

DEPARTMENT OF

***ANIMAL
SCIENCES***

**FACULTY OF AGRICULTURE
OBAFEMI AWOLOWO
UNIVERSITY
ILE IFE**

HANDBOOK 2019 – 2022

TABLE OF CONTENTS		Page
	Foreword	4
	1.0 INTRODUCTION	5
1.1	Members of Staff of the Department	5
1.2	Historical Notes	7
1.2.1	History of the University	7
1.2.2	Mission, Vision, Major Thrusts of the University	9
1.2.3	History of the Faculty of Agriculture	10
1.2.4	History of the Department of Animal Sciences	10
1.2.5	Mission, Vision, objectives of the Department	11
1.2.6	Members of the University	11
1.2.7	Officers of the University	12
1.2.8	Establishment of the University Council	12
	(a) Functions	12
	(b) Composition of the Members of Council	13
1.3	Organization, Administration and Control	14
1.3.1	Congregation	15
1.3.2	Information on facilities	15
	A. Hezekiah Oluwasanmi Library	15
	B. Division of Students' Affairs	17
1.3.3	Rolls of Honours for students	18
1.4	University Examination Regulations	19
1.4.1	Registration for University Examinations	19
1.4.2	Absence from Examination	20
1.4.3	Examination Offences	21
1.5	The Course Unit System and the Computation of Grade Point Average (GPA) as operated in Obafemi Awolowo University	23
1.5.1	Introduction	23
1.5.2	Calculation of Grade Point Average (G.P.A)	23
1.5.3	Definition of Terms	24
	i. Student Workload	24
	ii. Total Number of Units (TNU)	24
	iii. Cumulative Number of Units (CNU)	24
	iv. Level of Performance Rating	25
	v. Total Credit Points (TCP)	25
	vi. Cumulative Credit Points (CCP)	25
	vii. Grade Point Average (GPA)	25
1.5.4	GPA and CGPA sample computations	25
1.6	Assessment and Award	26
1.7	Transfer within the University and Length of stay in the University	27

2.0	BACHELOR OF AGRICULTURE (ANIMAL SCIENCE)	28
2.1	Objectives	28
2.2	Degree offered	29
2.3	Admission requirements and Award of B. Agric. Degree	29
2.4	Requirements for Award of B. Agric. Degree	30
2.5	Graduation Requirements	30
2.6	Outline of Programme for Parts I – IV	31
2.7	Course Content / Description of courses	37
3.0	POSTGRADUATE PROGRAMME	44
3.1	Introduction	44
3.2	Degree Awarded	44
3.3	General Requirements	44
3.4	General Departmental Requirements	44
3.5	Course Work	44
3.6	Course Examination	45
3.7	Staff for graduate programmes	47
3.8	Course syllabus	48
3.9	Area of Active research	52

FOREWORD

It is my pleasure to welcome you to a new session and to the Department of Animal Sciences for those who are here for the very first time.

There are great opportunities for you as an Animal Scientist. Your knowledge/expertise is required wherever there is life. For example, there are bright prospects for outstanding graduates in academic institutions, international organizations such as FAO, IDRC, ILRI, etc. There are many Animal Scientists working in the Central Bank of Nigeria as well as other commercial/agricultural banks. The agricultural business/corporations such as oil companies, food companies, and pharmaceutical industries also require the services of Animal Scientists. Most importantly, you can be self employed and also become employers of labour. The importance of livestock production in Nation's Development cannot therefore be overemphasized. For this reason the course is now professionalized under The National Assembly Act No.26 of 2007 and managed by the National Institute of Animal Science (NIAS) with head office in Abuja.

Our mission as a Department is to be a centre of excellence for the training of high caliber personnel entrusted with knowledge of animal production as a tool for food security, income generation, gainful employment, and the provision for high quality and wholesome animal products and services for the benefits of mankind. This we have been doing and will continue to sustain.

For you to gain the experience/advantages enumerated above, you will need to be industrious and take your studies very seriously so as to excel. Geniuses are made with 1% inspiration and 99% perspiration. A stitch in time saves nine.

This handbook will guide you on the courses to register for and their units. The unit carried by a course should determine the time spent on it. Nobody plans to fail but people fail when they refuse to plan. A word is enough for the wise.

Thank you.

A handwritten signature in black ink, appearing to read 'E. O. Akinfala', with a large, dark, scribbled-out area in the middle.

Professor E. O. Akinfala

Head, Department of Animal Sciences.

1.0 INTRODUCTION

1.1 MEMBERS OF STAFF OF THE DEPARTMENT

ACADEMIC STAFF

S/No	Name	Degrees	Status	Areas of Specialization
1.	E.O. Akinfala	B. Agric.Tech. (Akure),M.Sc., Ph.D (Ibadan)	Head/Professor	Non Ruminant Nutrition
2.	E.B.Sonaiya	B.Sc., M.Phil. (Ife), Ph.D(Cornell)	Professor	Meat and Muscle Biology
3	A.O. Aderibigbe	B.Sc.(Calif.), M.Sc.,Ph.D. (Oregon)	Professor	Ruminant Nutrition
4	O.G. Omitogun	B.Sc.,M.Sc. (Philippines), Ph.D. (France)	Professor	Animal Biotechnology/ Aquaculture
5	S.M. Odeyinka	B. Agric, Ph.D. (Ife)	Professor	Ruminant Nutrition
6	S.O. Oseni	B. Agric., M.Phil. (Ife),Ph.D (Georgia)	Professor	Animal Breeding and Genetics
7	S.I. Ola	B.Sc.Agric (Ibadan),M.Sc. (Ife), Ph.D (Ibadan)	Reader	Reproductive Physiology
8	A.A. Fatufe	B.Sc., M. Sc. (Ibadan),Ph.D(Halle)	Reader	Non Ruminant Nutrition
9	I.O. Dudusola	B. Agric. Tech., M.Sc. (Bauchi), Ph.D. (Ife)	Reader	Animal Breeding and Genetics
10	J.A. Odedire	B. Tech., (Ogbomoso) M.Sc., Ph.D (Ibadan).	Reader	Forage Science/ Animal Ecology
11	B.O. Oyebanji	D.V.M., M.Sc. (Ibadan), M. Tech (Ogbomosho), Ph.D (Ibadan)	Reader	Animal Physiology
12	O. A. Makinde	B. Sc., M.Sc., Ph.D (Ife)	Senior Lecturer	Animal Products

13	T. O. Abegunde	B. Agric. (Abeokuta), M.Sc., Ph.D (Ibadan)	Senior Lecturer	Ruminant Nutrition
14	T. O. Akande	B.Tech. (Ogbomoso), M.Sc.(Ibadan), Ph.D (Ogbomoso)	Senior Lecturer	Poultry Nutrition/Toxicology
15	A. A. Adeyemi	B. Agric. Tech. (Akure), M.Sc., Ph.D (Ibadan)	Lecturer II	Reproductive Physiology
16	O. Orisasona	B. Agric. Tech. (Akure), M.Sc., Ph.D (Ibadan)	Lecturer II	Fisheries Nutrition

b.) Technical Staff (Senior)

