A young man with a short haircut, wearing a light-colored work shirt and trousers, is crouching in a workshop. He is focused on adjusting a vertical component of a large orange industrial machine. The background shows a well-lit workshop with various tools, equipment, and shelving units. The lighting is warm, highlighting the student and the machine.

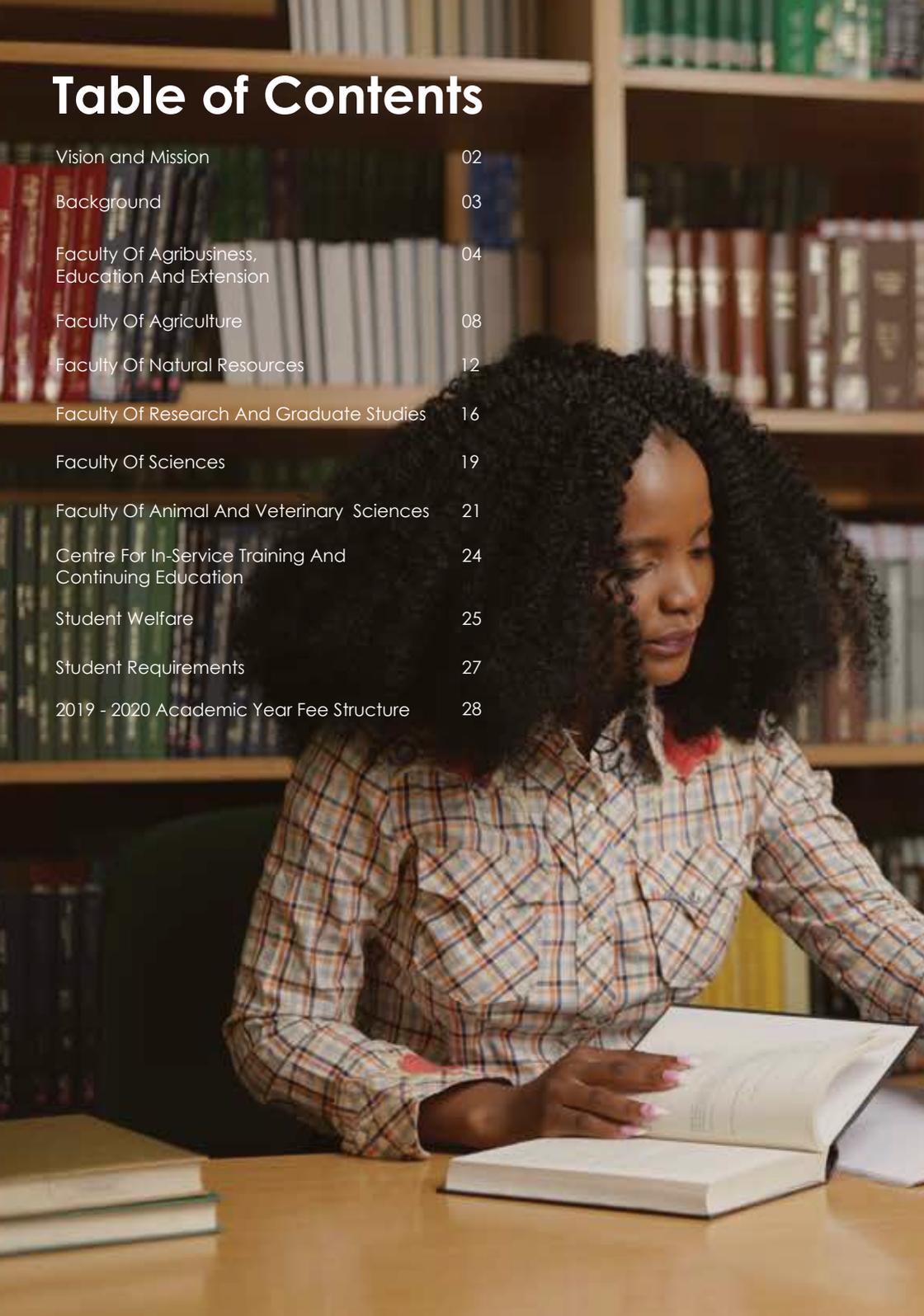
# BUAN

BOTSWANA UNIVERSITY OF  
AGRICULTURE AND NATURAL RESOURCES

# STUDENT HANDBOOK

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**VISION:**

To be a Vibrant World class University of Agriculture and Natural Resources.

**MISSION:**

To produce market ready graduates for the Agriculture and Natural Resources sectors.



**Excellence**

Provide exceptional performance through productivity, discipline and quality of service.



**Teamwork**

Promote cooperation and collaboration



**Innovation**

Embrace creativity for progress



**Accountability**

Promote individuals to own up and accept responsibility.



**Integrity**

Maintain high moral standing



**Customer Centric**

Provide an exceptional customer experience at the point of service

## BACKGROUND

On the 27th August 2013, the Government of Botswana approved that the then Botswana College of Agriculture should transform into a University of Agriculture and Natural Resources through Presidential Directive CAB 21 (B)/2013. The decision was in line with the College's Strategic Plan of 2009-2016 that had a vision to transform into "an agricultural university of international repute."

The process of transformation was inaugurated when the, then Ministry of Agriculture announced the Government's decision at a ceremony at the Sebele campus on the 12th November 2013. On the 1st February 2016, BUAN became a University through commencement of the Act of Parliament 12 of 2015 as a Parastatal under the Ministry of Agricultural Development and Food Security (MoA).

The mandate of the University is to provide higher education and training in the field of agriculture, natural resources and such other allied and related subjects as can be determined by the University Council from time to time. The University intends to produce market ready graduates for the agricultural and natural resource sectors through innovative teaching and research.



**FACULTY OF  
AGRIBUSINESS,  
EDUCATION AND  
EXTENSION**



## FACULTY OF AGRIBUSINESS, EDUCATION AND EXTENSION [FAEE]

### Background

The Faculty of Agribusiness, Education and Extension [FAEE] is comprised of three departments namely Agricultural and Applied Economics, Agricultural Education and Agricultural Extension and Development.

### DEPARTMENT OF AGRICULTURAL AND APPLIED ECONOMICS.

The department offers a Bachelor of Science degree in Agricultural Economics (BSc Agric Econ) programme. It has core courses taught across the university to non-agricultural economics students from other faculties.

### Aim of the Programme

The aim of the programme is to train students who will contribute meaningfully to the development of the agricultural sector.

### Objectives of the Programme

At the end of the programme the graduates should be able to:

- Analyse agricultural policy problems in relation to production and marketing of agriculture products as well as advising the government on appropriate policies to implement.
- Conduct market research in the agricultural industry and advice farmers on farm business management.
- Manage own agribusinesses (small and medium scale food enterprises and industries) and retail outlets.
- Identify potential value addition to farm products through processing.
- Advise farmers and farmer's groups on how to market their products efficiently.
- Apply both quantitative and qualitative economic methods and concepts, in applied analysis to professionals in government, business and non-profit organizations.

### Duration Of the Programme

The Bachelor of Science in Agricultural Economics degree is a four year programme. During the 1st year, students are enrolled in the Basic Sciences program [100 level courses]. From 2nd year to 4th year, most courses studied are concentrated in the area of economics and agriculture. The students are also involved in two Field Practical Training [FPT] attachments one in farms and the other in manufacturing industries. They also conduct a mini research project.

