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Contact Information

The Department of Animal Science is located at the Duke Town (Main Campus) wing of the University of Calabar, close to Chinua Achebe Arts Theatre (New Arts Theatre, NAT) building.

Contact Address

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Surface Mail

The Head

Department of Animal Science

Faculty of Agriculture, Forestry and Wildlife Resources Management

University of Calabar

P.M.B. 1115

Calabar

Cross River State

Nigeria

540004

Alternatively

C/O The Dean

Faculty of Agriculture, Forestry and Wildlife Resources Management

University of Calabar

P.M.B. 1115 [UPO]

Calabar

Cross River State

Nigeria

540004

C/O The Information Officer

University of Calabar

P.M.B. 1115

Calabar

Cross River State

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Websites

University of Calabar: www.unical.edu.ng

Students' Portal: <http://unical.nucdb.edu.ng/portal>

Transcript Portal: <http://alumni.unical.edu.ng>

THE UNIVERSITY OF CALABAR SONG

1. Neath the broad expanse of Nigeria's sky
Stands a school with a vision bright
Ever holding the banner of knowledge high,
We'll go forward by wisdom's might

Chorus:

- All hail to thee, Alma Master
We have come from near and far
To unite in Calabar
We'll work to build our Alma Master
University of Calabar
2. May our quest for knowledge in every field,
Have its purpose to serve mankind;
With the fervent hope that our efforts yield
Fruit for all who will come behind
 3. Might God, from whom all knowledge comes
Let the wisdom us overflow;
May the knowledge gained in our campus here
Guide our step as we onward go

**DEPARTMENT OF ANIMAL SCIENCE
UNIVERSITY OF CALABAR
CALABAR – NIGERIA**

Preamble

The Department of Animal Science was created from the then single unit of Agriculture in January, 1986. From the initial first degree (B. Agric.) programme, it has grown in infrastructure, number of students and staff population. It now offers Post Graduate Diploma (PGD), Masters of Science\Doctor of Philosophy (M.Sc/Ph.D.) and Ph.D. programmes.

The Department is devoted to producing first degree and graduate students with an environment and opportunity to expand their knowledge and to develop their creative and scholarly abilities.

The Animal Science programmes are interdisciplinary and flexible to allow students focus their efforts in particular research areas, such as breeding, genetics, nutrition, production and physiology. We also explore a diversity of both basic and applied scientific approaches in a variety of animal species that are especially relevant to the tropics.

The goal of the Department's pre- and post- graduate programmes is to assist young scientists develop abilities to assess and conduct valid scientific research that will facilitate the improvement of animal management and welfare in the tropics.

Dr. Affiong J. Henry
Acting Head Department
(Associate Professor of Animal Breeding & Genetics)

Our Vision and Mission

We, at the Department of Animal Science, University of Calabar; are driven and guided by the following:

Vision

Leadership through excellence in animal research, production and management.

Mission

The Department of Animal Science reaffirms its mandate to utilize and direct the expertise of staff in addressing local, regional and international issues in scientific animal production.

Provides leadership, facilitates and encourage animal science education and promotes the norms, values, standards and ethics of science and the exchange of scientific information for the betterment of the human condition.

Strives to be a centre of excellence in teaching, research and community service in animal production and management.

Our Long-Term Goals

To fulfill our mission, the Department has established a set of long-term goals with prudence in the management of its resources to ensure maximum value of funds received as follows:

- ✓ Provide leadership as a world class educational, training and scientific research unit that objectively address issues involving animal production and management in the tropics.
- ✓ Facilitate the advancement of research using its facilities to promote best-practice scientific discussions.
- ✓ Boost animal production through sharing of research findings with industries as a contribution to sustainable development, wealth creation and improvement in the quality of life in our community and the country.
- ✓ Foster communication among academics, the scientific community, indigenous small and large animal production enterprises and the rural farmers in developing countries of the tropics.
- ✓ Develop networks with global perspective as a contribution to the enhancement of animal science education.
- ✓ Institute and maintain a mentoring regime to enhance career development of young scientists and public awareness of Animal Science as a discipline.
- ✓ Cultivate and sustain a robust alumni network-base that guarantees future support for the growth and advancement of the ideals of the Department.

Immediate Objectives

In line with our vision and mission statements as well as the ever-changing challenges in the profession, the Department of Animal Science, University of Calabar shall pursue the following objectives;

- ✓ Recognize and emphasize the contributions of our triune delivery of teaching, research and community service.
- ✓ Promote and sustain peer review regimes for professional excellence.
- ✓ Create a collegial atmosphere for personal well-being and capacity development of the faculty, staff and students.
- ✓ Create innovative and focused programmes to explore and optimize the synergies in our teaching, research and extension efforts.
- ✓ Cultivate the spirit of responsibility and transparency as it relates to our stakeholders.
- ✓ Develop and maintain ethical standards of the profession and enforce same in students' conduct.

Core Values

The core values we instill in our students are:

- ✓ Integrity
- ✓ Hard Work
- ✓ Creativity
- ✓ Resourcefulness

The Need to Study @ Department of Animal Science, University of Calabar

The Department of Animal Science offers students the opportunity to apply the principles of animal biology, molecular biology and other life sciences to improve on the reproductive and production performances of a variety of animal species. The students are trained to apply these principles to farm, pets and laboratory animals through our frequently updated curriculum. The Department is one of the most comprehensive "hands-on, learn-by-doing" programs in Nigeria, as students work with animals of several species on a regular basis. Extensive facilities provide the opportunity for students to learn the skills of success in managing small or large commercial animal production facilities which include artificial insemination, embryo transfer and animal biotechnology as well as feed technology.

Our vast curricula avail the students' option of the application of science and technology to limitless career opportunities. In this technology age, students are equipped to successfully integrate into the rapid changes in science and technology as well as the economic and cultural trends. The main focus of the programmes in Animal Science, Unical is to preserve excellence in our students, so as to take up leadership positions in Livestock and other related industries and to advance higher independent research.

Available Programmes

The Department offers the following programmes;

- ✓ Bachelor of Agric. in Animal Science – B. Agric. (Animal Science).
- ✓ Post Graduate Diploma in Animal Science – PGD (Animal Science) (Commenced in the 2009/2010 academic session).
- ✓ Master of Science (Animal Science)
- ✓ Master of Science/Doctor of Philosophy (M.Sc./Ph.D) (Animal Science) (Emphasis in several fields).
- ✓ Doctor of Philosophy in Animal Science – Ph. D. (Animal Science) (Emphasis in several fields).

Our Strength and Esteem

Quality of Students' Research

The Department of Animal Science, University of Calabar has been commended severally for the quality and coverage of its students' research output by various external examiners.

The reports specifically noted the remarkable improvement in the trend and emerging areas of animal research in keeping with its vision.

Hosting of Conferences

1. The Department of Animal Science, hosted the 26th and 32nd Annual Conferences of the Nigerian Society for Animal Production (NSAP) in March 20 – 25, 1988 and March 18 – 21, 2007 respectively. The 32nd edition of NSAP Conference held in 2007 was adjudged the best in respect to the quality of the proceedings, adherence to the programme time, publicity and attendance in the history of the Society.

The National President Prof. J. A. Agunbiade specially commended the LOC chaired by the then H.O.D., Prof. L. N. Agwunobi, NSAP – Calabar 2007 for the enormous efforts, sacrifices and dedication to service.

The NSAP Young Scientists Award

A student of the Department (Mr. Owoyemi, Dele John) won the 2007 Young Scientist Award of the Nigerian Society for Animal Production (NSAP). The NSAP Young Scientist Award was instituted to encourage academic excellence and is presented to the student with the highest **CGPA** in Animal Science at the penultimate year of the undergraduate programme.

He was commended for his steadfastness and drive to excel and advised not to relent.

2. The Department in conjunction with the Department of Anatomy successfully hosted the 3rd International Workshop/Conference on Animal use in Research, Education and Teaching (ACURET) between 5th – 7th May, 2016.
3. The Department also successfully hosted the 5th International Conference/Workshop on Giant African Land Snails anchored by the Research Network on Giant African Land Snails (NetGALS) between 5th – 9th June, 2016.

First Department in the Country to produce two Vice Chancellors simultaneously

The University of Calabar, Animal Science Department has become the first in the annals of Nigerian Universities to have its two academic staff appointed and sworn in as Vice Chancellors to different Universities on the same day.

The distinguished and respected personalities with humane disposition to academics and service are:

Prof. B. O. Asuquo – Vice Chancellor, University of Calabar

Prof. A. I. Essien – Vice Chancellor, University of Uyo

The gentlemen pursued their assignments with vigour for excellence as ambassadors of the Department and we will remain proud of them.

Maiden Induction and AGM of Nigerian Institute of Animal Science

It was an honour and privilege for our Department to host the maiden Induction ceremony and Annual General Meeting of the Nigerian Institute of Animal Science (NIAS). The events took place on the 28th – 29th July 2009 at the Conference Centre of the Unical Hotel. The officials of NIAS commended the University of Calabar on the huge success of the ceremonies and as one of the foremost Departments of Animal Science in the Country.

Scholarship and Awards

Staff of the Department of Animal Science, Unical have won several grants and scholarships both locally and internationally. These have enhanced the capacity building initiative of the University administration to improved teaching and learning.

Community and Extension Services

In its bid to create impact and improve the overall well-being of the society, the Department of Animal Science, Unical has embarked on several community training and services of smallholder farmers and non- professionals interested in animal husbandry. The Department signed a Memorandum of Understanding (MoU) with the Federal Government of Nigeria in the Amnesty programme to train youths on animal production and management techniques. Similarly, we have trained over 70 candidates from the Entrepreneurship Development Centre (EDC), Calabar on industrial attachment to our Teaching and Research Farm since 2012 and trained more than 50 trainees from Cross River State, sponsored by the Canadian based NGO – CUSO international from 2015 – date. The Teaching and Research farm of the Department has also offered practical training on animal agriculture to several students from other Universities in Nigeria on industrial attachment (SIWES).

Re-branding of the Department

In line with the vision of our institute, the Nigerian Institute of Animal Science (NIAS), the Department is poised to making the course Animal Science a choice course of study. We embarked on public awareness campaign to educate the public especially, parents as well as intending students on the importance and benefits of studying Animal Science. We showcased scholars from the profession and expanse beyond the animal farm. Our current infrastructural facilities are becoming world class standard with the development of our Departmental logo. This we believe would encourage and improve the perception of our humble profession.

Available Research Facilities

Apart from the highly dedicated and qualified academics who offer a wide range of expertise and service, the Department (our students, personnel and researchers) has many facilities at it disposal for teaching, training and research, including the following;

- ✓ A 20,000 bird capacity Poultry farm.
- ✓ A complete 10,000 eggs capacity hatchery.
- ✓ A complete 2, 000 tons capacity feed mill.
- ✓ A well-stocked Rabbitry.
- ✓ A well-stocked Ruminant unit.

- ✓ An equipped and functional laboratory.
- ✓ A (faculty) library stocked with relevant specialized materials.
- ✓ A good complement of classrooms, office and presentation/demonstration facilities.
- ✓ Over 5 hectares of grazing and pasture land available within the University.

Other Ancillary Facilities

- ✓ Access to a functional meteorological sub-station (Department of Geography, Unical).
- ✓ A 10 hectare Palm plantation (Department of Crop Science Department, Unical).
- ✓ A 3 hectare demonstration/practical cassava farm (Department of Crop Science, Unical).
- ✓ Excellent Computer facilities and Resource room with internet access.