S/No	Name	Qualifications	Status	Job specification
1	J. O. Adedeji	HND (Agric.)	Chief Agric Superintendent	Livestock Technologist
2	E. K. Ogunyemi	HND (Science Tech.)	Assistant Chief Technologist	Laboratory Technologist (Chemistry/ Biochemistry)
3	O.I. Adeyosoye	HND(Microbiology), B.Sc., (Abeokuta), MSc.(Ife)	Senior Technologist	Laboratory Technologist (Biology)
4	M. A. Lasisi	HND(Animal Production), Diploma (Computer studies), Cert. (A..I., Cattle)	Agricultural Superintendent	Livestock Technologist/ Liaison Officer
5	O. Babatunde	WAEC, NIST (INT)	Senior Laboratory Superintendent	Laboratory Assistant
6	H.O. Adegbaye	Trade Test I, II, III, Diploma	Senior Craftsman	Craftsman (Electrical / Electronics)

c.) Administrative Staff (Senior)

S/No	Name	Qualifications	Status	Job specification
1	O. Ajekiigbe	WASC, OND, HND (Secretarial Studies), Certificate Computer (EDP).	Senior Confidential Secretary	Secretary
2	H. O. Oyewole	Primary Six Certificate Mod. Three Certificate GCE.O/L	Chief Secretarial Assistant	Typist
3	E.O. Oyerole	Primary Six Certificate, WASC, EDP	Chief Clerical Officer	Clerk

d.) Technical /Administrative Staff (Junior)

S/No	Name	Qualifications	Status	Job Specification
1	B. F. Adewumi	Trade Test I, II, III,	Senior Farm Assistant	Farm Attendant
2	T. Adisa	Modern Three Certificate	Chief Office Assistant	Office Assistant
3	F. A. Tijani	SSCE, RSA 60 WPM	Secretariat Assistant III	Typist

1.2 HISTORICAL NOTES.

1.2.1 History of the University

Obafemi Awolowo University, Ile-Ife is one of the three Universities established in Nigeria between 1961 and 1962 as a result of the report submitted to the Federal Government in September, 1960, by a Commission it appointed in April 1959 under the Chairmanship of Sir Eric Ashby, Master of Clare College, Cambridge, to survey the needs of post-secondary and higher education in Nigeria over the next twenty years. On 8th of June, 1961, the law providing for the establishment of the provisional council of the University was formally inaugurated under the chairmanship of Chief Rotimi Williams.

On 11th June, 1970, an edict known as the University of Ife edict, 1970 was promulgated by the Government of the Western State to replace the Provisional Council Law of 8th June, 1961. This edict has since been amended by the Obafemi Awolowo University, Ile-Ife (Amended) Edict No. 11 of 1975 (Transitional Provisions) Decree No. 23 of 1975. This new Decree effected a takeover of the Obafemi Awolowo University by the Federal Military Government and established a Provisional Council as an interim governing body of the University which shall subject to the general direction of the Head of the Federal Government, control the policies and finances of the University and manage its affairs. This Provisional Council has since been replaced by a Governing Council.

The University started with five Faculties – Agriculture, Arts, Economics and Social Studies (now Social Sciences), Law and Science. Six new Faculties have since been added, namely the Faculty of Education (established on 1st October, 1967), the Faculty of Pharmacy (established on 1st October, 1969), the Faculties of Technology and Health Sciences (now College of Health Sciences) (both established on 1st October, 1970), Faculty of Administration (with effect from 1st October 1979) and Faculty of Environmental Design and Management (established on April 6, 1982).

In 1992, the University established a collegiate system with five Colleges. The system did not function effectively and was abandoned after two years. However, the Postgraduate College and the College of Health Sciences were retained. The College of Health Sciences now comprises of the Faculties of Basic Medical Sciences, Clinical Sciences and Dentistry.

The following other Institutes and major units exist in the University:

- Adeyemi College of Education located in Ondo
- The Institute of Agricultural Research and Training, Ibadan
- The Natural History Museum
- The Institute of Ecology and Environmental Studies
- The Centre for Gender and Social Policy Studies
- The Centre for Industrial Research and Development
- The Institute of Public Health
- The Institute of Cultural Studies
- The Technology Planning and Development Unit
- The Computer Centre
- The Drug research and Production Unit
- The Equipment maintenance and Development Centre
- The Central Technological Laboratory Workshop
- The Central Science Laboratory
- Centre for Gender and Social Policy Studies
- The Distance Learning Centre

There are some other agencies over which the University has no direct, or, in some cases limited control, sited within the University premises as listed below:

- The Regional Centre for Training in Aerospace Surveys
- The National Centre for Technology management
- The Centre for Energy Research and Development
- The African Regional Centre for Space Science and Education in English

The student population rose steadily from 244 in 1962/63 to about 35,000 as at present.

1.2.2 Mission, Vision, Major Thrusts of the University

(a) MISSION

To nurture a teaching and learning community; advance frontiers of knowledge; engender a sense of selfless public service; and add value to African culture.

(b) VISION

The vision is of a top rated University in Africa.

(c) The major thrust of the University strategic plan for 2016-2020 are:

- Teaching
- Research and Innovation
- Governance
- Fund Generation and Management
- Human Resources Development and
- Infrastructure and Estate Development

These major thrusts involve the following broad objectives:

- The modernization of the University's teaching programmes, through a continuous review of the curricula and teaching support services.
- The pursuit of a research agenda that will deepen the University's contribution to national development through research outputs and products uptake.
- The preparation of students for self-employment and entrepreneurship.

- The continued development and expansion of information and communication Technology (ICT) for all aspects of the institution's functions.
- An expanded revenue base backed by improved financial management capability.
- The development of strategic linkages and partnerships.

1.2.3 History of the Faculty of Agriculture

The Faculty of Agriculture, Obafemi Awolowo University, Ile-Ife is one of the five foundation Faculties with which the University started functioning in 1962. In 1966/67, the Faculty was one of the first units of the University to move to the permanent site at Ile-Ife and it is now one of the 13 Faculties in the University.

In the 1977/78 session, the Faculty offered a unified 4-year degree programme with one year compulsory Internship designed to promote practical exposure to students. A subsequent revised programme resulting from recent national needs and global trends led to the award of undergraduate degrees (B. Agric.) by five Departments – Agricultural Economics, Agricultural Extension & Rural Sociology (now Agricultural Extension & Rural Development), Animal Science (now Animal Sciences), Plant Science (now Crop Production & Protection) and Soil Science (now Soil Science and Land Resources Management) while the Department of Family, Nutrition and Consumer Sciences offers a 4-year undergraduate programme leading to B.Sc. Consumer Sciences. The teaching, research and extension facilities in the Departments are complemented by the field laboratory teaching, research and extension facilities in the OAU Teaching and Research (T&R) Farm. The Faculty also maintain a very close working relationship with the Institute of Agricultural Research and Training (IAR&T), Ibadan.

The programmes in the various Departments are designed and tailored toward meeting the challenges of the new millennium, promote entrepreneurship in graduates as well as extend the frontiers of knowledge in the various disciplines.