### Career Opportunities

- Managers for commercial farms, agricultural input industries, supermarkets and chain stores.
- Policy analysts in the agricultural sector or non-governmental organisations concerned with rural development and poverty reduction.
- Self-employment in various agricultural enterprises (agribusinesses)
- Managers at government and non-governmental institutions (Development banks, parastatals, Agricultural Cooperatives, farmers associations and Consultancy firms)

## DEPARTMENT OF AGRICULTURAL EDUCATION

The department currently offers Bachelor of Agricultural Education [BSc Ag Edu] programme and a Master of Science degree in Agricultural Education [MSc Ag Edu] programme (Please see the Graduate Studies Brochure).

### Aim of the Programme.

The aim of the program is to prepare students to become professional teachers of agriculture in the field of agriculture and agricultural science.

### Objectives of the Programme

At the end of the programme, the graduate should be able;

- Teach agriculture in primary, secondary schools, colleges, and vocational institutions
- Plan, develop, implement and evaluate agricultural education programmes in schools and organisations of education and training
- Manage agricultural education programme organizations locally, regionally and internationally
- Supervise school agricultural research in agriculture related fields
- Pursue further training in Agricultural Education and related disciplines
- Work as farm managers, curriculum officers, education officers.

### Duration of the Programme

The Bachelor of Science degree in Agricultural Education is a four year programme. During 1st year, students are offered sciences and thereafter they take courses from other faculties including their faculty. Students in this programme undergo a Field Practical Training [FPT] in farms and a six week Teaching Practice [TP] in schools.

### Career Opportunities

- Teachers of agriculture
- Agriculture consultant
- Agricultural Extension officer
- Farm manager, researchers,
- Human resource specialist
- International agriculture consultant
- Agricultural Production manager
- Educational programme designers, evaluators and trainers
- College and university instructors, teacher

## DEPARTMENT OF AGRICULTURAL EXTENSION AND DEVELOPMENT

The department currently offers Bachelor of Science in Agricultural Extension [BSc Ag Ext]. The courses in this programme are also offered to other students from other faculties whose speciality is not agricultural extension.

### Aim of the Programme

The aim of the programme is to prepare graduates who are able to advice stakeholders engaged in agriculture with updated science based information required to improve food production and to increase the quality of life.

### Objectives of the Programme

At the end of the programme the graduates should be able to;

- Serve as a link between farmers, development agencies and government.
- Serve as trainers in various rural training and agricultural centres
- Be employed in various Ministries, private and international organisations that drive rural development agenda
- Be employed in Non-Governmental Organisations and parastatal organisations
- Plan, implement, evaluate and monitor various agricultural development projects.
- Provide leadership in the process of participatory technology development and dissemination

### Duration of the Programme

The Bachelor of Science degree in Agricultural Extension is a four year programme. During 1st year students are offered sciences and thereafter take courses from other faculties including their faculty. Students in this programme undergo two Field Practical Training [FPT] in farms and related organisations.

### Career Opportunities

- Agricultural Extension Agent
- Agricultural Extension Officer
- Researcher, consultant
- Development Officer
- Cop and Livestock Agent
- Crops Agent
- Extension Specialist
- Secondary School Teacher
- Lecturer, farm manager, journalist
- Self-employment

# FACULTY OF AGRICULTURE



## WHY CHOOSE FACULTY OF AGRICULTURE?

The Faculty comprises of 3 academic departments i.e. Crop and Soil Sciences, Agricultural and Bio-Systems Engineering and Food Science and Technology

### OBJECTIVES

- To produce high quality graduates in the field of Crop and Soil Sciences, Agricultural Engineering and Food Science and Technology.
- To conduct relevant research to address issues affecting the country in the fields; Crop Sciences, Agricultural Engineering and Food Science.

### DEPARTMENT OF CROP & SOIL SCIENCES

#### Disciplines/ sections

<b>Agronomy</b>	Deals with field crops (rainfed crops such as sorghum, maize, cowpeas, sunflower etc.)
<b>Crop Protection</b>	Deals with weeds, pests and diseases in crop plants and their control
<b>Horticulture</b>	Deals with fruits, vegetables, ornamentals and landscaping
<b>Soil Science</b>	Deals with soils, soil fertility and fertilizers

#### Academic programs in the Department

- Diploma in Agriculture
- Diploma in Horticulture
- BSc (Agriculture)
- BSc (Crop Science)- Agronomy and Horticulture Streams
- MSc Crop Sciences (Agronomy, Horticulture, Crop Protection and Soil Science streams)
- Master of Philosophy/ Doctor of Philosophy (Mphil/PhD)

#### Activities undertaken by the Department

- Develop and implements relevant curriculum (for both short term and long term courses) in the field of Crop Sciences and Production
- Develop and execute research in various fields of Agronomy, Horticulture, Crop Protection and Soil Sciences
- Provide advisory services and consultancies to the farming community and government agencies, Research and teaching facilities
- Green house to support experiments and practicals in agronomy, horticulture, crop protection and soil sciences
- Laboratories for plant physiology, entomology, plant pathology and soil science.
- Orchards and nurseries for horticulture and agronomy

#### Career Opportunities

- Self –employment
- Careers in Agronomy, Horticulture, Crop Protection and Soil Science
- Agriculture consultancies

## DEPARTMENT OF AGRICULTURAL AND BIO-SYSTEMS ENGINEERING

### Disciplines/ sections

**Agricultural Mechanization** Deals with knowledge and skills in agricultural mechanization strategies, machinery acquisition, operation and maintenance to support agricultural production

**Soil and Water Conservation** Deals with skills in engineering and agricultural sciences to provide technically sound management of soil and water resources for agricultural and civil works applications.

### Academic Programs

- BSc Agricultural Mechanization
- BSc Soil and Water Conservation Engineering
- MSc Agricultural Engineering (Agricultural Mechanization, Land Use Planning and Soil and Water Conservation Engineering streams)

### Activities Undertaken by the Department

- Develops and implement relevant curricula (for both short term and long term courses) in the field of agricultural and bio- systems engineering.
- Academic and technical staff are engaged in both fundamental and applied research in response to local and international challenges in agricultural and bio systems engineering
- Provide advisory services and consultancies to the farming community and government agencies.

### Research and Teaching Facilities

- Laboratories and equipment for computing, irrigation, metal and wood workshops, tractor engine testing
- BUAN farm for research and teaching facilities

### Career Opportunities

- Self –employment
- Mechanized farms and agro industry
- Agri- machinery supplies
- Municipal water works
- Irrigation projects
- Tractor testing service provider
- Agricultural consultancies
- Agricultural monitoring (vegetable condition monitoring; crop condition monitoring; crop yield forecasting)

## **FOOD SCIENCE AND TECHNOLOGY**

### **Disciplines/Sections**

Food engineering  
Food and Human nutrition  
Food Chemistry and analysis  
Food technology  
Food safety