DEANS OF FACULTY OF AGRICULTURE, FORESTRY & WRM, AND YEARS OF SERVICE

S/N	NAME	YEARS SERVICE/APPOINTMENT
1.	Prof. S. W. Williams	1981 – 1983
2.	Prof. Ambika Singh	1983 – 1987
3.	Prof. J.E. Umoh	1987 – 1992
4.	Prof. E. J. Udo	1992 – 1993
5.	Prof. I. E. Esu	1995 – 1998
6.	Prof. A. I. Essien	1993 – 1994 & 1998 – 2002
7.	Prof. B. O. Asuquo	2002 – 2004
8.	Prof. B. F. D. Oko	2004 – 2006
9.	Prof. U.C. Amalu	2006 – 2008
10.	Prof. S. O. Abang	2008 – 2010
11.	Prof. M. G. Solomon	2010 – 2012
12.	Prof. E. A. Agiang	2012 – 2014
13.	Prof. H. M. Ndifon	2014 – 2016
14.	Prof. A. U. Ogogo	2016 – 2018
15.	Prof. A. A. Ayuk	2018 - 2021

HEADS OF DEPARTMENT OF ANIMAL SCIENCE AND YEARS OF APPOINTMENT

S/N	NAME	YEARS OF APPOINTMENT
1.	Dr. Bassey O. Asuquo	1987 – 1988
2.	Prof. Jimmy E. Umoh	1988 – 1991
3.	Dr. Bassey O. Asuquo	1991 – 1993
4.	Dr. Akaneren I. Essien	1993 – 1996
5.	Dr. Bassey O. Asuquo	1996 – 1998
6.	Dr. Bassey I. Okon	1998 – 2000
7.	Dr. Emmanuel A. Agiang	2000 – 2002
8.	Dr. Christopher A. Eneji	2002 – 2004
9.	Prof. Leonard N. Agwunobi	2004 – 2007
10.	Dr. Umoren E. Umoren	2007 – 2009
11.	Dr. Martin A. Isika	2009 – 2011
12.	Dr. Ausaji A. Ayuk	2011 – 2013
13.	Dr. Oluwatosin O. Kennedy Oko	2013 – 2015
14.	Dr. Magnus Izah Anya	2015 – 2017
15.	Dr. Lawrence Awugo Ibom	2017 – 2019
16.	Dr. Affiong J. Henry	2019 till date

STAFF AND PERSONNEL
Academic Staff

S/ N	Name	Qualification	Rank	Specialization	Additional Responsibility
1	Dr. Affiong J. Henry	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Associate Professor	Animal Breeding & Genetics	Acting Head of Department
2	Prof. Akaneren I. Essien	B. Sc. (Hons), M. Sc., Ph. D.	Professor	Agricultural Biochemistry & Nutrition	Chairman, Guidance & Counselling Unit
3	Prof. Bassey I. Okon	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Professor	Animal Production	
4	Prof. Bassey Okon	B. Sc. (Hons), M. Sc., Ph. D. (Animal Breeding & Genetics)	Professor	Animal Breeding & Genetics	Chairman, Quality Assurance Committee
5	Prof. Aloysius A. Ayuk	B. Agric. (Anim. Sci.), M.Sc., Ph. D.	Professor	Ruminant Nutrition	
6	Dr. Magnus I. Anya	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Associate Professor	Ruminant Nutrition & Production	Chairman, Disciplinary Committee
7	Dr. Lawrence A. Ibom	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Associate Professor	Animal Breeding & Genetics	
8	Dr. Oluwatosin O. O. Kennedy	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Associate Professor	Animal Physiology	Coordinator, External Linkages
9	Dr. Inemesit A. Akpan	DVM, M. Sc.	Senior Lecturer	Animal Health/ Production	Departmental Yr. 4 Coordinator (Health)
10	Dr. Okokon O. Effiong	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Senior Lecturer	Animal Nutrition & Biochemistry	Coordinator, Post Graduate Programmes
11	Dr. Kelvin U. Anoh	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Senior Lecturer	Animal Physiology	
12	Dr. Ekpenyong E. Nsa	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Senior Lecturer	Animal Nutrition & Biochemistry	Departmental Yr. 4 Coordinator
13	Dr. Pascal O. Ozung	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Senior Lecturer	Animal Physiology	Examination Officer
14	Dr. Favour B. Patrick	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Senior Lecturer	Animal Production	Member Quality Assurance Committee
15	Mr. George D. Edet	B. Agric. (Anim. Sci.), M. Sc.	Lecturer I	Animal Production & Management	Assistant Yr. 4 Coordinator
16	Mr. Etido P. Umoren	B. Agric. (Anim. Sci.), M. Sc.	Lecturer I	Animal Nutrition & Biochemistry	
17	Dr. Victoria N. Ebegbulem	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Lecturer I	Animal Breeding & Genetics	Technical Adviser, Departmental Lecture Series
18	Dr. Patrick O. Eburu	B. Agric. (Anim. Sci.), M. Sc., Ph. D.	Lecturer II	Animal Nutrition & Biochemistry	Assistant Examination Officer
19	Dr. Emmanuel E. Archibong	ND, HND, PGD, M.Sc., Ph. D.	Lecturer II	Animal Nutrition & Biochemistry	Departmental Board Secretary
20	Mrs. Esther D. Izuki	B. Agric. (Anim. Sci.), M. Sc.	Asst. Lecturer	Animal Production & Mgt.	Departmental Welfare Officer
21	Miss Jimmy, NsiongAbasi Paul	B. Agric. (Anim. Sc.), M. Sc.	Asst. Lecturer	Animal Nutrition & Biochemistry	

22	Mr. Ayuba Dauda	B. Agric. (Anim. Sci.), M. Sc.	Asst. Lecturer	Animal Breeding & Genetics	Assistant Secretary	Board
23	Mrs. Mary A. Udayi	HND, PGD, M.Sc. (Anim. Sc.)	Asst. Lecturer	Animal Nutrition		
24.	Ms. Ekaette C. Udoekong	B. Agric. (Anim. Sci.), M. Sc.	Assistant Lecturer	Animal Production and Management		
25.	Mr. Ahaiwe, Chika	B. Sc. (Anim. Sci.)	Graduate Assistant			
26.	Mr. Thaddeus N. Kperun	ND, B. Agric.	Graduate Assistant			
27.	Halilu Abdulrahman	B. Agric. (Anim. Sci.), M. Sc.	Graduate Assistant			
28.	Ms. Susan A. Ogar	B. Agric. (Anim. Sci.)	Graduate Assistant			

Annals of Visiting Professors

S/N	Name	Area of Specialization	Home Institution	Duration of Visit
1	Prof. C. F. I. Onwuka	Ruminant Nutrition and Management	Federal University of Agriculture, Abeokuta	2014 – 2015
2	Prof. J. A. Alokun	Ruminant Nutrition and Management	Federal University of Technology, Akure	2013 – 2014
3	Prof. Sis. M. A. Oguike	Animal Physiology	Michael Okpara University of Agriculture, Umudike	2012 – 2013
4	Dr. (Mrs.) U. E. Ogundu	Animal Breeding and Genetics	Federal University of Technology, Owerri	2012 – 2013
5	Prof. J. U. Ikhatua	Ruminant Nutrition and Management	University of Benin, Benin City	2012 – 2013
6	Dr. J. O. Agbede	Agricultural Biochemistry and Nutrition	Federal University of Technology, Akure	2011 – 2012
7	Dr. F. U. Igene	Animal Nutrition	Ambrose Ali University, Ekpoma	2010 – 2011
8	Prof. A. G. Ezekwe	Animal Reproductive Physiology	University of Nigeria, Nsukka	2009 – 2010
9.	Prof. S. N. Ibe	Animal Breeding and Genetics	Michael Okpara University of Agriculture, Umudike	2009 – 2010
10	Dr. O. J. Ifut	Small Ruminant Nutrition and Management	University of Uyo, Uyo	2007 – 2008
11.	Prof. C. O. Ubosi	Animal Science	University of Maiduguri, Maiduguri	2006 – 2007

Administrative, Laboratory, Technical and Farm Staff

S/N	Name	Rank	Qualification
1.	Barrister K. E. Kalu	Chief Animal Health Technologist	OND, HND, PGD, LLB
2.	Ms. E. E. Nsentip	Chief Animal Health Technologist	HND
3.	Mr. G. I. Ogana	Assistant Chief Animal Health Technologist	OND, HND
4.	Mr. J. L. Agube	Higher Agric. Superintendent (Livestock)	G.C.E., O/L, B. Agric. (Anim. Sci.)
5.	Mr. E. J. Etti	Senior Animal Health Technologist	WASC, HND, PGD
6.	Mr. E. E. Akiba	Principal Animal Health Technologist	SSCE, HND, PGD
7.	Mr. S. A. Abotsi	Principal Animal Health Superintendent II	SSCE, Diploma
8.	Mr. A. O. Inyang	Principal Animal Health Superintendent II	SSCE, HND, PGD
9.	Mr. I. E. Akpan	Animal Health Supervisor	FSLC, WASC
10.	Mr. J. A. Unimke	Senior Experimental Animal Supervisor	FSLC, NECO
11.	Mr. E. L. Ugbong	Higher Animal Health Superintendent	FSLC
12.	Mr. A. A. Odey	Patrol Supervisor	FSLC
13.	Mrs. U. S. Udoh	Senior Agricultural Superintendent	FSLC, B. Agric. (Crop Sci.)
14.	Mr. M. A. Ikpe	Experimental Animal Assistant	SSCE
15.	Mr. J. A. Ayanting	Livestock Assistant	FSLC
16.	Mr. J. E. Ebunta	Experimental Animal Assistant	FSLC
17.	Mr. I. I. Eyong	Agric. Officer I	B. Agric. (Anim. Sci.), PGD
18.	Mrs. I. C. Mfem	Agric. Officer I	B. Agric. (Anim. Sci.), PGD
19.	Mr. J. N. James	Agric. Officer II	B. Agric. (Anim. Sci.)
20.	Miss M. A. Obogo	Agric. Officer II	B. Agric. (Anim. Sci.)
21.	Mr. C. A. Ashiefel	Agric. Officer II	HND
22.	Mr. W. N. Bisong	Assistant Animal Superintendent	B. Ed. (Agric. Edu.)
23.	Mr. O. E. Ofem	Principal Technologist	G.C.E., O/L, HND
24.	Mr. B. O. Edet	Senior Executive Officer	FSLC, SSCE, B. Sc.
25.	Mr. E. O. Ekpo	Higher Executive Officer	FSLC, SSCE, DSW, B. Ed.
26.	Mrs. M. Bassey	Assistant Registrar	B. A. (Linguistics), M. Ed.
27.	Miss Salomi Ele Egbonyi	Higher Data Processing Officer	SSCE, Diploma (Computer Operations & Data Processing), B. Ed.
28.	Mrs. E. S. Akai	Senior Secretarial Assistant I	FLSC, SSCE, M.D. I.
29.	Mrs. E. E. Effiong	Animal Health Supervisor	WASC
30.	Mr. I. I. Atu	Executive Officer	FLSC, SSCE
31.	Mrs. Abang, Odok	Cleaner/Messenger	SSCE
32.	Mr. Richard E. Bassey	Senior Clerical Officer	SSCE, IJMB
33.	Ms. Umo, Ibok Edet	Senior Laboratory Assistant	SSCE, Diploma
34.	Ukpong, Eyo Nyong	Driver I	
35.	Imaobong Bassey Ogar	Senior Executive Officer	B.Sc. (Business Management)
36.	Minika Edim Edim	Higher Executive Officer	B.Sc. (Business Management)
37.	Ikunegwang, Egwu Ogban	Agric Officer II	B. Agric. (Anim. Sci.)
38.	Obongha, Justin Anim	Agric Officer II	B. Agric. (Anim. Sci.)
39.	Bilal Aliya Yusuf	Computer Analysis II	B.Sc. (Information Technology)
40.	Ekereke, Naomi Eka	Executive Officer	

Bachelor of Agriculture in Animal Science

Course ID: Yr/012145...

Awarding Institution: University of Calabar

Study Mode: Full time

Course duration: Five (5) academic sessions (fourth year exclusively practical).

Degree in view: B. Agric. (Animal Science)

Admission Requirements

Candidates may seek admission through one of the following options:

- ✓ The current Unified Tertiary Matriculation Examination (UTME) organized by the Joint Admission and Matriculation Board (JAMB)
- ✓ Direct entry.
- ✓ The University of Calabar Pre-degree Programme.