1.2.4 History of the Department of Animal Sciences

The Department of Animal Sciences started as one of the programmes in the General Agriculture Degree Programme awarded by the University of Ife now Obafemi Awolowo University, Faculty of Agriculture in 1962. The Department was formally established in 1966/1967 session. The Faculty of Agriculture operated as unified

degree Programme from 1962-1977 in which every department made a contribution toward undergraduate training in agriculture. Thereafter, with the introduction of the Bachelor of Agriculture (B. Agriculture) degree Programme, the department graduated its first set of 9 graduates of B. Agriculture (Animal Science) in 1981.

1.2.5 Mission, Vision, Objectives of the Department

Mission Statement

A Centre of Excellence for the training of high caliber personnel entrusted with knowledge of animal production as a tool for food security, income generation, gainful employment, and the provision for high quality and wholesome animal products and services for the benefits of mankind.

OBJECTIVES

The main objectives of the Department are to meet the manpower needs and provide knowledge based solution to the problems of the agricultural sub-sector and the society at large.

The specific objectives of the department include:

- a. To prepare young professionals for careers in Animal Science and to instill in them, life-long habits of dedication, leadership, innovation and service.
- b. To conduct strategic research (basic and applied) in Animal Science so as to meet the national Challenge of food security and improved welfare.
- c. To help to develop national livestock policies that will foster a sustainable, environment-friendly and prosperous agricultural sector and national economic development.
- d. To create public awareness of development in the agriculture and food industry vis-à-vis quality and safety of animal products.
- e. To assist with rural development through direct collaboration with smallholder livestock units so as to promote employment, income generation and development of skills.

1.2.6 Members of the University

The members of the University as defined in statute 2(1) are:

- (a) the Officers of the University;
- (b) the members of the Council;
- (c) the members of the Senate;

- (d) the members of the Academic Staff;
- (e) the Graduates;
- (f) the students; and such other persons as may by Statute be granted the status of members

A person shall remain a member of the University only as long as he is qualified for such membership under any of the sub-paragraphs (10) of this Statute.

1.2.7 The Officers of the University

The Officers of the University as contained in Statute 3 shall be:

- (a) the Chancellor;
- (b) the Pro-Chancellor;
- (c) the Vice-Chancellor;
- (d) the Deputy Vice-Chancellor (Academic);
- (e) the Deputy Vice-Chancellor (Administration);
- (f) the Registrar;
- (g) the Librarian;
- (h) the Bursar; and

such other persons as may by Statute be granted the status of officers

The Principal Officers of the University

Professor Eyitope OGUNBODEDE	- Vice-Chancellor
Professor Adebayo Simeon BAMIRE	- Deputy Vice-Chancellor (Academic)
Professor Chris Olugbenga AJILA	- Deputy Vice-Chancellor (Administration)
Mrs. Margaret Idowu Omosule	- Registrar
Dr. Femi Zacchaeus OGUNTUASE	- University Librarian
Mr. Samson AYANSINA	- University Bursar

1.2.8 Establishment of the University Council

(a) Functions

The University Council to be known as the Council of the Obafemi Awolowo University, Ile-Ife was established by an Edict. The Edict states that Council shall be the governing authority of the University and shall have the custody, control and disposition of all the property and finances of the University and, except as may otherwise be provided in the Edict and the Statutes, shall manage and superintend generally the affairs of the University and, in any matter concerning the University not provided for under this Edict, the Council may act in such manner as appears to it best calculated to promote the interests, objects and purposes of the University.

The Council, subject to the provisions of the Edict and Statutes has the following functions among others:

- i. to determine, in consultation with Senate, all University fees;
- ii. to establish, after considering the recommendation of the Senate on that behalf, Faculties, Institutes, Schools, Boards, Departments and other units of learning and research; to prescribe their organization, constitution and functions and to modify or revise the same;
- iii. to authorize, after considering the recommendations of the Senate in that behalf, the establishments for the academic in the University, and with approval of the Senate, to suspend or abolish any academic post except a post created by this Edict or the Statutes;
- iv. to authorize the establishments for the administrative staff and other staff in the University and to suspend or abolish any such posts other than posts created by the Edict or the Statutes;
- v. to make the appointments authorized by this Edict and the Statutes;
- vi. to exercise powers of removal from office and other disciplinary control over the academic staff, the administrative staff and all other staff in the University;
- vii. to supervise and control the residence and discipline of students of the University and to make arrangements for their health and general welfare.

(b) Composition of the Members of Council

The Council as contained in Statute 10(1) as amended by Decree No. 11 of 1963 and Decree 25 of 1996 shall consist of the following members:

- i. Ex-Officio Members: Pro-Chancellor
The Vice-Chancellor
The Deputy Vice-Chancellors
- ii. 1 member from the Federal Ministry of Education
- iii. 4 members appointed by National Council of Ministers
- iv. 4 members of Senate appointed by Senate
- v. 2 members of the Congregation elected by the Congregation
- vi. 1 member of Graduates Association elected by Graduates Association

The Senate shall prescribe which Departments and subjects of study shall form part or be the responsibility of each of the Faculties. The next level of organization is the Faculty where the teaching and other activities of the Departments are co-ordinated. Proposals generally come from Departments to the Faculty Board although they can also be initiated at the Faculty level in which Departments normally have an

opportunity to consider them before the Faculty Board takes a decision. The membership of the Faculty Board is stipulated in Statute 13(3) thus:

- a) The Vice-Chancellor
- b) The Deputy Vice-Chancellors
- c) The Dean of the Faculty
- d) The Professors and Heads of Departments comprising the Faculty;
- e) Such other full-time members of the academic staff of the Departments comprising the Faculty as the Senate may determine after considering the recommendation of the Faculty Board;
- f) Such other Professors and other Heads of Departments, as the Senate may determine after considering the recommendation of the Faculty Board;
- g) Such other persons within or outside the University as the Senate may appoint after considering the recommendation of the Faculty Board.

The next level is that of Departments which consist of groups of Teachers and sometimes Research Fellows in a single subject with a Head who is usually, although not always, a Professor generally appointed by the Vice-Chancellor.

The Department is the normal basic unit of academic organization. It is at this level that the organization of teaching and the use of research facilities are primarily worked out. Senate may however recommend the creation of Institutes for groups of specialized subjects or discipline that require interdisciplinary research efforts and thus, cut across Faculties in scope.

1.3 ORGANIZATION, ADMINISTRATION AND CONTROL

The Vice-Chancellor is the Chief Executive Officer of the University and five other Principal Officers of the University, namely: the Deputy Vice-Chancellor (2), the Registrar, the University Librarian and the Bursar report to him. The University Librarian is in charge of the University Library while the Bursar takes charge of the University finances. The Registrar is the Secretary to Council and the Chief Administrative Officer of the University and he assists the Vice-Chancellor in the day-to-day administration. He is also the Secretary to Senate and heads the Registry, comprising the Directorate of Academic Affairs, the Directorate of Council Affairs, Division of Corporate Services and the Director of Personal Affairs. The Planning, Budgeting, Monitoring/Management Information System Unit takes care of the academic planning, budgeting and monitoring needs of the University and is under the Vice-Chancellor's Office.

The University Central Administration also includes some Units providing common services. They are the Medical and Health Services, the Division of Maintenance Services, the Physical Planning and Development Unit and the Computer Centre, Heads of these units report to the ViceChancellor.