### **Academic Programme**

#### **BSc Food Science and Technology**

#### **Activities Undertaken by the Department**

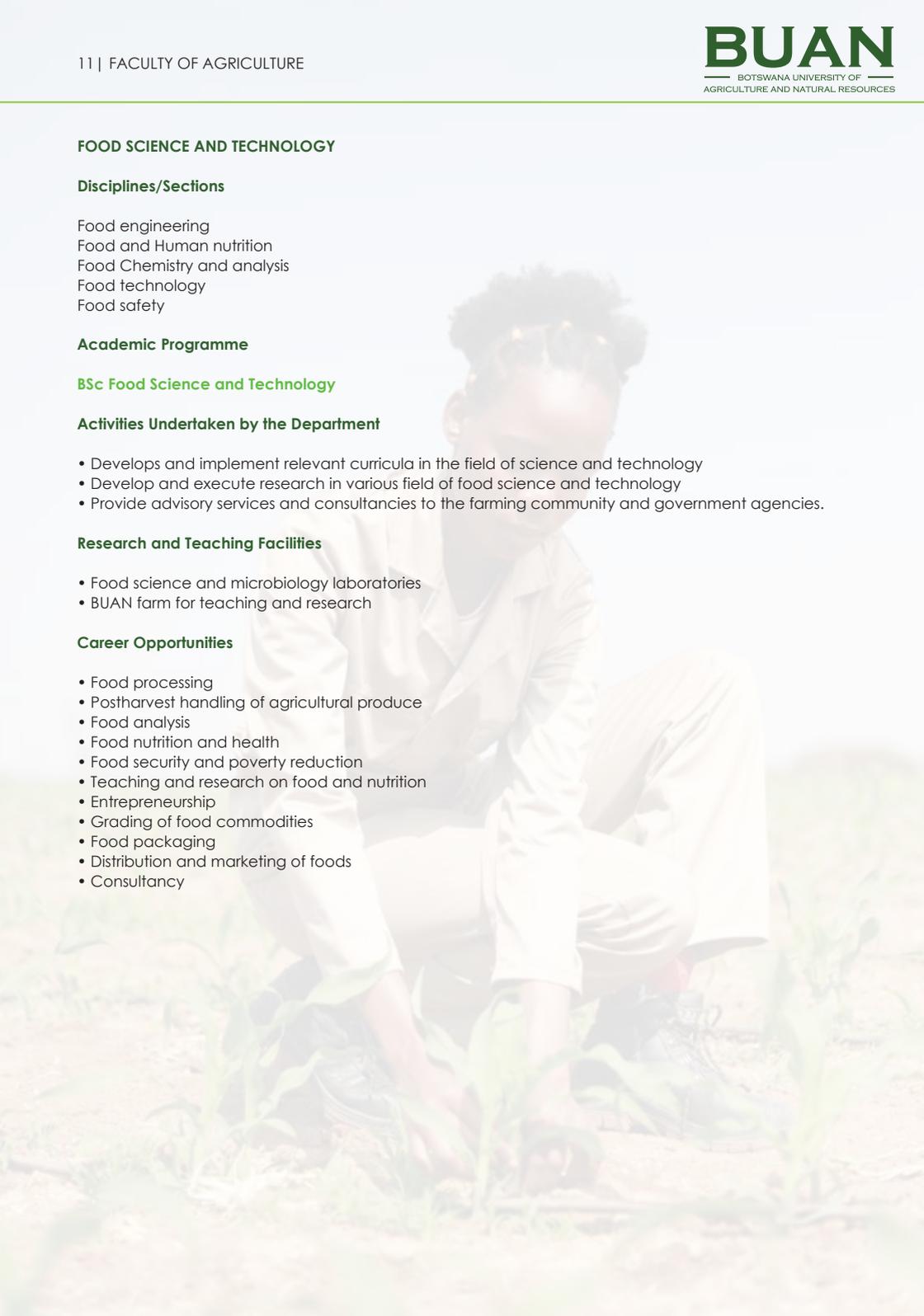
- Develops and implement relevant curricula in the field of science and technology
- Develop and execute research in various field of food science and technology
- Provide advisory services and consultancies to the farming community and government agencies.

#### **Research and Teaching Facilities**

- Food science and microbiology laboratories
- BUAN farm for teaching and research

#### **Career Opportunities**

- Food processing
- Postharvest handling of agricultural produce
- Food analysis
- Food nutrition and health
- Food security and poverty reduction
- Teaching and research on food and nutrition
- Entrepreneurship
- Grading of food commodities
- Food packaging
- Distribution and marketing of foods
- Consultancy



# FACULTY OF NATURAL RESOURCES



## FACULTY OF NATURAL RESOURCES (FNR)

Botswana is endowed with diverse natural resources. Diamonds, copper/nickel, salt, soda ash, potash, coal, iron ore, silver as well as water, wildlife, soils, forests, veld products and ecosystems, are the most significant drivers of economic development and growth. Botswana is one of the very few countries in the world that still possesses an impressive diversity and abundance of wild fauna and flora.

This is reflected by the occurrence of more than 150 different species of mammals, over 500 species of birds, numerous species of reptiles, amphibians and insects as well as 3,086 species of plants. Botswana has large pristine natural landscapes comprising of large protected areas (37% of its total area), the largest being Central Kalahari Game Reserve, Gemsbok National Park, Chobe National Park, Makgadikadi Pans and Nxai Pan National Park, Moremi Game Reserve and Khutse Game Reserve, and Wildlife Management Areas (WMAs).

Hence, Botswana is critically dependent on its natural resources and, approximately, 75% of paid employment in the country can be linked to natural resource utilisation and services in agriculture, mining, tourism (hotels and restaurants) and water. In addition, virtually all subsistence employment in agriculture, fishing and veld food collection depends on natural resources.

The contribution of natural resources is valued in terms of achievements in income generation, social protection, employment creation, infrastructure development and human capital development (health and education), but also through ecosystem goods and services in the form of food, raw materials, water and air purification, erosion prevention, biodiversity and cultural services. Renewable natural resources underpin commercial and subsistence activities, and often provide a safety net for the poor in times of crisis. Arable agriculture, beef production, veld products' utilization and tourism, are some of the sectors in Botswana, which benefit from natural resources and ecosystem services through which they contribute to economic growth and poverty eradication.

### Challenges Facing Natural Resources in Botswana

Despite their critical importance, natural resources in Botswana are faced with several challenges. The major challenges include recurrent fire destroying vegetation, damage of forests and woodlands due to growing populations of wild animals, especially elephants, deforestation and forest/land degradation associated with conversion of forests and woodlands for crop cultivation and fuelwood, unsustainable harvesting methods and over-utilisation of veld products, overgrazing, rapid declining numbers of several wild animal species associated with the rapidly expanding human settlements and livestock populations, frequent drought, poaching, periodic droughts, adverse impacts of climate change, loss of habitat for wildlife, high losses of inland fisheries estimated at 20 - 30% due to inadequate transport, storage and processing technologies, and environmental hazards, including pollution and wastage of land from mining.

In addition, the badly needed qualified professionals required to address these challenges are either very few or totally lacking, especially in some areas of natural resources. This is, partly, associated with the inadequacy of and/or absence of relevant academic training programmes as well as strong research that support the various ongoing and new natural resource development undertakings in the country.

## THE NEED TO ADDRESS THE CHALLENGES

Cognizant of this reality, through its Vision 2036, the Government of Botswana has aspired to become a high-income country, with an export-led economy underpinned by diversified, inclusive and sustainable growth driven by high levels of productivity. This, in turn, is planned to be achieved through a knowledge-based economy, involving the use of science, technology and innovation that can propel the economies to high levels of efficiency.

The Vision has also stipulated the development of an internationally competitive workforce that is productive, creative and has international exposure. This, in turn, is hoped to result in an economy endowed with skills that are relevant, offering domestic, regional and international opportunities .