Basic Departmental Requirement [BDR]:

The basic requirement for admission into the Department of Animal Science is the possession of relevant five (5) credit level passes at Senior Secondary Certificate Examination (or equivalent e.g. GCE, WASCE etc.) including English, Mathematics, Chemistry, Agricultural Science or Biology, Animal Husbandry and at least a pass in Physics, Economics or Geography at a maximum of two attempts.

Further Requirements based on Option:

Option 1 - UTME Candidates

In addition to the BDR, applicants are required to have an acceptable Unified Tertiary Matriculation Examination (UTME) score (usually above 200) in the current UTME and also have an acceptable score in the University of Calabar Selection Test for undergraduate admission.

Option 2 - Direct Entry Candidates

In addition to the BDR, direct entry candidates are required to possess either an HND, ND/OND or NCE (*at Distinction or Credit level*) certificate in Agricultural Science or related science courses. Candidates with B. Sc. in a related discipline (*as stipulated by the Department*) may also be considered for admission.

Direct entry candidates may be admitted to start from year two but all candidates must take part in the fourth year Practical programme.

Option 3 - Unical Pre-degree Candidates

Graduates of the University of Calabar Pre-degree programme with acceptable scores may be admitted in to the Animal Science degree programme; provided they have passed at credit level, the relevant subjects at the Senior Secondary School Certificate Examination or its equivalent.

Programme Description

This program aims at providing quality animal science graduates with the technical skills needed to service the rapidly changing animal production industries in Nigeria and other tropical countries. It will prepare students for academic, administrative and research work in the various areas of animal science; reproduction, nutrition and genetics, as well as animal health, wildlife management and conservation. The program will suit secondary school graduates and farm assistants with appropriate background knowledge for further studies. The program will teach students to identify emerging issues in the field of animal science and to manage scientific data to solve specific problems.

Application Process

The common mode of admission is through Unified Tertiary Matriculation Examination (UTME). The candidate must register and write the prescribed examination, contact the University of Calabar to confirm the cut-off point for the new session and if qualified take the University of Calabar administered Undergraduate Applicant Selection Test. Usually, the average score of the two examinations are used to select the successful candidates.

Direct entry candidates are expected to apply through the JAMB Direct Entry facility and could in addition; write to the Head of Department of Animal Science enclosing photocopies of their credentials.

University of Calabar's Pre-degree candidates usually qualify for placement based on their scores in the Pre-degree programme. Graduating candidates of the Pre-degree programme could however, apply to the programme Coordinator indicating preference to be placed in the Animal Science programme.

Application Deadline

The deadline for the UTME and Direct entry is stipulated by JAMB while that of the Pre-degree option is fixed by the Central Admissions Committee of the University of Calabar.

Date of Commencement:

The programme commences at the beginning of every academic session.

**LIST OF COURSES AND THEIR ASSOCIATED CREDIT HOURS
UNDERGRADUATE PROGRAMME**

PROGRAMME: BACHELOR OF AGRICULTURE

**UNIFIED TERTIARY MATRICULATION EXAMINATION (UTME) CANDIDATES
LIST OF COURSES AND THEIR ASSOCIATED CREDIT HOURS
UNDERGRADUATE PROGRAMME**

PROGRAMME: BACHELOR OF AGRICULTURE

UNIFIED TERTIARY MATRICULATION EXAMINATION (UTME) CANDIDATES

100 Level - First Semester

S/N	Course Code	Course Title	Credits
1	GSS 101	Use of English and Communication Skills I	2
2	GSS 121	Philosophy and Logic	2
3	GSS 123	Basic Communication in French	2
4	BIO 111	General Biology I (Botany/Zoology)	3
5	CHM101	General Chemistry I (Physical Chemistry)	3
6	PHY 111	Introductory Physics I (General Physics)	3
7	MTH 111	Mathematics (Algebra and Trigonometry)	2
8	AGE 111	Introduction to Micro Economics & Social Sciences	2
Sub-Total			19 Credits

Second Semester

9	GSS 102	Use of English and Communication Skills II (Use of Library Skills and ICT)	2
10	GSS 112	Citizenship Education (Nigerian People & Culture)	2
11	GSS 142	Anti-Corruption Studies II	2
12	AGE 112	Introductory to Macro Economics & Social Sciences	2
13	PHY 112	Introductory Physics II	3
14	MTH 132	Mathematic (Calculus & Analytic Geometry)	2
15	BIO 112	General Biology II	3
16	CHM 102	General Chemistry II (Organic Chemistry)	3
Sub-Total			19 Credits
Total			38 Credits

200 Level - First Semester

S/N	Course Code	Course Title	Credits
1	AGR 241	General Agriculture & Biotechnology	2
2	AGR 211	Biogeography & Climatology	2
3	AGA 211	Anatomy and Physiology of Farm Animals	2
4	AGC 221	Crop Anatomy, Taxonomy and Physiology	2
5	AGS 211	Principles of Soil Science & Environment	2
6	AGE 201	Principles of Agricultural Economics	2
7	AGR 231	Introduction to Organic Agriculture	2
8	AGR 241	Introduction to Forestry Resource Management	2
9	AGR 251	Farm Practice	1
10	AFM 211	Principles of Fisheries and aquaculture	2
11	AGR 221	Introduction to Agricultural Engineering	1
Sub-Total			20 Credits

Second Semester

12	AGA 222	Principles of Animal Production	2
13	AGC 212	Principles of Crop Production	2
14	AGR 242	Principles of Food Science and Technology	2
15	AGR 212	Introduction to Agricultural Biochemistry	2
16	GSS 212	Introduction to Computers	2
17	AFM 212	Principles of Fisheries (Anatomy and physiology of Fishes)	2

18	AGR 262	Introductory Statistics	2
19	GST 202	Entrepreneurial Theory (Entrepreneurial Studies 1)	2
20	AGR272	Introduction to Home Economics	2
21	AGC 202	Landscape horticulture	2
Sub-Total			20 Credits
Total			40 Credits
300 Level - First Semester			
1	AGA 311	Non-Ruminant Animal Production	2
2	AGC 311	Field (Arable) Crop Production	2
3	AGS 321	Introduction to Pedology and Soil Physics	2
4	AGX 311	Principles of Agricultural Extension & Rural Sociology	2
5	AGR 311	Introduction to Farm Machinery & Mechanization	2
6	AGR 321	Application of Computers to Agricultural Production	2
7	AGC 321	Crop Genetics & Breeding	2
8	AGE 311	Introduction to Farm Management & Production Economics	2
9	AGS 331	Soil Resources & Mgt. in Organic Agriculture	2
Sub-Total			18 Credits
Second Semester			
10	AGA 322	Ruminant Animal Production	2
11	AGC 332	Tree (Permanent) Crop Production	2
12	AGC 322	Principles of Crop Protection	2
13	AGA 332	Introduction to Animal Breeding and Genetics	2
14	AGS 312	Soil Chemistry and Microbiology	2
15	AGX 322	Agricultural Extension Education & Communication (Teaching, Learning Process and Methods)	2
16	AGR 312	Agricultural Biochemistry and Methods	2
17	AGR 352	Agricultural Statistics and Experimental Design (Statistics & Data Processing)	2
18	GST 302	Entrepreneurship Trade Skill (Entrepreneur Studies II)	2
19	AGR 362	Farm Practice	1
Sub-Total			19 Credits
Total			37 Credits
400 Level - First Semester			
1	AGC 401	Crop Production Techniques (Permanent, Arable and Horticultural Crop etc)	4
2	AGA 401	Animal Husbandry Techniques (Cattle, Sheep, Goats, Poultry, Pigs, Rabbits, Snails etc)	3
3	AGR 401	Agricultural Products Processing and Storage	2
4	AGC 411	Pests & Diseases of Horticultural & Vegetable Crops Management	2
5	AGA 411	Animal Health Management	2
6	AGS 421	Soil Fertility, Soil & Water Management (Laboratory Analysis Techniques)	2
7	AGR 421	Farm Design, Farm Survey and Land use Planning	2
8	AGE 401	Farm Management, Records and Accounting	2
9	AGX 411	Extension Practices (Participation in Agric. Extension)	2
10	AGR 401	Workshop Practices	2
11	AGR 411	Farm Mechanization Practices	2
12	AGS 411	Soil Sampling, Survey and Taxonomy	2
13	AGR 431	Agricultural Meteorology	2
14	AGR 412	VIVA/VOCE	2
15	AGR 432	Scientific Report Writing	3
Total			34 Credits
Second Semester		<i>SIWES/IT (IN AN ESTABLISHED FARM)</i>	

500 Level			
ANIMAL SCIENCE OPTIONS			
First Semester			
1	AGA 511	Seminar	1
2	AGA 521	Applied Animal Breeding	2
3	AGA 531	Poultry, Swine and Rabbit Production	2
4	AGA 541	Cattle, Sheep and Goats Production	2
5	AGA 551	Nigerian Feeds and Feeding Stuffs	2
6	AGA 561	Animal Experimentation and Research Techniques	2
7	AGA 571	Reproductive Physiology and Artificial Insemination	2
8	AGA 581	Micro-Livestock Production	2
9	AGA 591	Animal Science Practice	2
10	*AGX 551	Administration and Programme Planning in Extension	2
Sub-Total			17 Credits
Second Semester			
11	AGA 512	Monogastric Nutrition	2
12	AGA 522	Ruminant Nutrition	2
13	AGA 532	Animal Health and Diseases	2
14	AGA 542	Animal Products and Handling	2
15	AGA 552	Pasture and Range Management	2
16	AGR 552	Game Production and Utilization	2
17	AGA 520	Research Project	4
18	*AGE 552	Livestock Economics	2
19	*AGE 512	Agricultural Cooperatives	2
Sub-Total			20 Credits
Total			37 Credits
*Elective			
N/B: Students are to take one elective course per semester. Preferably AGX 551 and AGE 552			

DIRECT ENTRY (DE) CANDIDATES

Year 1 of 4

First Semester			
S/N	Course Code	Course Title	Credits
1	GSS 101	Use of English and Communication Skills I	2
2	GSS 121	Philosophy and Logic	2
3	GSS 141	Anti-Corruption Studies I	2
4	GSS 123	Basic Communication in French	2
5	AGR 241	General Agriculture & Biotechnology	2
6	AGR 211	Biogeography & Climatology	2
7	AGA 211	Anatomy and Physiology of Farm Animals	2
8	AGC 221	Crop Anatomy, Taxonomy and Physiology	2
9	AGS 211	Principles of Soil Science & Environment	2
10	AGE 202	Principles of Agricultural Economics	2
11	AGR 231	Introduction to Organic Agriculture	2
12	AGR 232	Introduction to Forestry Resource Management	2
13	AGR 251	Farm Practice	1
14	AFM 211	Principles of Fisheries and Aquaculture	2
Sub-Total			27 Credits
Second Semester			
15	GSS 102	Use of English and Communication Skills 11(Use of Library Skills and ICT)	2
16	GSS 112	Citizenship Education (Nigerian People & Culture)	2
17	GSS 142	Anti-Corruption Studies II	2
18	AGA 222	Principles of Animal Production	2
19	AGC 212	Principles of Crop Production	2
20	AGR 242	Principles of Food Science and Technology	2
21	AGR 212	Introduction to Agricultural Biochemistry	2
22	GSS 212	Introduction to Computers	3
23	AGR 252	Principles of Fisheries & Wildlife Res. Management	2
24	AGR262	Introductory Statistics	2
25	GST 202	Entrepreneurial Theory (Entrepreneurial Studies 1)	2
26	AGR272	Introduction to Home Economics	2
27	AGC 202	Landscape horticulture	2
Sub-Total			25 Credits
Total			52 Credits
Year 2 of 4			
First Semester			
1	AGA 311	Non-Ruminant Animal Production	2
2	AGC 311	Field (Arable) Crop Production	2
3	AGS 321	Introduction to Pedology and Soil Physics	2
4	AGX 311	Principles of Agricultural Extension & Rural Sociology	2
5	AGR 311	Introduction to Farm Machinery & Mechanization	2
6	AGR 321	Application of Computers to Agricultural Production	3
7	AGC 321	Crop Genetics & Breeding	2
8	AGE 311	Introduction to Farm Management & Production Economics	2
9	AGS 331	Soil Resources & Mgt. in Organic Agriculture	2
Sub-Total			19 Credits
Second Semester			
10	AGA 322	Ruminant Animal Production	2
11	AGC 332	Tree (Permanent) Crop Production	2
12	AGC 322	Principles of Crop Protection	2
13	AGA 332	Introduction to Animal Breeding and Genetics	2
14	AGS 312	Soil Chemistry and Microbiology	2
15	AGX 322	Agricultural Extension Education & Communication (Teaching, Learning Process and Methods)	2
16	AGR 312	Agricultural Biochemistry and Methods	2
17	AGR 352	Agricultural Statistics and Experimental Design (Statistics & Data Processing)	2
18	GST 302	Entrepreneurship Trade Skill (Entrepreneur Studies II)	2