1.3.1 CONGREGATION

The congregation comprises all full-time members of the academic staff and every member of the administrative staff who holds a degree of any recognized University. It discusses and declares an opinion on any matter whatsoever relating to the well-being of the University. It has twelve elected members in Senate and two elected members in the University Council.

1.3.2 INFORMATION ON FACILITIES

A. Hezekiah Oluwasanmi Library.

Plan of the University Library:

The Library consists of the North and South wings, which are connected by walkways on two levels

Membership:

Membership of the Library is available, on completion of a registration card, to all students, members of the senior staff of the University and such other persons as may be determined by the Library Committee or the University Librarian on behalf of it.

Students are required to renew their registration at the beginning of each academic year. Library Cards and Borrower's Tickets are not transferable; books issued on them remain the responsibility of the person whose name appears on them.

A lost Library Card or Borrower's Ticket may be replaced on submission of written application.

The Library Collection Hezekiah Oluwasanmi Library now contains over 380,000 volumes. It consists of two main areas:

- (i) The Undergraduate Areas and
- (ii) The Research Areas

1. Serials Collection

The Serial Collection consists of current journals, the most current issues of which are shelved in the displayed section of the Serials Room

- a. Latest back files i.e. the latest 10 years of journals which are on open access to registered senior staff and postgraduate students; and
- b. Older back files i.e journals older than ten years on closed access to all categories of readers who must obtain and complete request forms at the serial hatch.

2. **Africana Special Collection**

The Africana Special Collection is a collection of rare and other books of primary interest to people whose fields of interest are in Africana Studies. Staff publications and theses submitted for higher degrees of the University as well as of other Universities are also housed there. The collection is closed access.

3. **Documents Collection**

The Documents Collection includes official publications of the Federal Government of Nigeria, the old regional governments, the present state governments and the Federal Capital Territory. It also includes publications of other African governments and international organizations.

4. **Reference Collection**

Dictionaries, encyclopedia, handbooks, directories, atlas, University Calendars etc, are shelved in the reference Room. Bibliographies, indexes and abstracts are available in the Bibliography Room. Reference books do not ordinarily circulate. A newspaper clippings file (post- October, 1985) and a vertical file of reprints and other pamphlet type material is kept in the Reference Room.

5. **Reserve Collection**

(i) Day reserve collection

Multiple copies of textbooks, particularly some of those recommended for specific courses, are shelved in the Reserved Books Room on Floor 3 North Wing East.

(ii) Two Hour Reserve

Some other materials, periodical articles in particular, are placed on 2-hour reserve. These may be obtained on request (signature and seat number required) and retained for a period of two hours at a time, subject to renewal, provided other readers have not demanded the materials.

6. Recent Acquisitions

A selection of books added to the Library stock is normally displayed for several days before being put in the main collection. The books may not be borrowed while on display but may be reserved at the loan Desk.

CATALOGUES

A library catalogue is a finding list of books and other materials available in the Library. The following catalogues can be found in the Catalogue Hall:

- (i) The author/Title Catalogue
- (ii) The Subject Catalogue
- (iii) The Shelf List
- (iv) The Serial Catalogue
- (v) The Documents Catalogue

HOW TO BORROW A BOOK

When you have found the book that you want to borrow, you will be required to sign your name and address on the book card provided in duplicate. You must surrender a borrower's Ticket for each book borrowed. When you return a book, you must ensure that you receive your Borrower's Ticket back immediately.

RESERVATION

A book can be reserved by filling a reservation slip; in which case, it will not be renewed for the present borrower when returned; and if it is already overdue, it will be recalled at once.

B. DIVISION OF STUDENT AFFAIRS

1. Guidance and Counseling Unit:

The Division of Student Affairs has Professional Counselors who are committed to helping students grow in self-understanding in the process of integrating their personal and academic experiences. The services are free to students and are confidential (i.e. not used as part of his/her other University records). The services include personal counseling, group counseling, study skills improvement, tests anxiety reduction, personal crisis intervention, psychological testing, career and occupational counseling and settlement of grievances between students. Where necessary, consultations are made with campus organizations, specialist and academic Department, to ensure that students' problems are resolved satisfactorily.

The Counselors can be contacted in Rooms 9 and 10, Division of Student Affairs between 10.00 am and 2.00 p.m. Monday to Friday

2. Scholarship and Financial Assistance:

The Division of Students' Affairs serve as a link between students and sponsoring authorities, both within and outside Nigeria. Students are advised to check the Notice Boards in their respective Faculties as well as those at the Division of Student Affairs Building for advertisements and other relevant information.

Liaison is also maintained between students and governments at various levels for scholarship and bursaries.

1.3.3. Roll of Honours for Students

Senate at a special meeting held on Wednesday 1st November, 2006 decided that the roll of honours for students be instituted in the University to enhance discipline and good performance among students. All students are enjoined to strive to be on the Honours Rolls.

The details are as follows:

- (i) The Honours Roll should be at three levels, namely:
 - (a) Departmental;
 - (b) Provosts/Deans; and
 - (c) University/Vice-Chancellor's;
- (ii) The beneficiaries must have a minimum CGPA of 4.0 for Departmental Honours in all Faculties except the Faculty of Pharmacy and College of Health Sciences where the candidates are expected to have a cumulative/weighted average of 60% and 62% respectively;
- (iii) The beneficiary must maintain this grade annually to continue to enjoy the award;
- (iv) The recommendations must be processed along with Rain Semester examination results;
- (v) The student must be of good conduct;
- (vi) He/She must not have any outstanding or carry-over courses and must not be repeating the year;
- (vii) No student on Leave of Absence shall enjoy the Annual Rolls of Honours award;
- (viii) No student that has a disciplinary problem shall enjoy the award;
- (ix) The award shall be based on the recommendation of the Departmental Board of Examiners and the Faculty Board of Examiners, while that pertaining to the ViceChancellor/University shall be processed through the Committee of Deans

- (x) Names of beneficiaries shall be displayed as follows: Departmental Honours - Departmental Notice Board Provost/Deans Honours - Faculty Notice Board Vice-Chancellor/University Honours: Floor 'O' Secretariat Building
- (xi) Each beneficiary shall be given a certificate

1.4 UNIVERSITY EXAMINATION REGULATIONS

University Examination Regulations made pursuant to the provisions of Section 27 of the Obafemi Awolowo University Law, 1970 (as amended). PART I: The Organisation of Examinations

1. CONTROL OF UNIVERSITY EXAMINATIONS

(a) The Senate shall have control and general direction of all University examinations and shall exercise such powers as may be necessary to discharge these functions. (b) The Committee of Deans shall be responsible for the details of organization and administrative arrangements for University Examinations. The University Time-table Sub-Committee shall assist it in the performance of these functions. The Director of Academic Affairs shall be the Secretary to the Sub-Committee. (c) Subject to the overriding control of the Senate, exercised through the Committee of Deans under Regulation (Ib) above, University examinations shall be conducted by Departmental Boards of Examiners appointed by the Business Committee of Senate on the recommendations of the appropriate Faculty Boards. (d) The Senate shall determine any matter relating to the conduct of organization and arrangement of examinations.