As part of the measures necessary for the realization of Vision 2036, BUAN has been established as one of the tertiary education institutions that will be instrumental for the promotion of knowledge-based economy, involving the use of science, technology and innovation that can propel the economies to high levels of efficiency in the fields of agriculture, natural resources and related sciences by developing internationally competitive workforce that is productive, creative and has international exposure, which are expected to lead to an economy endowed with skills that are relevant, offering domestic, regional and international opportunities

## HOW BUAN/FNR ADDRESS CHALLENGES FACING NATURAL RESOURCES

The Faculty of Natural Resources (FNR) was established to address the challenges facing natural resources in Botswana, in collaboration with the other sister faculties, through producing skillful and market-ready graduates as well as generating demand-driven, appropriate and innovative technologies and knowledge through research. To apportion its share from and contribute to the achievements of the objectives of BUAN as stipulated in the BUAN Act No. 12, 2015,

### The objectives of FNR are to:

- Undertake, promote and facilitate research and scholarly investigations in the fields of natural resources;
- Advance and disseminate knowledge and skills through teaching, learning and practical skills training in the fields of natural resources;
- Contribute to national and international scientific and technological development in the fields of natural resources;
- Support and contribute to the realization of national economic and social development in the fields of natural resources;
- Contribute to the central and social life of the community in the fields of natural resources; and
- Advance the intellectual and human resource capacity of the nation of Botswana and international community in the fields of natural resources.

## THROUGH TRAINING STUDENTS

The FNR, in particular, and BUAN, in general, are uniquely positioned to respond to these challenges through developing the necessary hands-on trained graduates as well as generating knowledge and technologies through research, and packaging and extending them to where ever they are required to serve the necessities of different segments of the society in Botswana. This will, ultimately, contribute towards addressing the challenges faced by natural resources and those who depend on them as sources of their livelihood, including local communities. In the following section, a few examples are provided to demonstrate how BUAN/FNR contribute towards addressing the challenges through training.

As stated above, conservation of wildlife faces many challenges, e.g. rapid population declines, competition with agriculture, poaching, settlement expansion, human animal conflict and climate change, of which are compounded by the rapid increase in human population. Hence, the need for a training programme to produce competent and skilled manpower to effectively participate in the sustainable management of wildlife resources has been identified. This will be realized by the FNR through its new BSc Programme in Wildlife Management.

Fisheries has been a somewhat neglected sector while there is potential to increase sustainable commercial and sport fishing in natural waters as well as increasing the sustainable catch from dams, which can all contribute to poverty eradication . Also, currently, the country has very few professionals with degrees in Fisheries and Aquatic Sciences/ Aquaculture. Hence, FNR, through its BSc Programme in Fisheries and Aquatic Sciences with streams in Fishery Sciences and Aquaculture, will contribute towards the government's policy on fisheries and aquatic resources management, conservation and their efficient uses through training young professionals.

In spite of the growing awareness about the actual and potential importance of forest and rangeland resources, deforestation/de-vegetation as well as forest and woodland degradation (and land degradation in general), mostly involving fire, are ongoing unabated in Botswana and livestock keeping areas, and for local communities to harvest their needs of fuelwood, building material, and other forest products for subsistence needs, but also to access timber and non-timber forest products for sale. Hence, the FNR, through its BSc and MSc Programmes in Range and Forest Sciences, Dryland Agroforestry as well as Land and Water Management, will contribute towards producing qualified and skilled experts that will contribute to the achievement of Vision 2036 through the management, sustainable utilization and conservation of land in general as well as rangeland, forest, woodland and water resources in particular. Up to 3,000 veld products are used across Botswana and play an important role in reducing vulnerability and, in some areas, are a source of cash income . The value of this production is not properly recorded in national accounts. There is potential for further commercialization of veld products to benefit low income rural producers but effective governance arrangements need to be in place beforehand to avoid over-exploiting and degrading the natural resource.

Sciences, Forest Sciences and Dryland Agroforestry in terms of training the required experts and generating knowledge/technologies required for the sustainable management, utilization and conservation of veld products. Investments in soil and vegetation conservation, land rehabilitation, water conservation and rain water harvesting and use of drought resistant crop varieties offer an advantage in terms of poverty eradication over traditional support to agriculture. These requires qualified experts in the areas of soil sciences, forest sciences, land and water management and crop scientists for which BUAN and FNR have comparative advantages than other tertiary education institutions.

Mining of minerals, which has been recognized to contribute significantly to the economic and social development in Botswana, also alters the natural landscape and discharges large volumes of wastes that pose serious pollution hazards to the environment, human health and agriculture. This implies that there is an urgent need for designing customized training and targeted research programmes to address the specified problems by FNR.

There are a number of other existing and new undergraduate and graduate programmes in the FNR and other faculties that can contribute towards addressing the challenges facing natural resources through producing market-ready graduates.

## THROUGH RESEARCH

One of the three mandates of BUAN is research in different themes relevant to agriculture, natural resources and related sciences, the others being teaching and extension/outreach. The development of a Research Strategy of BUAN (2018-2024), which is being spearheaded by the Faculty of Graduate Studies and Research, is near completion. Six broad research themes have been identified in the Research Strategy, i.e.:

- Food security and safety;
- Agribusiness;
- Climate change and environment;
- Water security;
- Natural resources management and
- Biotechnology (BUAN, 2018b).

FNR will be actively engaged in research and the development of knowledge and technologies addressing problems facing the natural resources in Botswana, which will, then, be packaged and extended customized to the different end-users in Botswana. Some examples of research themes specifically focusing on natural resources include:

- Sustainable management, utilization and conservation of natural resources, e.g. forest and woodland resources, wildlife, fisheries, aquaculture and aquatic resources, land and water resources and other resources;
- Edible wild and medicinal plants as well as other non-timber forest products;
- socio-economic contribution of natural resources (valuation) and contribution of natural resources to the GDP/national economic growth and improvement of peoples' livelihoods;
- Ecosystem service values of natural resources;
- Impact of climate change on natural resources and measures needed for adaptation and mitigation of climate change;
- Role and impact of fire on natural resources;
- Restoration of degraded and encroached land and water bodies;
- Indigenous knowledge systems in the sustainable management, utilization and conservation of natural resources.

Through its engagement in appropriate and demand-driven research, BUAN/FNR will benefit relevant stakeholders in Botswana through the generation of knowledge and appropriate technologies that will be instrumental in promoting the sustainable management, utilization and conservation of natural resources. At the same time, it will also build its financial, material (laboratory equipment, office facilities) and personnel capacities through funds generated by its engagement in research and different partnerships with domestic, regional and international organizations.

## REFERENCES

BIDPA (Botswana Institute for Development Policy Analysis). 2012. A Study of the Contribution of Sustainable Natural Resource Management to Economic Growth, Poverty Eradication and Achievement of NDP 10 Goals. Discussion Paper. BIDPA in association with GY Associates Ltd, UK.

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**FACULTY OF  
RESEARCH AND  
GRADUATE STUDIES**



## FACULTY OF RESEARCH AND GRADUATE STUDIES

Welcome to the Faculty of Research and Graduate Studies at BUAN. This Faculty works with staff and students across the whole University to promote vibrancy in innovative research and knowledge transfer.