19	AGR 362	Farm Practice	1
Sub-Total			19 Credits
Total			38 Credits
Year 3 of 4			
First Semester			
1	AGC 401	Crop Production Techniques (Permanent, Arable and Horticultural Crop etc)	4
2	AGA 401	Animal Husbandry Techniques (Cattle, Sheep, Goats, Poultry, Pigs, Rabbits, Snails etc)	3
3	AGR 401	Agricultural Products Processing and Storage	2
4	AGC 411	Pests & Diseases of Horticultural & Vegetable Crops Management	2
5	AGA 411	Animal Health Management	2
6	AGS 421	Soil Fertility, Soil & Water Management (Laboratory Analysis Techniques)	2
7	AGR 421	Farm Design, Farm Survey and Land use Planning	2
8	AGE 401	Farm Management, Records and Accounting	2
9	AGX 411	Extension Practices (Participation in Agric. Extension)	2
10	AGR 401	Workshop Practices	2
11	AGR 411	Farm Mechanization Practices	2
12	AGS 411	Soil Sampling, Survey and Taxonomy	2
13	AGR 431	Agricultural Meteorology	2
14	AGR 412	VIVA/VOCE	2
15	AGR 432	Scientific Report Writing	3
Total			34 Credits
Second Semester <i>SIWES/IT (IN AN ESTABLISHED FARM)</i>			
Year 4 of 4			
ANIMAL SCIENCE OPTIONS			
First Semester			
1	AGA 511	Seminar	1
2	AGA 521	Applied Animal Breeding	2
3	AGA 531	Poultry, Swine and Rabbit Production	2
4	AGA 541	Cattle, Sheep and Goats Production	2
5	AGA 551	Nigerian Feeds and Feeding Stuffs	2
6	AGA 561	Animal Experimentation and Research Techniques	2
7	AGA 571	Reproductive Physiology and Artificial Insemination	2
8	AGA 581	Micro-Livestock Production	2
9	AGA 591	Animal Science Practice	2
10	*AGX 551	Administration and Programme Planning in Extension	2
Sub-Total			19 Credits
Second Semester			
12	AGA 512	Monogastric Nutrition	2
13	AGA 522	Ruminant Nutrition	2
14	AGA 532	Animal Health and Diseases	2
15	AGA 542	Animal Products and Handling	2
16	AGA 552	Pasture and Range Management	2
17	AGR 552	Game Production and Utilization	2
18	*AGE 552	Livestock Economics	2
19	*AGE 512	Agricultural Cooperatives	2
20	AGA 520	Research Project	4
21	*AGE 522	Agri-business Management	2
Sub-Total			22 Credits
Total			39 Credits
*Elective			
N/B: Students are to take one elective course per semester. Preferably AGX 551 and AGE 552			

COURSES DESCRIPTIONS

BACHELOR OF AGRICULTURE (ANIMAL SCIENCE) PROGRAMME

UNIFIED TERTIARY METRICATION EXAMINATION (UTME) & DIRECT ENTRY STUDENTS

YEAR ONE

First semester

BIO 111: General Biology I (Cell Biology and Lower Plants) 3 Credit Units

Cellular basis of life; general structure and functions of plant cells and cellular organelles; plant cell division; heredity; diversity in plant cells and habitats; Morphology, general characteristics, life cycles and range of forms of bacteria, viruses, fungi, algae, bryophytes, Lichens and pteridophytes. General structures of animal cells. Functions of animal cells and cellular organelles; animal cell types and division. Forms, functions and life history of invertebrates using selected examples from classes of invertebrates such as Protozoa, Coelenterates, Arthropods, Platyhelminthes, Aschelminthes, Annelida and Mollusca. Laboratory experiments to illustrate; Cellular basis of life; general structure and functions of plant cells and cellular organelles; plant cell division; heredity; diversity in plant cells and habitats; Morphology, general characteristics, life cycles and range of forms of bacteria, viruses, fungi, algae, bryophytes, Lichens and pteridophytes. General structures of animal cells. Functions of animal cells and cellular organelles; animal cell types and division.

CHM 101: General Chemistry I (Physical Chemistry) 3 Credit Units

Atoms; Sub-atomic particles, Isotopes, Avogadro's number; The Mole Concept; Chemical Formulae; The laws of Chemical Combinations; Equations and Calculations; States of Matter; Gases, Liquids and Solids; Chemical Thermodynamics; Energetics and Thermochemistry; Buffers, Chemical Equilibrium and Equilibrium Constants; Solubility Products; Chemical kinetics; Electrochemistry; Nuclear Binding Energy, Fission and Fusion. Laboratory experiments to illustrate; Atoms; Sub-atomic particles, Isotopes, Avogadro's number; The Mole Concept; Chemical Formulae; The laws of Chemical Combinations; Equations and Calculations; States of Matter; Gases, Liquids and Solids; Chemical Thermodynamics; Energetics and Thermochemistry; Buffers, Chemical Equilibrium and Equilibrium Constants; Solubility Products; Chemical kinetics; Electrochemistry; Nuclear Binding Energy, Fission and Fusion.

MTH 111: Mathematics (Algebra and Trigonometry) 2 Credit Units

Algebra and trigonometry, Real number system; real sequences and series; sets and subsets; unit interaction, complements; empty and universal sets; Venn diagram; one way correspondence between sets, quadratic functions and equations; solution of linear equations, simple properties of determinants; indices and binomial theorem; transformations; e.g. log transformation; equations of the straight line and application to simple regression equations; permutations and combinations; circular measure, trigonometric functions of angles; addition and factor formulae; complex numbers; moments and couples; relative velocity; calculus; elementary functions of simple real variables; graphs of simple functions, the differentiation of simple algebraic: exponential and log functions; the differentiation of a sum; product; quotient, function of function rules; implicit differentiation: definite and indefinite integrations of functions; application of definite and indefinite integrals to areas and volumes.

PHY 111: Introductory Physics I (General Physics) 3 Credit Units

Relevance of physics to agriculture. Selected topics and application to agriculture in mechanics, properties of matter, waves and sound, vibrations, electromagnetism, heat, optics, light, thermal physics, atomic and nuclear physics. Laboratory experiments to illustrate; Use of measuring

instruments; surface tension, inertia, viscosity refractive index, optical instruments, tension, energy, heat capacity, temperature, heat and work; obscure expansion, latent heat waves, current flow. Electricity and Electronics – Power and energy; simple meters, charge and capacitance.

GSS 101: Use of English and Communication Skills I 2 Credit Units

General instruction regarding English for Academic purposes. Effective communication and writing in English; Reading skills – speed and techniques, comprehension, evaluation, vocabulary development. Listening skills – for note taking, for vocabulary development and structural patterns. Speaking/Language skills – vowels, consonants, intonation, stress, making presentation, principles/techniques of public presentation, and speaking process. Writing Skills – for essay types and structure, letters, types, corrections and distinguishing features; Introduction to academic writing – collection and organization of materials and logical presentation. Study skills – note taking, note making, study reading, study time and methods. Grammar and communication. Phrases and content, clauses and content. Sentence elements, types and structure. Spelling and punctuation. Library skills.

GSS 121: Philosophy and Logic 2 Credit Units

What is philosophy? History of Philosophy; Branches of Philosophy – Ancient period; Medieval period; Modern period. Existentialism. African Philosophy. African Political Thought. What is Logic? History and development of logic. Laws of thought. What is an argument? Type of discourse, Components of argument. Types of argument, Techniques in evaluating argument. Fallacies; formal and informal, examples. Definitions. Categorical propositions. Elementary logical operators. Truth tables construction, test of validity and soundness. Formal proof. Rules of inference – distinction between inductive and deductive inferences (Illustrations taken from literatures, Novels, Law reports and Newspaper publications). Elementary introduction to quantification theory – the method of deduction using rules of inference and bi-conditionals qualification theory.

GSS 141: Anti-Corruption Studies I 2 Credit Units

Defining Corruption (Conceptual Considerations, Types of Corruption, Typology of Corruption); Corruption and Related Offences (Fraud, Obstruction of Justice, Violation of due process, Abuse of function & Discretion, Money laundering); Causes, Nature and Impact of Corruption (Causes of corruption: socio-cultural, economic, political and institutional explanations, Effects and impacts of corruption: Impacts on various sectors including justice, public administration, legislature, civil society, private sector, international development, etc); Corruption as a facilitator of other crimes: drugs & human trafficking, terrorism and other violent crime, illegal oil bunkering, copyright piracy, etc); Measuring the Levels of Corruptions: approaches and Challenges (Opening surveys, Review of secondary data: court records, media reports, official publications, Challenges in measuring corruption).

AGE 111: Introduction to Micro-Economics & Social Sciences 2 Credit Units

The nature of Economic Science; the Methodology of Economics: Elementary principles of microeconomics, demand, supply and price determination. Markets and Types of markets- Perfect Competition, Oligopoly, Monopoly etc, Elementary theories of production, cost of production and the theory of Distribution. Consumer Behaviour; Indifference curves- Budget constraint, Income and substitution effects, utility maximizing rule, Assumptions behind indifference and utility curves approach, Drawing the marginal and total utility curves, Factor influencing consumer behaviour. Classification of social systems; Interpersonal relationships, personality traits and leadership qualities; Role of media; Meaning , scope and indices of Development; Factors of Development (Historical, Ideological, Economic, Political, Social); Self reliances and National Development.

Second semester

GSS 102: Use of English and Communication Skills II (Use of Library Skills and ICT) 2 Credit Units

The process of research writing. Selecting topics, thesis statements, compiling bibliography, advanced reading – discuss registers, selecting appropriate materials for reading. Advanced reading for research information, scanning, skimming for required information. Reading for note-taking for research techniques and types. Mini-research writing, Art of public speaking and oral communication – students make oral presentation in class of what was read in their selected topics; students also make and present note slips. Logical presentation of papers, Phonetics, Instruction on Lexis, Figure of speech, Précis. Brief history of the libraries; Library and education; Universities Libraries and other types; Study skills(reference services); Types of Library materials, library resources, library catalogues and classifications; copyright and its implications; Data resources; Bibliographic citations and references; Development of modern ICT; Hardware technology; Input and Output devices; Communication and internet services; Word processing skills

GSS 112: Citizenship Education (Nigerian People & Culture) 2 Credit Units

Study of Nigerian history, culture and arts in pre-colonial times. Nigerian's perception of this world, Culture areas of Nigerians and their characteristics. The Nigerian Constitution, Ethics and discipline in national life. Rights and obligations. Nation-building in Nigeria – concept of trade, economics, self-reliance, social justice, individual and national development. Arms of Government, Citizenship. Ethnic-pluralism and national identity in Nigeria, Psychology and human behaviour. Women and development in Nigeria. Sustainable development. Federalism and revenue allocation. Nigeria and constitutional development. Norms and Values – Moral and National values, Moral obligation of citizens, Negative attitude and conducts (cultism and other vices). Environmental challenges in Nigeria.