REGISTRATION FOR UNIVERSITY EXAMINATIONS

- (a) A candidate for a University examination must have registered for the courses in the prescribed format not later than the closing date prescribed for registration for such courses. Any candidate who fails to register for courses at the appropriate time as prescribed by Senate will not be allowed to take any examination in such courses. Any examination taken without course registration shall be null and void.
- (b) Students who register for courses are committed to the number of units registered for and are expected to take examinations in such courses. If a student failed to take an examination he would be scored 'OF' for the number of units he had registered for and in which he had failed to take the prescribed examination.
- (c) Any student who does not have any course or courses to offer in a particular semester should apply for leave of absence.
- (d) A candidate who has less than 15 units in a particular semester to graduate should apply to his/her Faculty Board for permission to register for less than 15 units. Failure to do so constitutes a breach of regulation which may result in the non-processing of the candidate's results.
- (f) A candidate who cannot register for courses during the prescribed

period for registration because of an illness, must ensure that medical report on his illness is forwarded by him or his parents/sponsors to reach the Dean of his Faculty not later than four weeks after the end of the normal registration period as scheduled in the University Calendar. Such a medical report should be forwarded for authentication by the Director of Medical and Health Services for it to be considered valid. Such a candidate shall be exempted from the penalties of late registration. All applications should be routed through the Head of Department.

- (g) Students must attend a minimum of 75% of course instructions including lectures, tutorials and practicals where required to qualify to sit for examination in any course. (h) A candidate for a university examination in a particular degree programme should not be a regular candidate for another degree in this or any other university concurrently. Any candidate so discovered shall forfeit his/her studentship.

1.4.2 ABSENCE FROM EXAMINATION

Candidates must present themselves at such University examinations for which they have registered. Candidates who fail to do so for reason other than illness or accident shall be bound by the following regulations: (a) Any student who fails to register for courses during one semester without permission should be deemed to have scored "O F" in the minimum number of units required for full time student (i.e. 15 units.) (b) Candidates who registered for courses, attended classes regularly, did all practicals and tests but did not take required given a continuous Semester examinations should be assessment grade in each of the affected courses and a grade of "O" in the examination which they should have taken, but which they did not take. (c) Candidates who have less than 15 units to graduate but who fail to take the required examinations should be deemed to have scored "OF" in the outstanding courses only provided such candidates obtained permissive to register for less than 15 units.. (d) Any candidate who on account of illness, is absent from a University examination may be permitted by the Senate on the recommendation from the appropriate Faculty Board, to present himself for such examination at the next available opportunity provided that: (i) A full-time student in the University shall report any case of illness to the University Health Centre at all times. (ii) When a student falls ill during examination he should first report to the Director, Medical and Health Services before attending any hospital outside the University. A report of sickness should be made to the Registrar within a week and a medical certificate for validation of his illness within three weeks. (iii) When a student falls ill before an examination he shall be under an obligation to send a medical report countersigned by the Director, Medical and Health Services within one week of such illness. Any time outside this period, shall be considered on its own merit. (iv) The Director of Medical and Health Services should, within 48 hours, submit a medical report on a candidate who is ill during an examination and is

taken to the Health Centre or referred by it to the hospital for treatment. (v) A candidate applying for leave of absence on medical grounds must forward his application together with a medical report to the Dean of his Faculty through his Head of Department. The Medical report must be countersigned by the Director of Medical and Health Services. All applications for Leave of Absence must be taken by the appropriate Faculty Board.

1.4.3 EXAMINATION OFFENCES AND PENALTIES

EXAMINATION OFFENCES

- (a) A candidate shall not be allowed during an examination to communicate by word or otherwise with any other candidates nor shall he leave his place except with the consent of an invigilator. Should a candidate act in such a way as to disturb or inconvenience other candidates, he shall be warned and if he persists he may, at the discretion of the invigilator, be excluded from the examination room. Such an action by the invigilator must also be reported in writing through the Head of Department to the Vice-Chancellor within 24 hours.
- (b) It shall be an examination offence for any student, staff or any person whatsoever to impersonate a candidate in any University examination. Any student or staff of the University found guilty under this regulation shall be subjected to disciplinary action by the appropriate authority of the University. The candidate impersonated shall also be liable of an infraction of this regulation where it is established directly from circumstantial evidence that the impersonation is with his knowledge or connivance.
- (c) No candidate shall take into an examination room, or have in his possession during an examination any book or paper or printed or written documents, whether relevant to the examination or not, unless specifically authorized to do so. An invigilator has authority to confiscate such documents.
- (d) Mobile phones are not allowed in examination halls.
- (e) A candidate shall not remove from an examination room any papers, used or unused, except the question paper and such book and papers, if any, as he is authorized to take into the examination room.
- (f) Candidates shall comply with all "direction to candidates" set out on an examination answer book or other examination materials supplied to them. They shall also comply with direction given to them by an Invigilator.

- (g) Candidates shall not write on any paper other than the examination answer books. All rough work must be done in the answer books and crossed out neatly. Supplementary answer books, even if they contain only rough work must be tied inside the main answer books.
- (h) When leaving the examination room, even if temporarily, a candidate shall not leave his written work on the desk but he shall hand it over to an invigilator. Candidates are responsible for the proper return of their written work.
- (i) Smoking shall not be permitted in examination room during examination sessions.
- (j) Any candidate or staff who attempts in any way to unlawfully have or give pre-knowledge of an examination question or to influence the marking of scripts or the award of marks by the University examiner shall be subjected to disciplinary action by the appropriate authority of the University.
- (k) If any candidate is suspected of cheating, receiving assistance or assisting other candidates or of infringing any other examination regulation, a written report of the circumstance shall be submitted by the invigilator to the Vice-Chancellor within 24 hours of the examination session. The candidate concerned shall be allowed to continue with the examination.
- (l) Any candidate suspected of examination malpractice shall be required to submit to the invigilator a written report immediately after the paper. Failure to make a report shall be regarded as a breach of discipline. Such report should be forwarded along with the invigilator's report to the Vice-Chancellor.
- (m) Where a Head of Department fails to forward a report on examination malpractice to the Vice-Chancellor such action would be considered as misconduct.
- (n) Where the Vice-Chancellor is satisfied on the basis of the reports forwarded to him that any candidate has a case to answer, he shall refer the case to the Central Committee on Examination Malpractice.

PENALTIES FOR EXAMINATION MALPRACTICE AND OTHER OFFENCES

- (a) Any examination offence would attract appropriate penalty including outright dismissal from the University.
- (b) Where the Vice-Chancellor has reason to believe that the nature of any question or the content of any paper may have become known before the date and time of the examination to any persons other than the examiners of the paper, the Board of Examiners, and any official of the University authorized to handle the paper, he may order the suspension of the examination or the cancellation of the paper or setting of a new paper and shall report the matter to the Senate. The Vice-Chancellor shall also take any disciplinary measure against any student or students involved as he may deem appropriate.
- (c) If in the opinion of an invigilator, circumstances arise which render the examination unfair to any candidate he must report the matter to the Vice-Chancellor within 24 hours after the examination. Where such matter is reported to the Vice-Chancellor he may take such action as he deems fit. If he directs that another examination be held, that examination shall be the examination for the purpose of this regulation.
- (d) Any candidate or member of staff may complain to the Vice-Chancellor that an examination has been improperly conducted. The Vice-Chancellor shall investigate the complaint and report the result of his investigation to the Senate which shall take such action as it may deem appropriate, including with-holding a result or deprivation of the award of a degree, diploma etc as laid down in Statue 17. However where it is shown to the satisfaction of the Committee of Deans that any alteration or amendment of a University regulation involving a change in a course of study or in examination requirements has caused hardship to a candidate in any examination, the Committee of Deans shall make such provisions as it thinks fit for the relief of each hardship and report same to Senate.