### RESEARCH STRATEGY

BUAN is a new University which has operated as a faculty of the University of Botswana for about 15 years. It has five academic faculties that offer a wide range of academic and a few professional programmes. Although the number of graduate students is low, it is continually growing. One of BUAN's strategic goal is to build a strong research capability and in order to realise its vision of becoming a vibrant world-class university, it must achieve that strategic goal by undertaking high quality research. The research vision of the University is "To achieve national and international distinction in research excellence and innovation in agriculture and natural resources for societal impact". The University has identified the following themes :- Food and Nutrition Security and Safety Climate change and environment Natural resources management Indigenous knowledge systems and innovation Higher education in agriculture and extension.

### ONGOING RESEARCH

RESEARCH	PRINCIPAL INVESTIGATOR
Grass harvesting and conservation	Mrs M Monkhei
Anaplasma marginale infection among cattle in the South East District of Botswana: Prevalence and molecular characteristics	Dr Ramabu
Livestock Herding Dogs (Canis familiaris) as a technique for mitigating Human Carnivore Conflict in the Kweneng District of Botswana, Application & Ecology	Mr G Neo-Mahupeleng
Effects of malted grains of different sorghum	Dr M Mareko
Pathways for the restoration of the degraded Kazuma Forest	Professor DT Fanta
Livelihood diversifying potential of camel based food security and climate-smart sustainable development in Botswana	Dr E Seifu
Challenges of the data revolution	Ms P Ntokwane
Survey of indigenous foods of Botswana with potential for the development of functional foods	Professor Bultosa
Phenotypic and genotypic characterisation of the Tswana pig	Dr Thutwa
Evaluation of the bacteriological status of beef carcasses in the non-export approved slaughter facilities in the Southern Eastern districts of Botswana	Dr K Sehularo

### RECENT RESEARCH

RESEARCH	PRINCIPAL INVESTIGATOR
Phenotypic and genetic characterization of various strains of indigenous Tswana chickens under an intensive management system	Professor P Kgwatalala
Energy recovery and utilization from piggery waste using biogas technology	Professor EM Chimbombi
Precipitation Scavenging Studies of Atmospheric Pollutants: A Relation between Metrological Conditions and Washout Coefficients of Trace Elements and Radioactive Aerosols	Professor AS Likuku
Thermal profiling and computer modeling to improve poultry housing environment in Botswana: a case for large broiler housing systems	Professor HJ Chepete
Evaluation and development of management strategies against major pests and diseases of Brassica ssp	Professor DC Munthali/ Dr AT Segwagwe

## GRADUATE PROGRAMMES

Currently the University offers the following programmes:- MSc Crop Science with specialisations in Soil Science, Horticulture, Agronomy and Crop Protection;

MPhil/PhD in Crop Science with specialisations in Soil Science, Horticulture, Agronomy, Crop Protection and Agroforestry.

These programmes are offered from the Department of Crop and Soil Sciences (CSS) in the Faculty of Agriculture (FOA).

MSc Agricultural Engineering with specialisations in Agricultural Mechanisation, Land Use Planning and Soil and Water Engineering.

These are offered by the Department of Agricultural Bio-Systems Engineering (ABE) in the Faculty of Agriculture (FOA) MSc in Animal Science with specialisations in Animal Nutrition, and Animal Breeding and Reproduction and Animal Management Systems; MPhil/PhD in Animal.

Science with specialisations in Animal Nutrition, Animal Health, Animal Breeding and Reproduction and Animal Management Systems. These programmes are offered in the Department of Animal Science and Production in the Faculty of Animal and Veterinary Sciences (FAVS).

MSc in Agricultural Education is offered by the Department of Agricultural Education and Extension in the Faculty of Agribusiness, Education and Extension.



# FACULTY OF SCIENCES



## FACULTY OF SCIENCES

### TEACHING AND PROGRAMME OFFERINGS

The Faculty of Sciences (FoS) is one of the recently established faculties in Botswana University of Agriculture and Natural Resources (BUAN). The mandate of the Faculty is to advance the BUAN's mission of 'producing market-ready graduates for the agriculture and natural resources sectors' by developing and teaching relevant science based academic courses as well as laying a solid foundation of sciences for all the University's science based academic programmes. Structurally the Faculty has three (3) departments namely Biological Sciences (BS), Biometry and Mathematics (BM) and Physical and Chemical Sciences (PCS). Once Botswana Qualifications Authority (BQA) completes the registration and accreditation processes of the qualifications, the Faculty will offer Bachelor of Science degrees in Biodiversity (BScBD) with Conservation, Ecology and Taxonomy as streams, Bachelor of Science in Biometry (BScBMe) and Bachelor of Science in Biomathematics (BScBMa). The latter two qualifications provide the critical support in the development of research, innovation and technology and, advance the science, technology, engineering and mathematics (STEM) goals. The former qualification, BSc Biodiversity, deals with the diversity of living organisms, their origin and evolution and their conservation which is crucial to the sustainable development of our society and a sound management of land and the environment. Qualifications in biometry and biomathematics would enable the holders to find employment as data analysts, teachers or lecturers, researchers and consultants either employed or setting up their own companies. For some students, a bachelor's degree in any of these two qualifications can also lead to further academic study such as an MSc or a PhD.

A qualification in biodiversity would enable the holder to find employment as biodiversity officers in government, parastatal and private organizations, tourism industry, researchers, lecturers, herbarium and botanical gardens as curators and taxonomists, ecologists and conservationists, operate their own businesses as tour guides and consultants.

FoS also teaches Biology, Chemistry, Mathematics, Physics and Computer Skills Fundamentals to all BUAN first year students as well as other science courses in the upper years. Other new qualifications at all levels such as Certificate, Diploma, BSc, MSc and PhD are also being considered for development.

