semester 2

Core courses

BIOL 425	Biotechnology & Development	3
MBIO 410	Soil Microbiology	3
MBIO 430	Epidemiology	3
MBIO 435	Food Microbiology	3
MBIO 440	General Mycology	3

Electives (One)

BIOL 405	Applied Ecology	3
ZOOL 435	Integrated Pest Management	3
Total		18

Economic Botany Option

YEAR 3

Semester 1

Core courses

ZOOL 201	Parasitology	3
BIOL 330	Biological Seminars	3
BOTN 310	Plant Genetic Resources	3
BOTN 315	Agro forestry	3
NARS 362	Rangeland Resources	3

Electives (One)

MBIO 320	Molecular and Cellular Biology	3
ZOOL 305	Comparative Anatomy	3
BOTN 345	Aquatic Botany	3
MBIO 315	Microbiology and Human Welfare	3
Total		19

Semester 2

Core courses

ZOOL 205	General Entomology	3
BIOL 335	Biological Techniques	3
BIOL 301	Research Methodology	3
BOTN 330	Plant Pathology	3
BOTN 340	Plant Reproductive Biology	3

Electives (One)

BOTN 305	Plant Genetics	3

ZOOL 325	Hydrobiology	3
ZOOL 335	Wildlife Biology	3
MBIO 325	Host-Microbe Interaction	3
Total		18

2-3 Months Laboratory Attachment

BIOL 499	Attachment	3

YEAR 4

Core courses

BIOL 450	Research Project	6
BOTN 410	Plant Cell & Tissue Culture	3
BIOL 415	Biodiversity Conservation	3
ECOT 440	Ecotourism Development & Management	3

Electives (One)

ZOOL 410	Insect Anatomy & Physiology	3
ZOOL 420	Ichthyology	3
ZOOL 425	Ethnology	3
Total		18

Semester 2

Core courses

BIOL 425	Biotechnology & Development	3
MBIO 410	Soil Microbiology	3
BIOL 405	Applied Ecology	3
BOTN 425	Economy Botany	3
BOTN 435	Plant Genetic Resources Management	3

Electives (One)

MBIO 435	Food Microbiology	3
ZOOL 435	Integrated Pest Management	3
Total		18

Zoology Option

YEAR 3

Semester 1

Core courses

ZOOL 201	Parasitology	3
BIOL 330	Biological Seminars	3
MBIO 310	Immunology	4
MBIO 320	Molecular and Cellular Biology	3
ZOOL 305	Comparative Anatomy	3

Electives (One)

BOTN 315	Agro forestry	3
NARS 362	Rangeland Resources	3
MBIO 315	Microbiology and Human Welfare	3
BOTN 310	Plant Genetic Resources	3
Total		19

Semester 2

Core courses

ZOOL 205	General Entomology	3
BIOL 335	Biological Techniques	3
BIOL 301	Research Methodology	3
ZOOL 325	Hydrobiology	3
ZOOL 335	Wildlife Biology	3

Electives (One)

ZOOL 330	Ornithology	3
MBIO 325	Host-Microbe Interaction	3
BOTN 330	Plant Pathology	3
ZOOL 320	Advanced Entomology	3
Total		18

2-3 Months Laboratory Attachment

*BIOL 499	Attachment	3

YEAR 4

Semester 1

Core courses

BIOL 450	Research Project	6
BIOL 415	Biodiversity Conservation	3
ECOT 440	Ecotourism Development & Management 3	
ZOOL 410	Insect Anatomy & Physiology	3

Electives (One)

ZOOL 425	Ethnology	3
BOTN 410	Plant Cell & Tissue Culture	3
BOTN 420	Pharmacognosy	3
Total		18

Semester 2

Core courses

BIOL 425	Biotechnology & Development	3
MBIO 410	Soil Microbiology	3
ZOOL 435	Integrated Pest Management	3
BIOL 405	Applied Ecology	3
ZOOL 420	Ichthyology	3

Electives (One)

MBIO 435	Food Microbiology	3
BOTN 425	Economy Botany	3
Total		18

Bio-Management and Utility Option

YEAR 3

Semester 1

Core courses

ZOOL 201	Parasitology	3
BIOL 330	Biological Seminars	3
MBIO 310	Immunology	4
BOTN 310	Plant Genetic Resources	3
MBIO 320	Molecular and Cellular Biology	3

Electives (One)

BOTN 315	Agro forestry	3
NARS 362	Rangeland Resources	3
MBIO 315	Microbiology & Human Welfare	3
ZOOL 305	Comparative Anatomy	3
Total		18

Semester 2

Core courses

ZOOL 205	General Entomology	3
BIOL 335	Biological Techniques	3
BIOL 301	Research Methodology	3
BOTN 330	Plant Pathology	3
ZOOL 335	Wildlife Biology	3

Electives (One)

ZOOL 325	Hydrobiology	3
ZOOL 330	Ornithology	3
MBIO 325	Host-Microbe Interaction	3
ZOOL 315	Vertebrate Histology	3
Total		18

2-3 Months Laboratory Attachment

*BIOL 499	Attachment	3

YEAR 4

Semester 1

Core courses

BIOL 450	Research Project	6
BOTN 410	Plant Cell & Tissue Culture	3
BIOL 415	Biodiversity Conservation	3
ECOT 440	Ecotourism Development and Management	3

Electives (One)

ZOOL 410	Insect Anatomy & Physiology	3
ZOOL 420	Ichthyology	3
ZOOL 425	Ethnology	3
Total		18

Semester 2

Core courses

BIOL 425	Biotechnology & Development	3
MBIO 410	Soil Microbiology	3
ZOOL 435	Integrated Pest Management	3
BIOL 405	Applied Ecology	3
BOTN 425	Economy Botany	3

Electives (One)

MBIO 435	Food Microbiology	3
MBIO 440	General Mycology	18

NOTE: *Laboratory attachment will be taken at the end of semester 2, third year of study. And Attachment Report Presentation in the next immediate Semester (i.e. the 1st Semester 4th Year)*

For more information: Contact the Registrar Academic Affairs

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Bachelor of Science in Applied Biology