1.5 The Course Unit System and the Computation of Grade Point Average (GPA), Pattern of Examination and Assessment under the Course Unit System

1.5.1 Introduction

1.5.2 Calculation of Grade Point Average (GPA)

(a) Pattern of Examination

- (i) Each course shall be examined at the end of the course. The examination shall be conducted as prescribed by Senate.
- (ii) Each examination shall be 1-3 hours in duration in addition there may be a practical paper and/or an oral examination.

- (iii) There shall be continuous assessment of each course and this shall constitute a percentage of the final grade.

(b) Measurement of Performance

Performance in a course shall be measured in terms of:

- (i) the results of prescribed theory and practical examination
- (ii) continuous assessment which shall constitute 40% of measured performance
- (iii) Assessment of such essay, practical exercises and reports prescribed for each course.

(c) Level of Performance

A candidate shall be recorded as having attained in a course a level of achievement grade as follows:

A = Excellent	70% - 100%
B = Very Good	60% - 69%
C = Good	50% - 59%
D = Satisfactory	45% - 49%
E = Adequate	40% - 44%
F = Failure	0% - 39%

1.5.3 DEFINITION OF TERMS

- (i) **Student Workload:**
This is defined in terms of course units. One unit represents one hour of lecture or one hour of Tutorial or 2-4 hours of practical work per week throughout a semester. Thus for example, a course in which there are 2 hours of lectures and 1 hour of Tutorial per week is a 3 unit course.
- (ii) **Total Number of Units (TNU):**
This is the total number of course units carried by a student in a particular semester. It is the summation of the load units on all courses carried during the semester. For example, a student who is carrying 6 courses of 3 units each has a TNU of 18 for that semester. No student shall be allowed to carry (i.e. register for) or be examined in more than 24 units in any particular semester.
- (iii) **Cumulative Number of Units (CNU):**
This is the total number of course units over all the semesters from the beginning to date. A student who is prone to repeating courses will finish (if he does drop out) with a higher CNU than his non-repeating

colleague and will most likely require a longer time to complete requirements for the award of Degrees.

(iv) **Level of Performance Rating:**

This is the rating of grades obtained in terms of credit points per load unit. The rating used is as follows:

Level of Performance	Rating (credit points per unit)
A = 70% - 100%	5
B = 60% - 69%	4
C = 50% - 59%	3
D = 45% - 49%	2
E = 40% - 44%	1
F = 0% - 39%	0

Based on the above , a student who obtained a grade of ‘A’ in a 4 unit course has scored 20 credit points and one who obtained a grade of C in that course has scored 12 credit points.

(v) **Total Credit Points (TCP):** This is the sum of the products of the course units and rating in each course, for the entire semester period. For example, consider a student who took four courses of 5 units each. Let’s say the grade obtained in the four courses were C. B. F. and D respectively. The TCP of this student is obtained as $5 \times 3 + 5 \times 4 + 5 \times 0 + 5 \times 2 = 45$.

(vi) **Cumulative Credit Point (CCP):** This is the summation of Total Credit Points over all semesters from the beginning to date.

(vii) **Grade Point Average (GPA):** This is the total credit points (TCP) divided by the total units (TNU). For example, consider the student’s scores referred above. His TCP is 45 and of course, his TNU is 20 (i.e. 4 courses at 5 units each, for the semester). The highest GPA that can be earned is 5.0 and that is when a student has earned a grade of ‘A’ in every course during the semester. The lowest GPA obtainable is 0.0 and this would happen if the student has ‘F’ all round during the semester.

(viii) **Cumulative Grade Point Average (CGPA):** This is the summation of TCPs for all semesters, divided by the summation of TNUs for the said semesters. Like the GPA, CGPA obtainable ranges from 0 to 5.

1.5.4 GPA AND CGPA SAMPLE COMPUTATIONS

Sample Computations: Consider a student who has enrolled in a course programme designed as EES and has just completed 2 full semesters in the University. His course programme and his GPA and CGPA could be as follows:

SEMESTER I

	L	T	P	UNITS	RESULTS		
COURSE CODE					GRADES	CREDIT POINTS	GPA/CGPA
ANS 101	1	0	0	1	78%(A)	$1 \times 5 = 5$	$GPA = 29/18 = 1.61$
ANS 103	3	0	2	4	60%(B)	$4 \times 4 = 16$	$CCP = 29 + 0 = 29$
ANS105	3	0	3	4	45%(D)	$4 \times 2 = 8$	$CNU = 18 + 0 = 18$
ANS 107	3	1	5	6	38%(F)	$6 \times 0 = 0$	$CGPA = 29/18 = 1.61$
ANS 109	2	0	0	3	27%(F)	$3 \times 0 = 0$	
				18 (TNU)		29 (TCP)	In this case the TCP, TNU and GPA will be the same for CCP, CNU and CGPA

SEMESTER II

	L	T	P	UNITS	RESULTS		
COURSE CODE					GRADES	CREDIT POINTS	GPA/CGPA
ANS 102	2	0	0	2	66%(B)	$2 \times 4 = 8$	$GPA = 29/18 = 1.61$
ANS 104	3	0	2	4	72%(A)	$4 \times 5 = 20$	$CCP = 29 + 0 = 29$
ANS 106	3	0	3	4	47%(D)	$4 \times 2 = 8$	$CNU = 18 + 0 = 18$
ANS 108	3	1	0	4	53%(C)	$4 \times 3 = 12$	$CGPA = 29/18 = 1.61$
ANS 110	2	1	3	4	42%(E)	$4 \times 1 = 4$	
				21 (TNU)		51 (TCP)	In this case the TCP, TNU and GPA will be the same for CCP, CNU and CGPA

1.6 ASSESSMENT AND AWARD OF DEGREES

- (i) A student's workload is defined in terms of course units. One unit represents one hour of lecture or one hour of tutorial, or 2-4 hours of practical work per week throughout a semester or a full session of two semesters.
- (ii) The final award and the class of the degree shall be based on the cumulative grade point average (CGPA) obtained by each candidate in all prescribed courses approved by the university. The final cumulative grade point average shall be calculated on the basis of the total number of credit points and the total number of course units registered for during the course of the student's programme. In the case of failed course, the candidate must repeat the course at the next available opportunity. If the course is an elective, the candidate may substitute another course and shall not be required to pass the failed elective course. If the course is a restricted elective, substitution can only be made from the list of restricted electives. The failed grade would however be reflected in the transcript.
- (iii) A candidate who has satisfactorily completed all requirements for the degree with an overall grade point average of not less than 1.00 shall be awarded the honours degree as indicated below;

First Class:	4.50 – 5.00
Second Class (Upper Division):	3.50 – 4.49
Second Class (Lower Division):	2.40 – 3.49
Third Class Honours:	1.50 – 2.39
Pass:	1.00 – 1.49

- (iv) Passes in 12 units of Special Electives is a requirement for graduation.
- (v) A candidate who scores a cumulative grade point average (CGPA) of less than 1.00 in two consecutive semesters shall be required to *withdraw* from the university.