GSS 142: Anti-Corruption Studies II 2 Credit Units

Source and Nature of Anticorruption Laws and Policies [International treaties and conventions (UXCAC), National laws and Policies (ICPC, Act 20(30) EFCC Act 2004) US FCPA, UK CPA] etc; Tools for Combating and Preventing Corruption [Investigation and Prosecution, Public Enlightenment and Education, System Studies and Reviews, Public Sector Governance Reforms, Corporate Governance Reforms, Civil Society and Media Oversight, International Cooperation (Extradition, Mutual Legal Assistance, Assets tracking, Forfeiture and Recovery, Intelligence Gathering & Sharing); Administrative Measures for Controlling Corruption (Due diligence requirement, Professional codes of ethics and control mechanisms, Organization of warning mechanism (whistle); Role of supervising/regulatory authorities, Prevention of conflict of interests, Declaration of assets; The Roles and Obligations of Stakeholders (Citizens, Government & ACAs, Civil Society and Organized private sectors, International Partners); Relationship between Anti-Corruption Work and Control of other Crimes (Drug trafficking, Trading in endangered species, Human trafficking, Illegal Oil bunkering, Piracy, etc.)

BIO 112: General Biology II 2 Credit Units

An introductory course in Biology covering basic concepts in zoology, starting from protozoa to chordates. Form and structure of Vertebrates, protochordates (Amphioxus), amphibians, reptiles, birds and mammals. Morphology and anatomy of various systems in the body – locomotory, respiratory, nervous, integument, digestive, circulatory, excretory, reproductive and endocrine systems of vertebrates; Introduction to histology, embryology and animal physiology.

CHM 102: General Chemistry II (Organic Chemistry) 2 Credit Units

Definition, nomenclature; functional groups; homologous series; families of organic compounds – composition, structure, formulae, synthesis, isolation and purification; isomerism; electronic theory in organic chemistry; alkanes, alkenes and alkynes; Benzene ring and aromatic compounds.

MTH 132: Mathematics (Coordinate Geometry and Calculus) 2 Credit Units

Types of vectors and applications; Matrices; Simple linear regression; The idea of locus; Integration – integration of simple functions; integration by substitution, by parts and use of identities; Differentiation equation – simple functions of sums and products; Distance between two points; The straight lines; angle between lines; areas of triangle; curve sketching, translation and rotation of axes; Coordinate Geometry: Rectangular Cartesian coordinates; circle, parabolic ellipse and hyperboles. Parametric equations; tangents and normals.

PHY 112: Introductory Physics II 2 Credit Units

Use of measuring instruments; surface tension, inertia, viscosity refractive index, optical instruments, tension, energy, heat capacity, temperature, heat and work; obscure expansion, latent heat waves, current flow. Electricity and Electronics – Power and energy; simple meters, charge and capacitance.

AGE 112 Introduction to Macro-Economics & Social Sciences 2 Credit Units

Macroeconomic goals, National income accounting frame works (approaches GNP estimation problems); Circular flow of income; National income aggregates. Trade cycle, international monetary systems, and domestic economic stabilization, fiscal and monetary policies, the Keynesian systems, the paradox thrift, the classical and monetarists systems; Price control and Inflation. Growth and spatial distribution of population, Delivery of public goods through public enterprises and agencies; Peaceful co-existence among Nations

YEAR TWO

First Semester

AGR 241 General Agriculture 3 Credit Units

Definition of agriculture; World population and food supply. History, scope and importance of agriculture to man. Agriculture and natural environment; Characteristic features of tropical agriculture and how they affect production. Land use and tenure. Trends in the production, distribution and utilization of agricultural products. Measures of improvement in Nigerian agriculture. Climatic, edaphic and social factors in relations to crop production and distribution in Nigeria. Systems of crop farming. Types, distribution and significance of animals; basic principles of animal farming. Place of forestry, fish farming and wildlife in Agriculture.

AGR 221: Biogeography and Climatology 2 Credit Units

The principles, aims and scope of climatology and biogeography; The elements and controls of climate and weather and the dynamics of the earth's atmosphere. Radiation and heating of the atmospheric systems, atmospheric moisture, the dynamics of pressure and wind systems. Condensation and precipitation processes. Seasonal variations in temperature, day length, radiation, rainfall and evapotranspiration. Equipment and maintenance of standard meteorological stations. The tropical climate; Relation between agriculture and climate with reference to crops, livestock, irrigation, pest and diseases.

AGA 211: Anatomy and Physiology of Farm Animals 2 Credit Units

Parts of the beef and dairy cattle, sheep, goats, pigs, rabbits, grasscutters, snails and poultry. Fundamentals of cell biology. Anatomy and physiology of the cell, cell types. Anatomy and physiology of animals tissues, nervous system, skeletal system, muscle, bone, circulatory system, reproductive, digestive, special senses and other systems of farm animals. Physiological functions of animals – homeostatic, nutrition and digestion, respiration. Temperature regulation, excretion and reproduction. Endocrinology. The blood and circulation. Lactation, milk let down and egg production. Water balance.

AGC 211: Crop Anatomy, Taxonomy and Physiology **2 Credit Units**

Part of the crop cell types. Introduction of plant taxonomy. Characteristics, distribution, economic importance and local examples of leguminosae, gramineae, compositae, Dioscoreacea, Rutaceae, Development of cells and tissues; use of plant keys. Cell biology, cell and cell types. Comparative anatomy of major plant organs. Enzymes. Photosynthesis and translocation; Pollination, respiration and energy utilization; seed dormancy and germination, development; mineral nutrition, growth regulation. Physical and chemical phenomena in the living functions of plant. Introduction, definition and importance of crop physiology in agriculture. Transplantation – definition and its relationship to crop productivity. Growth and development – definition, types of growth, measurements of growth, growth analysis, growth characteristics. Photosynthesis - definition, mechanism of photosynthesis, variation in photosynthetic capacities and factors affecting them; significance of C3, C4 and CAM pathways of photosynthetic efficiency. Yield maximization; storage and mobilization of reserves. Introductory aspects of plant nutrition.

AGS 211: Principles of Soil Science & Environment **2 Credit Units**

Soils, their origin and formation; Physical, chemical and biological properties and processes of soil. Soil moisture, air and temperature; Soil survey and classification; roles and use of time, fertilizers, organic matter and manure; Soil colloids; Soil reaction; Soil plant relationship with emphasis on functions of essential elements in plants; their availability, requirements and deficiency symptoms; Introduction to fertilizer (organic and inorganic fertilizers).

AGE 211: Principles of Agricultural Economics **2 Credit Units**

The nature of economics and economic problems; scope and method, price theory and functions of the market with particular reference to agriculture. The concept of opportunity cost; Supply and demand and their application to agricultural problems. Production functions, cost analysis and functions. Concept of elasticities. Type of markets, perfect competition, monopoly, oligopoly etc. Price theory and some applications. Theory of distribution: the components of agriculture in National income. Recourse allocation on farms, Aggregate income, expenditure, investment, interest rate, savings, employment. Inflation; international trade, commodity agreements and balance of payments. Money and banking.

AGR 241: Introduction to Forestry Resource Management **2 Credit Units**

Renewable natural resources, availability, distribution and potential. The important forest trees and wildlife (with emphasis on Nigerian species). Classification, morphology and distribution of important forest trees. Forest and game reserves in Nigeria. Silviculture, afforestation, characteristics of major timber and their uses. Felling and log transportation.

AGR 231: Introduction to organic Agriculture and Biotechnology **2 Credit Units**

Definition of biotechnology; History and development of relevant technologies; Significance of biotechnology to Agriculture – animal, crop, soil and environment; Types of biotechnological innovations and techniques in agriculture; Financial implications of biotechnological systems; Recent advances in biotechnology; Ethical implications of biotechnology.

AGR 251**Farm Practice****1 Credit Unit**

Costing of farm inputs and outputs, operating a farm business shop. Students will manage an agribusiness shop operated by the Dept. of Agric. Econs.

Participation in extension activities, e.g. MTRM, FNTs, T & V extension and field days. Introduction of participatory Rural Appraisal (PPA) tools and methodology. Participatory Technology Development Strategies through: (a) Farmers Field School (FFS), (b) conduct and use of focus group interviews (c) Check List (d) Key information interviews (e) Socio-economic Study and Technical components of farm systems in Calabar. Practices in audio visual aid.

Engaging students in Livestock production and management; objective evaluation of the body conformation characteristics of some livestock species (cattle, sheep and goats, pigs, poultry, rabbits, grasscutter and snails); Visits to some established livestock farms. Practical demonstration of castration, spraying, restraining and handling of various livestock species. Feed formulation for different categories of livestock species. Engaging students in non-ruminant animals' production and management.

Crop Production Tools, Materials and Identification. How to conduct field survey, different types of crops and their distribution in Nigeria. Planting stock; types of seeds, types of platforms for planting (beds, ridges, mounds, heaps, etc) and their preparation. Farming systems in Nigeria. Identification of fertilizer types, rates of application for different crops, identification of different planting patterns (spatial and tripod); determination of seed rates and measurements and requirements, planting populations, seed viability and germination. Seed dormancy, etc. Sources of organic manure, rates and application methods. Identification of different storage structures and harvesting tools.

Identification of some soil particle sizes (sand, silt and clay); soil texture in the field sand, (sandy, clayey, loamy, silty, etc.); organic, arid and hydromorphic soil profile and horizonation descriptions (young and old/mature soils). Soil physical features (colour, structure, consistency, temperature and water contents). Soil morphology and micromorphology; topography and landforms (flat and undulating) laying of beds and ridges following topographic features.

FAQ 211: Introductory Fisheries & Aquaculture (AFM 211)**2 Credit Units**

The science of aquaculture and fisheries aims scope and prospects. Farming system strategies and mariculture, culture enclosures: ocean ranching, raceways, silos etc. Aquaculture and fisheries economics. Integrated farming socio-economics and rural farming system.

AGR 221: Introduction to Agricultural Engineering**1 Credit Units**

Definitions; areas of specialization and role of agricultural engineering in national economy. Prospects and job opportunities, work, power, energy, heat and basic electricity. Simple machines and principles of hydraulic theory. Machines efficiency. Weather, rainfall, soil and water conservation. Drying and storage, moisture content. Introduction to tools and workshop practice

Second Semester**GSS 212: Introduction to Computers****2 Credit Units**

History of computers, Functional components of Computer, Characteristics of a Computer, Problem solving; flow charts, algorithms, computer programming statement; symbolic names; arrays, subscripts expressions and control statements. Introduction to Basic programming computer applications. Hands-on experience.

AGR 262 Introductory Statistics**2 Credit Units**

Basic concepts of statistics, Descriptive statistics, measures of central tendency, measures of dispersion, summary statistics

AGR 272 Introduction to Home Economics 2 Credit Units
Philosophy, Scope, objectives and historical development of Home Economics. Examination of basic human needs with respect to food, clothing, shelter and health. Programme approaches in Home Economics which will help meet these needs. Preparation for careers in a variety of occupations.

GST 202: Entrepreneurship Theory (Entrepreneurship Studies 1) 2 Credit Units
Introduction to entrepreneurial skills: Relevant concepts: Enterprise, Entrepreneur, Entrepreneurship, Innovation, Business, Creativity, Enterprising and entrepreneurial Attitude and Behaviour. History of Entrepreneurship in Nigeria. Rationale for development of entrepreneurship, the Nigerian entrepreneurial environment, creativity and innovation, business opportunity and evaluation (using SWOT) analysis, as well as the ability to draw a business action plan. Leadership and Entrepreneurial Skills for coping with challenge. Unit Operations and Time Management. Creativity and Innovation for Self Employment in Nigeria. Overcoming Job Creation Challenges. Opportunities for Entrepreneurship, Forms of Business, Staffing, Marketing and the New Enterprise. Feasibility Studies and Starting a New Business. Determining Capital Requirement and Raising Capital. Financial Planning and Management. Legal Issues, Insurance and Environmental Consideration.