### STAFFING

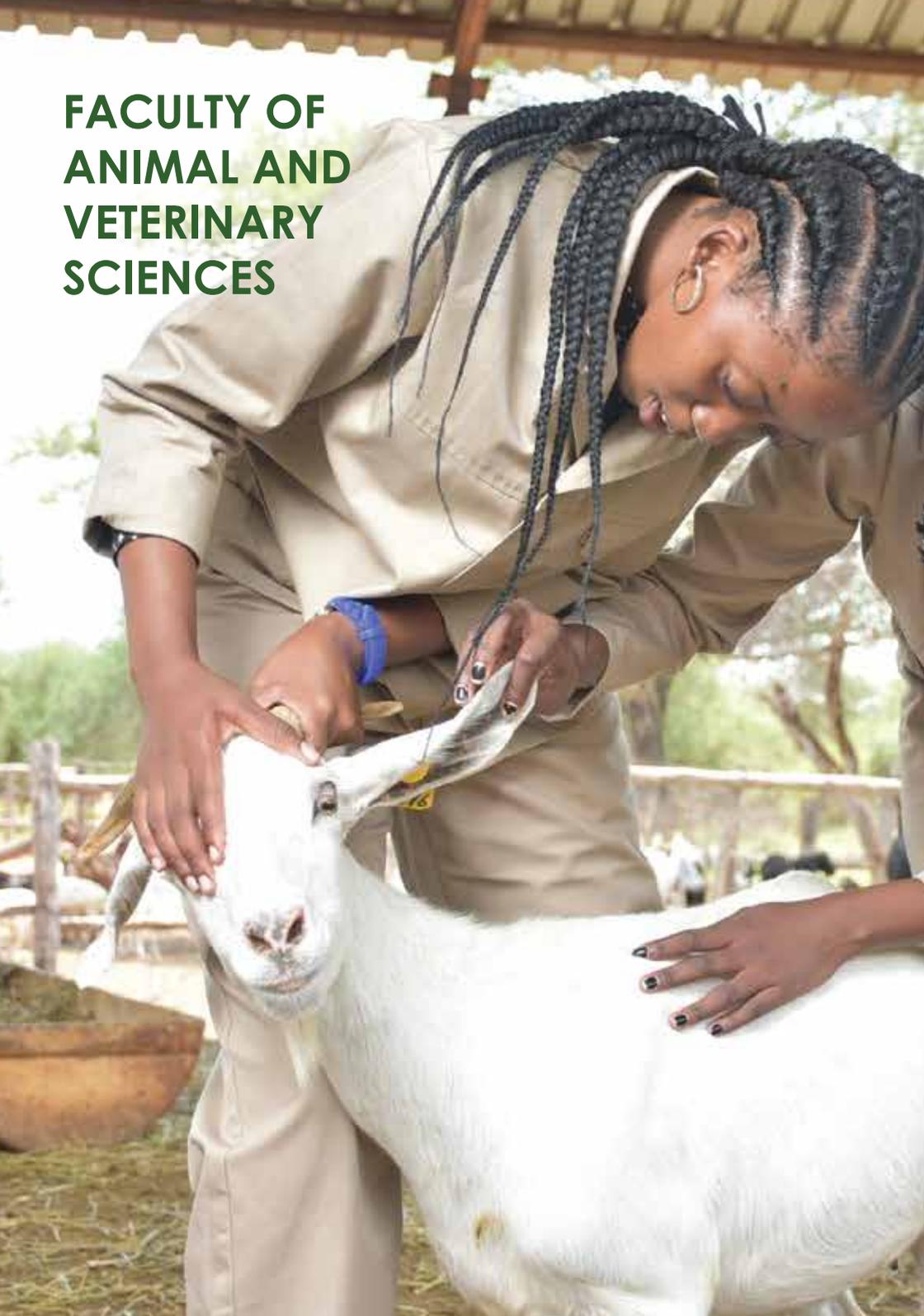
To contribute to producing market ready graduates relevant to the agriculture and natural resources sectors, the Faculty has well experienced qualified academic staff (12 PhD and 11 MSc holders) some of whom use the latest methods of teaching such as e-learning. The academic staff is supported by qualified and experienced technical staff holding B.Tec, MPhil and MSc qualifications. The faculty staff complement has some international flavor with some originating from different countries and others having been trained at recognized regional and international universities.

### RESEARCH

Staff is also engaged in research either on their own, in collaboration with others within the BUAN or others internationally. The research skills are imparted to students through engaging them and supervising of final year research projects. Some of the thematic areas where staff have conducted research are heavy metals, epidemiology, climate change, vegetation types and medicinal plants. Community Service Faculty members are also engaged in providing service to the community through different activities some of which are:

- Remedial Teaching in Senior Secondary Schools
- Judging at Secondary School Mathematics and Sciences Fairs and
- Involvement in international events such as International Junior Science Olympiad.

**FACULTY OF  
ANIMAL AND  
VETERINARY  
SCIENCES**



## FACULTY OF ANIMAL AND VETERINARY SCIENCES

This Faculty consists of three academic departments namely:

- Department of Animal Science and Production (ASP)
- Department of Veterinary Sciences (VS) and
- Meat Industry Training Institute (MITI)

These Departments offer learning programmes leading to qualifications at Certificate, Diploma, Bachelor of Science (BSc), Master of Science (MSc) and Doctor of Philosophy (PhD) levels. In addition, the Departments offer short courses of one to two weeks duration in areas of Livestock Production and Management, Animal Health, Meat Processing and Hygiene. The MITI Department is situated at Lobatse a town that houses the Botswana Meat Commission (BMC) export abattoir.

### LEARNING PROGRAMMES AND SHORT COURSES

The following are the learning programmes offered by the Faculty:

#### **Certificate in Meat Inspection**

This programme is of six months duration on full-time basis. Learners are currently admitted with a prior qualification in either Animal Health or Animal Science or their equivalents. Plans are in place to upgrade this Certificate to a Diploma level in order to admit school leavers in to the programme. Learners are given theoretical knowledge and practical skills in meat inspection by attaching them for hands-on experience at the BMC slaughter plant during the training programme. The programme has in the past attracted international students from Africa and Europe. Job opportunities for graduates mainly exist in the public service as Meat Inspectors.

#### **Higher Diploma in Animal Health and Production**

This programme prepares students to work in the animal health and production service and industry. The programme emphasises hands-on experience and skills acquisition. The programme is three (3) years of science and subject matter training. Career opportunities include working in government departments as extension officers or research technicians as well as in ranches and farms in the private sector.

#### **BSc in Animal Science**

This programme imparts the science and practice of animal agriculture. It is a four-year programme that covers Basic Sciences and other foundation courses as well as courses in ruminant and non-ruminant Animal Nutrition and Feeding, Breeding and Reproduction, Fodder and Pasture Livestock Production and Animal Health. The programme prepares students for the world of production and husbandry of livestock and the understanding of the science behind it. Graduates have opportunities to work in government, private sector or become self-employed in the animal agriculture space.

#### **MSc Animal Science**

The Master of Science programme is a higher degree by course work and thesis and imparts in-depth skills in animal sciences and involves coaching in analytical and critical thinking for problem solving in the livestock industry. When enrolled, students can specialise in either Animal Nutrition, Animal Breeding and Reproduction or Animal Management Systems. The programme is a two (2) year degree on a full-time basis or four (4) years on part-time basis. After graduating, students could work in academia, research, government agricultural extension service, as well as in the private sector.

### **PhD Animal Science**

This programme is offered as MPhil/PhD with qualifying candidates recommended to proceed to PhD after six (6) months of academic work. The programme takes three (3) years on full-time or six (6) years on part-time basis and exposes candidates to animal research methods, data analysis and interpretation. The research covers areas of Animal Nutrition, Breeding and Reproduction, Management Systems, Animal Health, Forage and Fodder and their interaction with issues of environmental and climate change. Graduates find work in academia, government and the private sector.

All programmes and short courses offered by the Faculty are open to local and international candidates at appropriate fees.

### **Short Courses:**

In addition, the following short courses of one to two-week duration are approved by the Botswana Qualification Authority (BQA) and in offer at Centre for In-service and Continuing Education (CICE) and MITI.

- Pig Production
- Sustainable Dry Season Livestock Feeding
- How to Establish a Dairy Unit
- Sheep and Goat Production
- Indigenous Chicken and Guinea Fowl Production
- Beef Cattle Production
- Broiler Chicken Production
- Fish Farming and Management
- Layer Chicken Production
- Rabbit Production and Management
- Fodder Production
- Dairy Goat Production
- Livestock Health
- Abattoir and Slaughter House Management
- Meat Processing and Hygiene

### **TEACHING AND RESEARCH FACILITIES**

The Faculty houses modern lecture halls and laboratories for research in Animal Nutrition and Animal Health. Some laboratories are designed for teaching only such as the Pathology, Anatomy, Parasitology and the Animal Health Clinic which in addition, offers ambulatory services to nearby farms within a radius of 50 km from the main campus in Sebele. The University Farm has facilities for beef cattle, dairy cattle and goats, small ruminants, pigs, poultry including ostriches as well as for fodder production under rain-fed and irrigation.