1.7 TRANSFER WITHIN THE UNIVERSITY AND LENGTH OF STAY IN THE UNIVERSITY

- (a) To qualify for a degree, a candidate will normally be required to spend a minimum of 4 – 5 academic years at the Obafemi Awolowo University.
- (b) If a student transfers from one faculty to another, the transfer would be treated as if he/she is just being admitted into the University since as part of the requirement for graduation the student has to take all the foundation/compulsory courses in the

new Faculty/Department. In that case, his/her stay in the new Faculty/Department should be 1½ times the number of semesters required to complete a programme.

- (c) Where a student transfers from a science based Faculty to another, the computation of his result in the new Faculty shall take cognizance of his previous CGPA in the new Department. The duration of stay in the University will be what remains of the 1½ times the number of semesters required to complete the programme as approved by Senate.
- (d) Where a student is transferring from a science-based to Humanities/Arts- based Faculty or vice-versa, the transfer should be treated as if the student is just being admitted into the university. The GPA of the student will not be transferred to the new Department. He/She will however be required to take all the foundation/compulsory courses in the new Department.

2.0 BACHELOR OF AGRICULTURE (B.AGRIC. ,ANIMAL SCIENCE)

BRIEF HISTORY

The Department of Animal Sciences started as one of the programmes in the General Agriculture Degree Programme awarded by the University of Ife now Obafemi Awolowo University, Faculty of Agriculture in 1962. The department was formally established in 1966/1967 session. The Faculty of Agriculture operated as unified degree Programme from 1962-1977 in which every department made a contribution toward undergraduate training in agriculture. Thereafter, with the introduction of the Bachelor of Agriculture (B. Agriculture) degree Programme, the department graduated its first set of 9 graduates of B. Agriculture (Animal Science) in 1981.

2.1 OBJECTIVES

MAIN OBJECTIVE

The main objectives of the department are to meet the manpower needs and provide knowledge-based solution to the problems of the agricultural sub-sector and the society at large.

There is a great opportunity for you to be an Animal Scientist. Your knowledge/ expertise is required wherever there is life.

MISSION STATEMENT

A Centre of Excellence for the training of high caliber personnel entrusted with knowledge of animal production as a tool for food security, income generation, gainful employment, and the provision for high quality and wholesome animal products and services for the benefits of mankind.

SPECIFIC OBJECTIVES

The specific objectives of the department include:

- a. To prepare young professionals for careers in Animal Science and to instill in them, life-long habits of dedication, leadership, innovation and service.
- b. To conduct strategic research (basic and applied) in Animal Science so as to meet the national Challenge of food security and improved welfare.
- c. To help to develop national livestock policies that will foster a sustainable, environment-friendly and prosperous agricultural sector and national economic development.
- d. To create public awareness of development in the agriculture and food industry vis-à-vis quality and safety of animal products.
- e. To assist with rural development through direct collaboration with smallholder livestock units so as to promote employment, income generation and development of skills.

2.2 DEGREE OFFERED

ACADEMIC PROGRAMMES

(a) **Undergraduate:** The Department of Animal Sciences runs a Bachelor of Agriculture (B.Agric. Animal Science) programme. Essentially, the programme emphasizes practical (field and laboratory) training in all aspects of Animal Sciences. The first 4 years of the programme is devoted to the exposure of students in the B.Agric. Programme to all aspects of Agriculture, including a full year internship during the 4th year. Students take courses from Departments of Agricultural Economic Crop Production and Protection, Soil Science, Agricultural Extension and Rural Sociology. Agric. Engineering and Practical Land Survey from Civil Engineering. Overall, the training is geared towards preparing the students for future challenges in the agricultural sector. The fifth year is the year of specialization for each Department and in the case of Animal Sciences, the compulsory and elective courses are stipulated. Currently, the undergraduate programme has been revised using NUC BMAS and in line

with the global trends and recent developments in animal production. The revised programme had been processed to the faculty for further action.

(b) Postgraduate Programme:The postgraduate programme emphasizes sound training in specialized areas of Animal Science including Animal Breeding and Genetics, Animal Nutrition and Biochemistry, Reproductive Physiology, Animal Products and Processing.

2.3 ADMISSION REQUIREMENTS AND AWARD OF B. AGRIC. DEGREE

UME Entry Requirements

Credit passes at G.C.E. '0' Level or School Certificate or Senior Secondary School Certificate (S.S.S.C) in English Language, Mathematics and at least three other subjects which must include Chemistry, Biology or Agricultural Science.

UME Subjects: English Language, Biology or Agriculture Science, Chemistry and Physics or Mathematics.

Direct Entry to Part Two and Exemption from internship ear

Candidates with Ordinary National Diploma (OND) in Agriculture obtained at Upper Credit Level from this University or any other recognized institution or equivalent status may be considered for direct entry to Part II, but they will not be exempted from the Internship year.

Direct Entry to Part Two

- (a) Two 'A' Levels Passes in Chemistry and any of Biology, Agricultural Science, Zoology and Botany.
- (b) Candidates with Higher National Diploma in Agriculture obtained at Upper Credit Level from this University or any other recognized Institution of equivalent status may be considered for Direct Entry to Part II provided they satisfy the '0' Level requirements. They may also be exempted from the Internship year.

2.4 Requirements for Award of B. Agric. Degree

- (a) To be eligible for admission to a degree of Bachelor of Agriculture a candidate must have:
 - i. Satisfied the normal University requirements for the award of a degree;
 - ii. Satisfied the approved Faculty of Agriculture requirements in respect of workload, registration for courses and programme duration.
 - iii. Satisfied the departmental requirements by satisfactorily completing approved courses as scheduled under section 4 below.
 - iv. Taken and passed the prescribed 12 units of special Electives and 180 units of core and restricted electives.

2.5 Graduation Requirements

(a) LIST OF SPECIAL ELECTIVES FOR THE DEPARTMENT OF ANIMAL SCIENCES

Harmattan Semester

SEA 001	Government and Administration of Public Sector
SEE 001	Education and Social Organization
SEH 001	Man and His Health
SEL 001	Introduction to Law
SEM 001	Fundamentals of Building Design for Human Habitat
SEO 001	Fundamentals of Human Behaviour
SEP 001	Drugs and the Society I
SER 001	Use of English

Rain Semester

SEA 002	Elements of Business Administration
SEE 002	Indigenous Educations in Nigeria
SEH 002	Community Health and Man's Behaviour
SEL 002	Introduction to Legal Institutions and Processes
SEM 002	Issues in Land and Management
SEO 002	Man and his Environment
SEP 002	Drugs and the Society II
SER 002	The Humanities and The African Experience

*Note: A total of 12 Units (6 Electives) is required before graduation.