AGA: 222 Principles of Animal Production 2 Credit Units
Animal production and its development. The livestock industry – problems and prospects. Description of the breeds of cattle, sheep, goats, pigs, poultry, snails, grasscutters and rabbits. Systems of livestock production. Feeding habits of farm animals. Principles of breeding and livestock judging. General principles of management of the different types of farm animals.

AGC: 212 Principles of Crop Production 2 Credit Units
Development of crop production; Principles, problems and prospects of crop production in Nigeria; Importance of crop rotation, cultural practices, water and soil conservation; irrigation and drainage; fertility maintenance and pest control. General characteristics and types of arthropods, microorganisms and other pests of field crops; Weeds and their impact on crop production; Basic Mendelian genetics; Principles of crop production, harvesting, processing and storage of agricultural products.

AGR 212 Introductory Agricultural Biochemistry 2 Credit Units
Definitions and aims of agricultural biochemistry; Basic pathways chemistry of carbohydrates, lipids, proteins and nucleic acids. Vitamins and their coenzyme functions. Minerals. The nature, classification and function of enzymes and hormones. Bioenergetics.

AGR 242: Principles of Food Science & Technology 2 Credit Units
Definition and Scope of Food Science and Technology. Food distribution and marketing. Food and its functions. Food habits. Food poisoning and its prevention. Principles of food processing and preservation. Discussion of different Preservation methods. Deterioration and spoilage of foods, other post- harvest changes in food. Contamination of foods from natural sources. Composition and structures of Nigerian/West African food; factors contributing to texture, colour, aroma and flavour of food. Cost; traditional and ethnic influences of food preparation and consumption pattern.

AGR 252: Principles of Fisheries and Wildlife Resource Management 2 Credit Units
The important fishes and wildlife of West Africa with emphasis on Nigerian species. Classification, evolution, morphology and basic structure of fishes. The adaptation of fish to aquatic life. Life cycle of principal species of fishes and wildlife. Significance of fishes and wildlife in the diet of Nigerians. The

fish and wildlife industries in Nigeria. Fundamental principles of fish and wildlife management and production.

AGC 202; Landscape horticulture

2 credit units

Elements of landscaping, colour, texture, etc. Principles of landscaping designs, selection criteria for plants. Review of soft and hard landscaping. Meaning history branches of horticulture, classification of horticulture plant.

YEAR THREE

First Semester

AGA 311: Non-Ruminant Animal Production

2 Credit Units

Management of breeding stock, growing and young animals. Housing, equipment and feeding principles of poultry, rabbit, pigs and snails. Production and management practices; Livestock Economics; Health management of stock, processing and marketing of poultry, pigs, snails and rabbits.

AGC 311: Field (Arable) Crop Production

2 Credit Units

The origin, characteristics and production of major field crops (cereals, legumes, root crops, fibre crops, vegetables and other arable crops) in Nigeria; Improved varieties of arable crops in Nigeria; Climatic and soil requirements, fertilization, culture, rotation; Production practices; harvesting, utilization, processing, storage and economic aspects of some selected arable crop products.

AGS 311: Introduction to Pedology and Soil Physics

2 Credit Units

The soil, its origin and formation; Soil morphological characteristics; Soil components - soil forming rocks and minerals; Weathering of rocks and minerals; Profile description, soil survey, soil mapping; Soil classification, properties and management of Nigerian soils; Classification of soil separate - soil texture, surface area of particles, aggregation, soil structure and stability, porosity, soil water relations, soil and water hydrological cycle; Soil temperature and conduction; Soil erosion.

AGX 311: Principles of Agricultural Extension and Rural Sociology

2 Credit Units

Definition; Objectives of Agricultural Extension; Basic philosophy of agricultural extension; Institutional settings of Agricultural Extension – global and national settings; Basic concepts and principles of rural sociology to the understanding of rural situations; Importance of rural communities and institutions, social stratification, social processes and social changes in rural areas. Leadership in rural communities – roles and functions of rural leaders; Development of rural leaders; The extension agent and the rural community; The rural revolution and social transformation, changing rural-urban problems; Elimination of rural-urban distribution and the future of rural communities; Communication techniques and strategies of change; Various agricultural extension teaching methods, aids and their applications.

AGR 321: Application to Computers to Agricultural Production 3 Credit Units

Introduction to problem solving with the computer; Data entry and editing with the computers. Data analysis using different statistical packages

AGR 311: Introduction to Farm Machinery and Mechanization

2 Credit Units

Goals and principles of agricultural mechanization. Principles of internal combustion engines and elective motor for farm power generation. Farm power transmission system. Farm machinery used for tillage operations. Equipment for sowing and planting, crop protection, water lifting, irrigation and

drainage, harvesting, handling and processing. Livestock equipment: automatic feed conveyor, watering and milking, meat and milk processing. Operating principles, section and maintenance of agricultural machinery. Agricultural machinery costings and records. Surveying instruments/equipment used on the farm. Materials used for farm buildings.

AGC 321: Crop Genetics and Breeding

2 Credit Units

Cell structure and component, Chromosomes structure, number and variations, linkage and crossing over, mutation and genes in population. Multiple alleles, Mitosis and meiosis. Theory of evolution. Fundamental principles of inheritance. Mendelism. Introduction to population and quantitative genetics, objectives and general principles of crop breeding including their application to self-pollinated, cross pollinated and vegetative propagated crops. General and special methods of selection in inbreeders and out-breeders; compatibility, male sterility. Heterosis. Polyploidy in crop breeding, Mutation breeding.

AGE 311: Farm Management and Production Economics

2 Credit Units

Introduction and definition of some economic terms. Theory of production. Principles of agricultural production and resource use; factor-factor, factor-product and product-product relationship. Consumption and resource allocation in agriculture. Farm costs and revenue theories. Elements of time, risk and uncertainty in agricultural production. Types of farm records and their uses. Farm budgeting, gross and net margin analysis and farm planning.

AGS 321: Soil Resources & Mgt. in Organic Agriculture **2 Credit Units**

Nature of the soil and evaluation of the soil. Soil processes and reaction. Soil fertility assessment and maintenance. Impact of soil organism and natural symbiosis in organic systems. Soil physical processes and conservation. Soil organic matter inputs, dynamics and management. Manuring and composting, intercropping and companion planting, tillage and cultivation, etc. green manures, animal manures, sludges and other sources of nutrients.

Second Semester

AGA 312: Ruminant Animal Production **2 Credit Units**

Management of breeding stock, growing and young animals. Housing, equipment and feeding principles of cattle, sheep and goats. Production and management practices. Health management of ruminant animals.

AGC 322: Tree Crop Production **2 Credit Units**

Analysis of origin, distribution, soil and climatic requirements of some tropical plantation crops, such as cocoa, oil palm, rubber, kola, coffee, coconut, mango, sugar cane, bananas, plantains, citrus and cashew; Production practices - improvement, harvesting, utilization, processing, storage and economic aspects of some selected tree crops. Economic pests of permanent perennial crops and their control. Pre-nursery, nursery and field operations of major permanent crops including oil palm, rubber, cocoa and citrus, post-harvest treatment of farm produce.

AGC 312: Principles of Crop Protection II **2 Credit Units**

The major pests, insect, fungi, bacteria, viruses, nematodes, weeds, and other diseases of tropical crops and stored products. Definition of pest. Study of insect pests of major local crops, their significance and principles of control. Study of the effects of diseases caused by virus, bacteria, fungi and nematodes. Control of these diseases.

Effect of weeds on crops and livestock and the principles and methods of control of weeds. Brief outline, shortcomings and advantages of different pest assessment and pest control methods. Strategies of integrated pest control and pest management.

AGA 322: Introduction to Animal Genetics and Breeding 2 Credit Units

History of genetics; Chromosomes structure, number and variations. Gene and genotype Genetic code, Mendelism; Fundamental principles of inheritance; Quantitative and qualitative characters and their inheritance. Different types of gene actions, values and means; Repeatability and heritability etc. Animal variation and selection principles. Breeding and environmental effects; in-breeding, pure line breeding, cross breeding and other breeding methods.

AGS 312: Soil Chemistry and Microbiology 2 Credit Units

Chemical composition of soils; Micro-organisms occurring in soils, bio-chemical activities of microbial population; Soil fertility – conversion units, calculations and evaluation; Silicate mineral chemistry-cation and anion exchange, base saturation, properties of soil organic matter, microbial transformations of N, P, S, Fe and other minerals, isolation of organisms concerned, transformations of hydrocarbons and pesticides; Rhizosphere effect and mycorrhizal association; Plant nutrition, activities of cations and their absorption by plants, mechanism of absorption; Plant-soil interphase; Ecological interactions of degraded soils; Water pollution and soil degradation; Soil reaction (active and reserve acidity, alkalinity, buffering capacity); Soil acidity and liming. Survey of micro-organisms in soil and their role in soils. The dynamics of N, P and S pools. Association between microbes and plants.

AGR 312 Agricultural Biochemistry and Methods 2 Credit Units

Metabolism of carbohydrates, lipids, proteins and nucleic acids. Chemistry and mode of action of enzymes and hormones. Chemistry and analysis of selected agricultural products.

AGR 322: Agricultural Statistics and Experimental Designs (Statistics and data processing) 2 Credit Units

, Data collection and processing techniques; Statistical inference; Test of significance; F- test, t- test, Chi-square; Experiments procedures - cause and control of experimental error; Analysis of variance - one way and multiple ways classification; Analysis of co-variance, Regression and correlation analysis; Determination of goodness of fit; Research objectives, Research designs – CRD, RCBD and factorial experiments (split-plot designs); Field experimentation; Analysis and processing of result; Mean separation techniques; Statistical interpretations of results.

GST 302: Entrepreneurship Trade Skill 2 Credit Units

GST 302 practical skills enable the students to acquire various skills such as Catering, Paint Production, Fashion and Design, Aquaculture Production, Photography and Video Coverage, Cosmetology, Driving, Masonry and Welding and Fabricating. The enlisted skills equip the students to be job creators at graduation instead of job seekers. It further enhances their research ability using best practice in business environment. The creative skills enable the students use the four entrepreneurial mix (4P's) – Process, Products, Person and Place for product/service development and management.

AGR 332 Farm Practice 1 Credit Unit

Students will learn business and marketing ethics-branding/customer service activities, record keeping/stock taking. Visit to agribusiness firms in Calabar.

Design of participatory communication appraisal techniques in agricultural communication. Participatory Agro-Ecosystem Analysis of villages using phenomenological, historical and ethnographic research design. Small plot adoption techniques. Guided tour of farm settlements around University of Calabar. Participatory conduct of extension field survey.

General principles of pests/diseases prevention and control of livestock. Identification of some equipment and drugs used for the treatment of some livestock pests and diseases. Visits to some established abattoirs/livestock farm. Identification and measurement of reproductive systems of various classes of farm animals – cattle, sheep and goats, pigs, poultry, rabbits, grasscutter and snails. Heat detection in farm animals. Mating of farm animals. Engaging students in ruminant animals' production and management.

Plant health and management principles: Monitoring, scouting and identification of diseased plants and damage caused by insect pests on crops. Identification and characteristics of different types of pests and pathogens (both in the field and storage). Identification of tools for pests management. Insect collection, preservation and recognition; tools for insects collection and preservation.

Identification of fertile and infertile soils, productive and degraded soils; symptoms of degraded and polluted soils. Identification of soil organisms; macro and micro flora and fauna (ants, termites, earthworms, rodents, fungi, protozoa, bacteria, etc.) Mulches and mulching materials and methods. Tillage/ploughing and harrowing methods. Irrigation and drainage methods for small-scale and large-scale farms, field and plantation crops. Erosion control on farmlands.