## CENTRE FOR IN-SERVICE AND CONTINUING EDUCATION

The Centre for In-Service and Continuing Education (CICE) is the outreach arm of the Botswana University of Agriculture and Natural Resources (BUAN). It extends BUAN's mandate through provision of quality in-service and continuing education in agriculture and natural resources. The CICE among others, designs, develops and delivers training on Botswana Qualifications Authority (BQA) accredited courses that are market driven. The mandate of the Centre is to;

- Promote, coordinate and deliver short-term courses in Agriculture and related fields.
- Produce, develop, publish and disseminate training, extension, information and other materials.
- Promote and conduct pilot studies, projects and workshops.
- Promote linkages between agricultural research, extension services and training.

### **In-Service and Continuing Education**

The Centre offers 46 BQA accredited short courses, the majority of which take 5 days to complete. The course participants are awarded certificates of attendance upon completion of the courses. The mode delivery for the courses includes lectures, but mostly practical work, demonstration, discussions and excursions with a 30:70 Theory to Practical proportions.

The CICE is supported by a team of highly qualified, experienced and dedicated staff of Botswana University of Agricultural and Natural Resources (BUAN) academic staff to teach the courses. Other expertise can be sourced locally from the Ministry of Agriculture Development and Food Security, other ministries, parastatals, private organizations and international organizations, as and when necessary.

### **Facilities**

The Centre has 24 lodging rooms that can accommodate 48 people sharing which are available to course participants. The Centre also has 2 seminar rooms, a boardroom and an auditorium with a capacity of 35, 25, 40 and 140 participants in one seating respectively available to individuals and organizations at a cost. The facilities have open Wi-Fi access, audio visual equipment and secured parking.

### **Agripreneur Programme**

The CICE coordinates the University's incubation programme, Agripreneur. It is a 12-month incubation programme geared towards providing both the technical and business skills for BUAN graduates. It is funded by the University and coordinated in conjunction with the Local Enterprise Authority (LEA), a parastatal organization of the Ministry of Finance and Development Planning to equip BUAN graduates with entrepreneurial skills to make them better prepared for employment by the private sector or self-employment.



## STUDENT WELFARE

This is a unit under the Department of Academic and Student Services. The unit is responsible for student's wellbeing and it promotes student life in the University to ensure that students are successful in their studies. The Unit recognizes all phases of the student's life, which include social, physical, mental and spiritual being. The emphasis is to provide quality and necessary services that promote student life and increase chances of student's retention, student's academic achievement and eventually employability.

### Accommodation

The University has designated secure and conducive student accommodation. The University has twelve blocks with 500 bed spaces each year for registered BUAN students. We are happy to say that the University has constructed new 100 bed spaces. Priority for allocating accommodation is given to new students, international students, orphans and vulnerable students and students with disabilities. All accommodated students have the responsibility to make use of the accommodation facilities efficiently and with the most care. The University have accommodation rules and regulations that guide all students staying on hostels. The University has designed living and learning communities programs that are meant to promote student life at the hostels.

### Counselling Support

Psychosocial support is provided to all BUAN students. This is provided in the form of individual counselling, group counselling or block counselling depending on the needs of students. Any student who want to access counselling can either appoint through email or phone call or can come as a drop in. It is important to note that counselling is a platform to express emotions and feelings in a conducive and non-judgemental environment.

It is a platform to learn necessary coping mechanisms and problem solving skills. The office also developed a peer counselling program carried out by volunteering students. The role of the program is for peer counsellors to identify psychosocial and other emotional related issues affecting their peers and refer to Student Welfare for further interventions.

### Disability Support

The University admits any student who meets the admission criteria and does not discriminate any students with disabilities. The Students Welfare Office supports students with a wide range of disabilities and medical conditions. In order to provide necessary support efficiently students with disabilities are encouraged to register with Student Welfare office immediately after academic registration therefore giving the office sufficient time to put the right support in place. The list is then consolidated and shared with other relevant stakeholders such as Academic Department for relevant support in the teaching areas. The office also liaises with all sponsors, social workers, and families for support needed by students during their stay at the University.

### International Students Support

Being an international student can be both exciting and overwhelming experience, students are expected to adjust to new environment, new people and new languages. Orientation and support services is provided to international students. This include information about visa, accommodation check in and who to contact once they arrive. Other services include seminars on cultural shock, campus and town tours.

### Student Representative Council

The BUAN Student Representative Council (SRC) is elected by BUAN registered students annually. The main aim of the SRC is to reassure academic excellence and endorse equality of opportunity through operative, accountable and transparent student leadership. The Council 's determination is for inclusive improvement and development of the BUAN student community.

The SRC respect the values of the University and uphold each and every right of all the students of Botswana University of Agriculture and Natural Resources. The Council is made up of 14 members which comprise of the President, Vice President, Secretary General, Administrative Secretary, Minister of Finance, Minister of Student Affairs, Minister of Academics, Minister of Information, Minister of Academics, Minister of Justice, Minister of Sports, Minister of Health, Minister of Entertainment and the Minister of Bar & Canteen. All the members have different roles that are in line with their portfolios and also guided by the SRC constitution. The SRC is legible of hosting student based, educational and social activities which are mostly delegated to and spearheaded by Clubs recognized by the SRC and the University. The SRC so far has been hosting the annual Freshers welcome event and the Mr & Miss BUAN pageant, students clubs and societies. The University has several clubs that form part of student life. The following are existing clubs led by students:



#### **BUAN Environmental Conservation Society**

BUAN Environmental Conservation Society is a non-profit making society of the Botswana University of Agriculture and Natural Resources. It is a volunteerism club Its membership include lecturers, instructors and students from all faculties and programmes. The club works hand in hand with Kalahari Conservation Society, Cheetah Conservation Botswana, Raptures Botswana, Snake Captures and Birdlife Botswana to name a few around the country in order to raise public awareness on issues of conservation of the environment.

#### **Animal Science Club**

The Animal Science club contribute to the development and growth of the livestock industry to mitigate against unemployment of animal scientists. This is a club that helps students to explore new avenues and come up with solutions posed to animal agriculture.

#### **BUAN Agricultural Economics**

The BUAN Agricultural Economics Club is actively in pursuit of advertising Agricultural Economics as a program of study in relevant industries. It is aimed at cultivating enthusiasm of its members by creating a link between University and Industry through engaging in various activities such as economic discussions, debates, alumni talks, networking opportunities, fundraising activities and voluntarism.

#### **BUAN Christian Fellowship**

BUAN Christian fellowship is a Bible-based, Christ-centered and interdenominational club. Its mandate is to build character and personality of BUAN students through the preaching and teaching of the word of God thereby making them well-mannered, governable and credible students, uniting different Christian denominations and reaching out to the community through giving to the needy and teaching the word of God.

#### **The BUAN ZCC Student Fellowship**

The club is guided by the principle of Christianity as an operation principle. The club is committed to unite students through maintaining an upholding Christianity principle within the institution. The club contributes meaningfully to the social development and transformation of disadvantaged communities and related vulnerable sectors of the society.

#### **BUAN Choir**

The BUAN choir is student based choir aimed at nurturing choral music talents amongst BUAN students. The choir has been participating in both University and outside university events. In 2019 the BUAN choir managed to get position two at the Association of Botswana Schools Performing Arts (ABOSPA) competitions and position one in section C at the Botswana Choral Music Association (BOCMA) competitions.