YEAR FOUR

First Semester

AGA 401: Animal Husbandry Techniques

3 Credit Units

Animal husbandry practices of non-ruminants (swine, poultry, snails, grasscutters and rabbits) and ruminants (cattle, sheep and goats); Breed identification, sexes and mating techniques in farm animals; Practical management system of livestock. Identification, feeding of non-conventional feed and forages; Wing banding, debeaking in birds, ear notching and castration in pigs. Hatchery operations; Identification and management of dairy breeds. Milking Procedures; Restrain techniques and handling of different species of farm animals; Practical slaughtering techniques for all farm species shall be conducted; Carcass quality and cut parts shall be evaluated; Different processing (modern and traditional) techniques for monogastric and ruminant animals shall be learnt; Preservation techniques and feed additives; Effects of different preservation methods on the organoleptic properties of meat; Different storage methods for farm animal products; Packaging and packing techniques; Value addition to farm animal products.

AGA 411: Animal Health Management

2 Credit Unit

Health care practices in monogastric and ruminant animals; Environmental and climatic factors affecting animal health, Effects of management, feeding and hygiene on animal welfare; Vaccination procedures in non-ruminants (poultry, pigs, etc) and ruminants (large and small); Diseases of farm animals – epidemiology, predisposing factors, symptoms, diagnosis, prevention, control and treatment; On-farm management practices for health maintenance.

AGC 401: Crop Production Techniques (Permanent, Arable & Horticultural Crops etc)

4 Credit Units

Arable crop production practices for the major crops in the ecological zone, including establishment, cultural practices and harvesting of maize, cassava, yam, cocoyam, plantain, rice, cowpea and melon. Post-harvest treatments of the crops; Crop husbandry practices for local and exotic vegetables suited to the ecological zone.

AGC 411: Pests & Diseases of Horticultural & Vegetable Crops Mgt. 2 Credit Units

The course will give a basic knowledge of the insects and the relationships existing between crops, animals as insects. Pest management, principles and methods of control of insects of agricultural, household and veterinary importance will be treated; identification and management of pests and pathogens and weeds associated with arable, horticulture and permanent crops. Estimation of pest and disease incidence and survey.

AGE 401: Farm Management, Records and Accounting 2 Credit Units

This course involves one credit hour of in-class work and one credit out of class work for two semesters; Major emphasis in the in-class is in the area of record keeping, developing budgets (partial and total) feasibility studies and analyzing a variety of market information; The out of class work deals with actual data collection based on the students. Interest as well as reviewing the records, budgets and profitability of the faculty of agricultural farms (Crops and Animals), the students, as well as, during this phase is exposed or attached to farm, bank or relevant agricultural farm to have a working knowledge of its performance.

AGX 411: Farm Survey and Extension Practices 2 Credit Units

Sample villages in the neighborhood of Calabar are selected and students are to study the socio-economic and technical components of farming systems in the area; Designing of questionnaires and actual conduct of the survey. During the year, the students will go out in a group once a week with their clientele farmers to study the farming operations and field management on the pot; Survey will last for 24 weeks; Design of teaching aids and audio-visuals in Extension Education.

AGS 411: Soil Sampling, Survey and Taxonomy 2 Credit Units

Methods of taking soil samples for various purposes, soil profile, description, soil moisture measurements, types and importance of fertilizers, application rates and methods for various crops. Safety and environmental factors affecting their efficiency, deficiency symptoms.

AGS 421: Soil Fertility test & Laboratory Analysis Techniques 2 Credit Units

The course involves laboratory practical for 10 weeks: soil pH, soil organic carbon/organic matter, total soil nitrogen, total soil phosphorus, available soil phosphorus, cation exchange capacity, exchangeable bases, gram stain procedure for typing microbes, plate dilution method for estimating microbial numbers, streaking and obtaining pure bacteria isolates, most probable number technique, microbial respiration and static incubator methods for assessing microbial activity.

Soil genesis & morphology: Identification of minerals and rocks; soil moisture content determination methods (gravimetric, volumetric, gypsum blocks, etc), water storage, particle and bulk density, particle size analysis, soil moisture characteristics determination, saturated and unsaturated hydraulic conductivity.

Special topics – 3 weeks: New methods of soil analysis, assessment of soil conductivity rating, special topics in soil and environmental science: term paper based on reviews of previous works, interpretation and discussion of analytical data.

AGS 431: Organic Fertilizer test & Crop Production Techniques 2 Credit Units

Sources of raw organic materials for organic fertilizers. Solid and liquid organic fertilizers. Organic composting and vermin-composting processes. Mulches and mulching types in organic agriculture. Manures: types and sources. Analysis of manures, composts and organic fertilizers. Organic standards certification and marketing of organic fertilizers. Laboratory testing of fertilizers to ascertain active ingredients (a.i)

AGX 411: Participation in Agric. Extension 2 Credit Units

Agro-Ecosystem Analysis of villages using phenomenological, historical and ethnographic research designs. Use of participatory research in designing and evaluating Farmers Field Skills (FFS), Participatory Technology Development strategies; Contact and use of focus view interview, checklists, participant interviews and observation, Probe interviews, key informant interviews, Decision drees, Venn or institutional diagrams. Design of Participatory communication appraisal techniques in agricultural communication.

AGR 401: Farm Design, Agric. Mechanization & Workshop Practices 2 Credits Units

Farm design: principles and techniques, surveying and mapping, use of surveying instruments/equipment and the design procedures. Agricultural Mechanization Practices: operations and equipment used. Tillage operations, sowing and planting operations, herbicides/pesticides and fertilizer distribution operations. Harvesting, handling and transport operations, Agricultural products processing and storage operations. Visit to mechanize agricultural farms.

AGR 411: Agricultural Products Processing 2 Credits Units

Agricultural produce (post-harvest crops handling) and products (livestock products; meat, milk, eggs, hides and skin) processing and storage.

AGR 412: VIVA/VOCE Oral Examination 2 Credit Units

An oral examination shall be conducted to evaluate the lessons (agricultural practices) learnt by each student at the end of the practical programme.

AGR 432: Scientific Report Writing 2 Credits Units

At the end of the 12- months practical programme, each student is expected to submit a report of activities conducted both on-farm and during field trips. The report shall be in scientific format.

Second Semester

SIWES/IT (IN AN ESTABLISHED AND FUNCTIONAL FARM)

YEAR FIVE

First Semester

AGA 511: Seminar 1 Credit Unit

Techniques of scientific writing and seminar presentations. Discussion and methodology of seminar presentation in Animal Science related courses. Different types of seminars and conferences. Each student is expected to prepare and participate in all seminars and present a review paper/article in the final year.

AGA 521: Applied Animal Breeding 2 Credit Units

Characters of economic importance in farm animals; statistical tools for studying inheritance; partitioning phenotypic variance and covariance; Estimation of genetic parameters (heritability, repeatability, genetic correlations); Selection principles and methods; Breeding (mating) systems; breeding plans for different farm species; foundation stock development.

AGA 531: Poultry, Swine, Snail and Rabbit Production 2 Credit Units

Building and equipment; incubation and hatchery management of poultry eggs – hen, turkey, quails, duck, geese and guinea fowl production. The application of principles of feeding, housing, care,

breeding and management as basis for successful production. Carcass cuts in swine and measures of carcass quality. Marketing (1 hour of lecture and 2 hours of practical/week).

AGA 541: Cattle, Sheep and Goat Production **2 Credit Units**

The beef and dairy industry; Feeding and management of cattle, sheep and goats; Housing and equipment; Calf-rearing; growing and finishing operations; Milk production, handling and processing. Animal judging; herd recording, castration and dehorning. Production and lactation in sheep and goat; Marketing milk, beef, Goat and sheep products. (1 hour of lecture and 3 hours of practical/week)

AGA 551: Nigerian Feeds and Feeding Stuffs **2 Credit Units**

Classification of foods, feeding stuffs and supplements; Chemistry and nutritive values of succulent feeding stuffs; Concentrate feeds, cereals, legumes and oil seeds. Chemistry and nutritive values of some Nigerian grasses and legume species. Storage and quality control of feeding stuffs and feeds.

AGA 561: Animal Experimentation and Research Techniques **2 Credit Units**

Techniques and procedures in animal experimentation. Basic statistical designs in animal research problems.

AGA 571: Reproductive Physiology and Artificial Insemination **2 Credit Units**

The reproductive systems in male and female animals; Physiology of sperm and ovum; Endocrinology; reproduction. Egg production; pregnancy and foetal development; fertility and sterility of farm animals; Role of AI in livestock production. Cloning, embryo transfer. Management of donors, semen collection, evaluation, preservation and storage; artificial insemination techniques. (1 hour of lecture and 3 hours of practical per week)

AGA 581: Micro-Livestock Production **2 Credit Units**

Micro-Livestock include Rabbits, Snails, Grasscutters, Quails: Breeds; Feeds and nutrition; Management and Health care, Buildings and Equipment; Processing of products; Record keeping.

AGA 591: Animal Science Practice **2 Credit Units**

Job opportunities, Consultancy Services in animal production, professional ethics of Animal Science, preparation of feasibility and environmental impact assessment report for animal production; computer applications in livestock operation.

***AGX 551: Administration and Programme Planning in Extension** **2 Credit Units**

Concepts. Theories, principles and guidelines of administration, organization, supervision as applied to extension; Administrative function and responsibility in agricultural extension; staff recruitment, selection placement and supervision; Budget development and fiscal control; Importance of programme planning in agricultural extension need, educative objective, learning experience, clientele participation, plan of work, and calendar of work; The of good public relations, good leadership and co-operation for an extension worker; Association and Co-operatives: Concept of evaluation applied to agricultural extension programmes.

Second Semester

AGA 512: Monogastric Nutrition **2 Credit Units**

Principles of monogastric nutrition; Elements of human nutrition; Dietary allowance, food survey, food balance sheets; Nutrient requirements for body functions maintenance, growth, reproduction and lactation for various animal species; Factors affecting such requirements by animals, age, levels of production; Relative values of feeds - proximate analysis. Biological value, feeding standards determination uses and limitations. Water in relation to nutrition; Feed formulation

and computations; Feed evaluation; Large scale feed mixing and manufacturing; The feed industry; Diseases of nutritional origin.

AGA 522: Ruminant Nutrition

2 Credit Units

Microbiology of rumen; physiology of rumen action; Metabolic processes and pathways; Non-protein nitrogen utilization; Determination of digestive coefficients, balance trials, systems of energy evaluation, scheme of protein values, water in relation to nutrition and water metabolism, requirements and their interrelationship in nutrition; Feed additives, proximate analysis, ration formulation, nutritional disorders.

AGA 532: Animal Health and Diseases

2 Credit Units

Introduction to animal diseases and health; the defense mechanism of the body and immunity. Economic impacts of diseases on livestock. Classification of animal diseases (Helminthes and protozoan parasites, Bacterial, fungal and viral infections of farm animals), diagnosis, epidemiology, methods of diseases control and prevention of livestock diseases; Notifiable diseases; Principles of infection, immunity and disease resistance and their practical applications; Environmental factors that affect livestock diseases; Animal handling, drug administration and vaccination programmes.

AGA 542: Animal Products and Handling 2 Credit Units

Slaughtering procedures – evisceration, singeing and dressing percentage; Handling of carcass and its cuts; Processing of hides, skin and wool; Dairy operations – milk hygiene, processing and microbiology; Effect of cooking on meat and milk flavor; Post harvest physiology of animal products; Processing, preservation and storage of meat, eggs and dairy products; Egg quality and grading systems; Composition of livestock products (Poultry products, beef products – bacon, sausage and ham), their nutritive value, economy and evaluation; Relationship of nutrition, management and slaughter processes to carcass characteristics; Food additives; Organoleptic properties of animal products- flavor and aroma; Composition of livestock products, their nutritive value, economy and evaluation; Marketing and distribution of animal products.

AGA 552: Pasture Management and Utilization

2 Credit Units

Importance of pasture in animal production. Adaptation and botany of indigenous and introduced pastures and forage plants; Classification and characteristics of pastures – grasses, legumes and shrubs; Establishment, production and seed production of pasture plants; pasture utilization, evaluation and maintenance of permanent and temporary pasture field; Tropical forage growth and nutritive value; Range management; Grazing systems; Preservation and conservation of pasture materials; Hay and silage making; Characteristics of a good hay/ silage.