#### **Engineers Portal Club**

Engineer's Portal Club is an agricultural engineering students based club aimed at bridging the gap between the engineering students, graduates and the existing business entities. The club focuses on taking students to existing business entities in Botswana as well as organising seminars and workshops in order to equip members with the how-to-do skills and knowledge to give them ideas on which business they may start when they graduate.

#### **BUAN Youth Entrepreneurship Network**

BUAN Youth Entrepreneurship Network was founded in 2017 to offer a platform for aspiring entrepreneurs mostly BUAN students with an opportunity to learn more about the business world while still at the University. The club encourages its members to venture into Agribusinesses, the reason being that BUAN is an Agricultural and Natural Resources institution, and members are to have learnt what agriculture can do for the economy and apply it. The aim of this club is becoming the country's leading entrepreneurship network by producing young motivated entrepreneurs.

#### **BUAN Marketing Agency**

BMA is an agency with a mandate to market and promote BUAN as university of choice, a 21st century education facilitator and groundbreaking research hub in Botswana and Africa as a whole. It also focuses on promoting services offered by institution and its affiliates.

#### **Student Against HIV& AIDS**

Students Against HIV & AIDS (SAHA) is a youth club leading in health and wellness through research networking and education. The club's main aims at establishing good working relationships with already existing HIV/AIDS concerned committees to make one whole plight to fight against the scourge.

## ENTRY REQUIREMENTS

### Admissions into Bsc & Higher Diploma

General Certificate of Secondary Education (GCSE) or Equivalent:

Have taken at least five (5) subjects including English language and Mathematics at the BGSC or GSCE examination or their equivalent and obtained:

A minimum of grade E in English Language  
 A minimum of grade C (credit) in Mathematics

Have a minimum of grade C (credit) in atleast two of:

Physics, Chemistry & Biology

Or

A minimum of grade BB in Science Double Award  
 Have a minimum of grade D (pass) in any other subject

### Special Dispensation for OVC Applicants

Application fee is not charged. Applicant must be supported by an official letter from the Social Community Development office.

### Admissions into the Masters Degree Programmes

Applicants must have a minimum qualification in Bsc Agriculture, Crop Science, Animal Science/ any veterinary qualification, Agricultural Engineering, or Agricultural Education, or related.

### Admission into the Master of Philosophy Degree Programme

Applicants must have obtained an appropriate single major or Honours degree with a First or Upper Second Class (overall A or B average GPA of 3.5 on a 5 point scale) from a recognized University or equivalent Institution of Higher Education or a Masters Degree

Applicants who do not have Masters Degree shall normally be admitted into MPhil programme and transfer to Phd after two semesters.

Applicants with previous research experience may be admitted directly into the Phd.

Applicants who have obtained an appropriate combined major degree with a First or Second Class (overall A or B average) may be considered provided that, at least, an Upper Second Class performance (B average) is achieved in the intended field of study.

Applicants who have obtained other qualifications and have relevant experience may be considered but may be required to pass a qualifying examination.

Applicants must include a preliminary research proposal

### Admissions into the Doctor of Philosophy Degree Programme

Applicants who have obtained an appropriate Masters Degree (Msc, MPhil or equivalent) are eligible to apply.

Applicants who do not have Masters Degree shall normally be admitted into MPhil programme and transfer to Phd after two semesters.

Applicants with previous research experience may be admitted directly into the Phd.

# BOTSWANA UNIVERSITY OF AGRICULTURE AND NATURAL RESOURCES

## FEE STRUCTURE

- Please note that the tuition fee at Botswana University Of Agriculture And Natural Resoures is determined by the number of credits that one enrolls for. The annual tuition fees below are therefore estimates only based on minimum load of 30 credits for undergraduates and 24 credits for post graduate students.

PROGRAMMES	FEES 2019/2020	
	ANNUAL FEE ESTIMATE	FEE FOR ONE CREDIT
<b>Undergraduate Programmes Certificates</b>		
Science & Engineering		
Resident Students	37 200	1 240
Non-Resident Students	74 700	2 490
Other Faculties		
Resident Students	28 200	940
Non-Resident Students	56 100	1 870
<b>Diplomas</b>		
Science & Engineering		
Resident Students	37 200	1 240
Non-Resident Students	74 700	2 490
Other Faculties		
Resident Students	28 200	940
Non-Resident Students	56 400	1 880
<b>Bachelors</b>		
Science & Engineering		
Resident Students	37 200	1 240
Non-Resident Students	74 700	2 490
School of Medicine		
Resident Students	41 400	1 380
Non-Resident Students	82 500	2 750
Other Faculties		
Resident Students	28 200	940
Non-Resident Students	56 100	1 870
<b>Postgraduate Programmes</b>		
<b>Postgraduate Diplomas</b>		
Resident Students	30 300	1 010
Non-Resident Students	45 600	1 520

Continued...

<b>Masters Programmes</b>		
Science & Engineering		
Resident Students	33 120	1 380
Non-Resident Students	49 680	2 070
<b>MBA</b>		
Resident Students	37 920	1 580
Science & Engineering		
Resident Students	41 711	1 590
Non-Resident Students	41 432	1 588
	41 154	
Other Faculties	40 876	1 582
Resident Students	40 597	1 580
Non-Resident Students	40 319	1 577
<b>Diplomas</b>		
Science & Engineering	39 484	1 569
Resident Students	39 205	1 567
Non-Resident Students	38 927	1 564
Other Faculties	38 649	1 561
Resident Students	38 370	1 559
Non-Resident Students	38 092	1 556
<b>Bachelors</b>		
Science & Engineering	37 257	37 1 551
Resident Students	36 978	1 548
Non-Resident Students	36 700	1 545
School of Medicine	36 143	1 538
Resident Students	35 865	1 535
Non-Resident Students	35 587	1 532
	35 308	1 530
Other Faculties	35 030	1 527

PROGRAMMES	FEEES 2019/2020
<b>PART-TIME PROGRAMME</b>	
Diplomas( DABS) (Excluding cost of book )	4 040
International students fee(Undergraduate /Post-graduate)	
Administration Fee	
Students from Africa	4 480
Students from other Continents	6 610
Group Study Abroad	
Students from Africa	1 130
Students from other Continents	1 780
Groyg Study Abroad (Special Service)=20% of the cost of activity	
<b>Other Fees</b>	
Supplimentary Fee per Subject	240
Graduation fee	220
Application Fee	
Resident Students	350
Non-Resident Students	690
Late Application Fee	
Resident Students	520
Non-Resident Students	1 030
Student Life Fee	130
Late Registration Fee/Day (Returning Students) (maximum 14 days)	210
Late Registration Fee/Day (New Students) (maximum 14 days)	120
Transcript Fee	50
Identity Card Fee	70

<b>Accommodation Fee</b>		
Under Graduate Full Time Student/ Annum		7 740
Under Graduate Hostel Fee during Holidays/Day		40
Under Graduate Hostels For Non-Students During Holidays/Day		260
Graduate Hostels/Annum		13 080
Graduate Hostels/Annum(Including Holidays)		18 720
Graduate Hostels Fee during Holidays/Day		120
Graduate Hostels For Non-Students During Holidays/Day		580
Laundry Fee/Annum		830
<b>Excursion Fee Course</b>		1000

# BUAN

BOTSWANA UNIVERSITY OF  
AGRICULTURE AND NATURAL RESOURCES

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