AGA 520: Research Project

4 Credit Units

Each student is expected to conduct field/laboratory experiments; Research findings will be written in a logical manner and presented for Oral examination (external assessment).

AGR 552: Game Production and Utilization

2 Credit Units

Game production; Harvesting strategies and challenges of game farming; “Bush meat” processing methods, traditional uses of game and game products; Hunting techniques; Game ranching and domestication,; Growth, behavior and reproduction of game animals in captivity; Feeding habit and food preferences; Design of pens/hutches, animal houses and cages; Husbandry techniques and health care in captivity.

***AGE 552: Livestock Economics**

2 Credit Units

Importance of livestock in the Nigerian economy; Consumption and consumer patterns of livestock products; Micro and macro-economics in animal production; Agricultural production functions, including data collection and analysis; Marketing theory in relation to livestock production; Application of economic theory and quantitative analysis; Capital investment and depreciation of capital; The economics of egg, meat and milk production; Livestock feed economics, input/output relationship in livestock production.

***AGE 512: Agric. Co-operative**

2 Credit Units

Definition and introduction to philosophy, basic and distinguishing characteristics of co-operatives organizations. Types, organizational procedures, financing and business management of Agric. Co-operatives, their limitations and potential contribution; structure and conduct performance of different types of markets. The commodity boards; supply and demand elasticity and their effects on marketing decisions of Agricultural products.

***AGE 522: Agricultural Business Management and Finance**

2 Credit Units

The Scope of agricultural business and management; Types of agricultural business management and organizations, enterprise selection; production planning, public policies affecting agricultural business; farm growth; organization of large scale farms, legal organization and tax strategies. Economics of agricultural processing; marketing management; Principles of agricultural finance; principles of farm credit; Capital needs of agricultural industries, sources of loan, funds and collateral security for loans; credit agencies and government credit policy and approaches to efficient credit management; Farm accounting; Inventory, Balance Sheet, Cash Book, Cash Book Analysis.

*Elective

N/B: Students are to take one elective course per semester. Preferably AGX 551 and AGE 552

MISCELLANEOUS ACADEMIC REGULATIONS

Semester Registration

Students are required to register with the Department and Faculty at the beginning of each semester/session. Semester/session registration involves payment of prescribed fees; completing and submission of the registration cards (Time Table and Class Admit Cards) within the stipulated time.

Course Registration and Class Admit Card

Each student will be expected to register for all courses listed for the semester, except for those with prerequisite or excess courses. Students are advised to register first for prerequisite, failed or carryover courses before courses listed for the semester. (Students should seek the guidance of their Academic Adviser).

The completed Class Admit Card (CAC) for each course **must** be submitted to the course lecturer or course coordinator before a student can be said to have registered for the course. The CAC entitles the student to attend lectures, seminars, tests and examinations in the course(s), otherwise the student has not registered for the course(s).

Credit load

B. Agric. (Animal Science) students should register for a minimum of 16 and a maximum of 24 credit units per semester. In special circumstances, with the recommendation of the Academic Adviser, the students in the third and final year **must** apply to the Senate through the Department and Faculty Boards for approval to take up to a maximum of 27 credit units per semester. Post graduate students should refer to their Academic Adviser for options on credit load.

Continuous Assessment

Assessment in all courses of the various programmes in the Department of Animal Science shall normally be based on 30% continuous assessment (assignments, tests, etc.) and 70% final examination.

Repeating Failed Courses

A student is to repeat failed course(s) at the next available opportunity. Senate directs that students must first register for failed courses before registering for new courses. A student repeating any course shall retain the grade earned in the earlier attempts and this shall count towards the computation of the GPA and CGPA for that academic years.

** Students should note the difference between a failed course and a carryover course.*

Carry Over Courses

A carry over course is one that a student ought to have registered for in a particular year of study but could not do so to avoid excess credit units over and above the maximum credit units permitted. Students may register for the carry-over course(s) at the next available opportunity first before registering for new courses.

** The term "carryover course" could be loosely used to refer to both failed course(s) a student is expected to repeat and actual carryover courses.*

Probation and Withdrawal

The University Senate approves that any student carrying up to 10 credit units with CGPA of more than 1.50 (for 5 points grading system) and 10 – 12 credit units with CGPA 0.75 – 0.99 (for 4 points grading system) would be asked to be on PROBATION.

Students carrying up to 15 credit units but with CGPA less than 1.50 (for 5 points grading system) and GPA/CGPA of 0.55 – 0.74 irrespective of the failed credit units (for 4 points grading system) would be asked to withdraw or change programme.

Students carrying more than 15 credit units but with less than 1.50 CGPA (for 5 points grading system) and GPA/CGPA 0.01 – 0.54 but with more than 15 credit units (for 4 points grading system) would be asked to WITHDRAW.

Fourth Year Practical Programme

As part of the academic programme of the Department, students **must** complete and pass all the courses in the practical year. For a student to qualify for the practical year programme he/she must have passed 120 credit units, or should have not more than 7 credit units outstanding at the end of year three.

Long Vacation Programme

The Department of Animal Science in conjunction with the Faculty runs a long vacation programme for 3rd and 5th year students only. This programme was approved by the University Senate to enable problem students either proceed to the practical year or graduate at the end of the final year. Students are allowed to register for a maximum of four (of two credit units) failed courses in this programme, though a failed GSS course could be added. All procedures for registration of courses as obtainable during the regular programme also apply in this programme.

Students' Academic Advisers

Each class of students is assigned an Academic Adviser, who shall;

- i. Advise students on the selection and registration of courses
- ii. Sign all their registration materials
- iii. Liaise with the examination officer on the correction of results
- iv. Advise on other academic and related matters
- v. Ensure that students do not register for more than the prescribed credit units per semester.

Students are advised to avail themselves of this service by being honest, sincere and truthful in disclosing all issues relating to their academic performance to enable the Adviser offer appropriate assistance.

- Year One - Dr. Affiong J. Henry (Ag. HOD)
- Year Two - Dr. O. O. Effiong
- Year Three - Dr. Pascal O. Ozung
- Year Four - Dr. E. E. Nsa
- Year Five - Respective Seminar and Project Supervisors

Seminar and Research/Project Supervision

At the end of the fourth year Practical Programme, successful students are randomly assigned Seminar and Research/Project Supervisors by the seminar and Research/Project Coordinator. Students are advised to work in collaboration with their assigned supervisors from then.

University Examinations

- 1) To qualify for examinations at the end of a semester, students are expected to have made at least 75% attendance in lectures.
- 2) If a student cannot take an examination because of ill-health, he/she should report promptly at the University Medical Centre and obtain a medical report which must be submitted promptly to the Head of Department or through the Academic Adviser for consideration. With this, he/she can later apply for **Supplementary Examination(s)**. Medical reports from outside the University must be endorsed and approved by the Director of Medical Services, Unical, before it can be considered.
- 3) Students should report at all examination venues with their fee clearance and identity cards.

Evaluation of Students Performance

The overall performance of each student during the entire session shall be determined by means of a weighted grade average (GPA), obtained by multiplying the credit load of the course with the numerical weighting (See Tables below).

The student's cumulative grade point average (CGPA) shall be obtained by dividing the sum of grade points for all the courses taken by the total credits of the courses taken.

Table 1: Five Points Scoring System from 1991/1992 – 2016/2017 and 2018/2019 – Date Academic Session

Score	Letter Grade	Point Weight	Remark
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70 – 100	A	5	PASS
60 – 69	B	4	PASS
50 – 59	C	3	PASS
45 – 49	D	2	PASS
40 – 44	E	1	PASS
0 – 39	F	0	FAIL

Five (5) points grading system has the following degree classification:

4.50 – 54.00	First Class Honours
3.50 – 4.49	Second Class Honours (Upper Division)
3.40 – 3.49	Second Class Honours (Lower Division)
1.50 – 2.39	Third Class
1.00 – 1.49	Pass
0.00 – 0.99	Fail

Table 2: Four Points Scoring System from 2017/2018 Academic Session

Score	Letter Grade	Point Weight	Remark
70 – 100	A	4	PASS
60 – 69	B	3	PASS
50 – 59	C	2	PASS
45 – 49	D	1	PASS
40 – 44	E	0	FAIL
0 – 39	F	0	FAIL

The four (4) points grading system has therefore given rise to a new degree classification:

3.50 – 4.00	First Class Honours
3.00 – 3.49	Second Class Honours (Upper Division)
2.00 – 2.99	Second Class Honours (Lower Division)
1.00 – 1.99	Third Class

Examination Malpractice and Penalty

The following constitute examination malpractice by students;

- Acting rudely against or disobeying an Invigilator.
- Talking to other student(s), making noise or disturbing in the hall during examination.
- Taking mobile phones and similar communication devices into the test or examination hall.
- Writing on the question paper (Students are required to do all rough work on the last page and back cover of the answer booklet).
- Copying with the co-operation of another student (*both students are equally guilty*).
- Copying without co-operation (“*Giraffing*”).
- Preparation and use of extraneous materials (“*Microchips*”).
- Mutilating the answer booklet.
- Courier (*smuggling of questions/answer papers or other incriminating materials in/out of examination hall*).
- Impersonating (*writing assignment, test and examination for another student*)
- Reading/consulting of relevant notes/textbooks/other materials in the restroom and other places when excused from the hall to ease or refresh during the examination.
- Writing on laps, dress or other materials other than the answer booklet.
- Plagiarism (*act of using another student’s worked questions or answers, copying of peoples’ projects etc*).
- Evidence of pre-knowledge of examination questions.

Students that commit any of these offences shall be required to fill and sign the Examination Irregularity Form (EIF), which along with the invigilator’s report shall be submitted to the Head of Department for onward transmission to the Examinations Malpractices Committee. By Senate rules, these and other offences attract severe penalties ranging from suspension to expulsion.

EXAMINATION MISCONDUCT OFFENCES AND PRESCRIBED PUNISHMENT

S/N	OFFENCE	PRESCRIBED PUNISHMENT
1.	Communication with another student in the examination room	Cancellation of the papers of both students.
2.	Possession of extraneous materials in the examination room	Suspension for one academic session.
3.	a. Copying from extraneous material (s) b. Copying from material (s) received from another student in the examination room	Suspension for two academic sessions for the student (s) involved.
4.	Writing examination, term paper or project for another student	Expulsion of the students involved. Where the other party is a non – student, the person shall be reported to the police.
5.	Breaking in or unauthorized entry into any office of the University of Calabar and/or removing, changing or tampering with examination materials or results and illegal removal of same	Expulsion from the University.
6.	1.Plagiarizing the entire: a. Undergraduate/ Diploma/ Certificate Term Paper or Project b. Graduate Term Paper or Project c. Graduate Thesis/ Dissertation 2. Plagiarizing only part/ sections of any of the above	Cancellation of the Term Paper or Project plus suspension for one academic session. Cancellation of the Term Paper or Project and suspension for two academic sessions. Cancellation of the particular chapter (s).
7.	Presentation of fake result (s) by a student or for a student to the University	Cancellation of the result, if there is no evidence that the student is involved in organizing the fake result.
8.	Snatching of examination material (s) before/or after an examination by a student	Expulsion of all involved.
9.	a. Possession of cell phone / ipad in an examination hall b. Usage of the phone/ ipad in the examination hall	a. Seizure of the phone/Ipad and cancellation of the paper. b. Suspension for academic session.
10.	Possession of another student’s fee Clearance Card /Class admit Card or Receipt in the examination hall with the intension of writing for her/him (impersonation)	Suspension for one academic session.
11.	Physical or verbal assault of any Staff on examination duty or any attempt to bribe or gratify same for fraudulent marks	Expulsion from the University
12.	Presentation of a false result as genuine by a student to any constituted authority of the University	Rustication from the University for two (2) years with the cancellation of the result(s).