(b) MINIMUM TOTAL NUMBER OF UNITS REQUIRED FOR GRADUATION

The minimum total number of units required for graduation is:

UME = 208 units

Direct Entry = 172 units

2.6 OUTLINE OF PROGRAMME FOR PARTS I – IV

First Year (Part I) Harmattan (First) Semester

Course Code	Course Title	LTP	Units	Examination
SE	Special Elective	200	2	1-2 Hrs. Paper
MTH 105	Mathematics for Biological Sciences I	310	4	1-3 Hrs. Paper
PHY 105	Physics for Biological Sciences I	310	4	1-3 Hrs. Paper
PHY 107	Experimental Physics IA	003	1	1-3 Hrs. Paper
CHM 101	Introductory Chemistry I	310	4	1-3 Hrs. Paper
CHM 103	Experimental Chemistry I	003	1	1-3 Hrs. Paper
Z00 101	Introductory Zoology I	300	3	1-3 Hrs. Paper
ZOO 103	Introductory Zoology I (Practical)	003	1	1-3 Hrs. Paper
Total Units			20	

First Year (Part I) Rain (Second) Semester

Course Code	Course Title	LT P	Units	Examination
SE	Special Elective	200	2	1-2 Hrs. Paper
MTH 106	Mathematics for Biological Sciences I	310	4	1-3 Hrs. Paper
PHY 106	Physics for Biological Sciences II	310	4	1-3 Hrs. Paper
PHY 108	Experimental Physics IB	003	1	1-3 Hrs. Paper
CHM 102	Introductory Chemistry II	310	4	1-3 Hrs. Paper
CHM 104	Experimental Chemistry II	003	1	1-3 Hrs. Paper
BOT 102	Introductory Botany II	300	4	1-3 Hrs. Paper
BOT 104	Experimental Botany II	003	1	1-3 Hrs. Paper
Total Units			21	

TOTAL NUMBER OF UNITS FOR PART ONE = 41

SECOND YEAR (PART II) Harmattan (First) Semester

Course Code	Course Title	LTP	Units	Examination
SE	Special Elective	200	2	1-2 Hrs. Paper
AEC 201	Introduction to Agricultural Economics I	300	3	1-3 Hrs. Paper
AXD 201	Introduction to Rural Sociology	210	3	1-3 Hrs. Paper
ANS 201	Anatomy and Physiology of Farm Animals	203	3	1-3 Hrs. Paper
CPP 201	Agricultural Botany	203	3	1-3 Hrs. Paper
SLM 201	Agricultural Chemistry I	203	3	1-3 Hrs. Paper
CSC 221	Computer Appreciation	200	2	1-3 Hrs. Paper
Total Units			20	

SECOND YEAR (PART II) Rain (Second) Semester

Course code	Course Title	LTP	Units	Examination
SE	Special Elective	200	2	1-2 Hrs. Paper
AXD 202	Organization of Village communities	200	2	1-3 Hrs. Paper
AEC 202	Introduction to Agricultural Economics II	203	3	1-3 Hrs. Paper
ANS 202	Introduction to Agricultural Genetics	203	3	1-3 Hrs. Paper
ANS 204	Agricultural Chemistry II	203	3	1-3 Hrs. Paper
ANS 208	Introduction to Fisheries and Wildlife	203	3	1-3 Hrs. Paper
CPP 202	Principles of Plant Science	203	3	1-3 Hrs. Paper

SLM 202	Principles of Soil Science	203	3	1-3 Hrs. Paper
---------	----------------------------	-----	---	----------------

Total Units **22**

TOTAL UNITS FOR PART TWO = 41

THIRD YEAR (PART III) Harmattan (First) Semester

Course Code	Course Title	LTP	Units	Examination
SEE	Special Elective	200	2	1-2 Hrs. Paper
AEC 301	Statistics and Biometrics	210	3	1-3 Hrs. Paper
AEC 303	Principles of Agricultural Economics I	210	3	1-3 Hrs. Paper
AXD 301	Extension Teaching / Learning Process & Methods	210	3	1-3 Hrs. Paper
CPP 301	Agronomy of Arable Crops and Agro-climatology	203	3	1-3 Hrs. Paper
CPP 303	Introduction to Agricultural Entomology	203	2	1-3 Hrs. Paper
ANS 301	Non-Ruminant Animal Production	203	3	1-3 Hrs. Paper
SLM 301	Introduction to Pedology and Soil Physics	203	3	1-3 Hrs. Paper
Total Units			23	

THIRD YEAR (PART III) Rain (Second) Semester

Course Code	Course Title	LTP	Units	Examination
SE	Special Elective	200	2	1-2 Hrs. Paper
AEC 302	Farm Management	210	3	1-3 Hrs. Paper
AEC 304	Principles of Agricultural Economics II	210	3	1-3 Hrs. Paper
AGE 352	Agricultural Engineering I	200	2	1-3 Hrs. Paper
CPP 302	Agronomy of Permanent Crops and Agro forestry	210	3	1-3 Hrs. Paper
CPP 304	Plant Pathology	210	3	1-3 Hrs. Paper
ANS 302	Ruminant Animal Production	200	2	1-3 Hrs. Paper
SLM 302	Soil Chemistry and Microbiology	203	3	1-3 Hrs. Paper
Total Units			21	

TOTAL UNITS FOR PART THREE = 44

FOURTH YEAR (PART IV)

INTERNSHIP

Harmattan (First) Semester

Course Code	Course Title	LTP	Units	Examination
AEC 401	Farm Accounts and Budgeting	103	2	1-3 Hrs. Paper
AEC 403	Fisheries Management	003	1	1-3 Hrs. Paper
AXD 401	On-Farm Demonstration	003	1	1-3 Hrs. Paper
AXD 403	Training and Visit Extension	003	1	1-3 Hrs. Paper
AXD 405	Agricultural Workshop Practices	003	1	1-3 Hrs. Paper
ANS 401	Livestock Feed Production	003	1	1-3 Hrs. Paper
ANS 403	Beef Cattle Management Practices	003	1	1-3 Hrs. Paper
ANS 405	Rabbit and Micro livestock Management Practices	003	1	1-3 Hrs. Paper
ANS 407	Animal Health and Products	006	2	1-3 Hrs. Paper
CPP 401	Processing and Storage of Plant Product	003	1	1-3 Hrs. Paper
CPP 403	Management of Arable Crops	003	1	1-3 Hrs. Paper
CPP 405	Greenhouse Operations	003	1	1-3 Hrs. Paper
CPP407	Field Plot Techniques	203	3	1-3 Hrs. Paper
SLM 401	Soil Fertility and Plant Nutrition	003	1	1-3 Hrs. Paper
SLM 403	Soil and Water Management	003	1	1-3 Hrs. Paper
AGE 401	Agricultural Surveying	009	3	1-3 Hrs. Paper
Total Units			21	

Rain (Second) Semester

Course Code	Course Title	LTP	Units	Examination
AEC 402	Farm Management	003	1	1 - 3 Hrs. Paper
AEC 408	Report Writing in Agricultural Economics	003	1	1 - 3 Hrs. Paper
AXD 402	Extension Records	003	1	1 - 3 Hrs. Paper
AXD 404	Teaching Agriculture in Secondary Schools	003	1	1 - 3 Hrs. Paper
AXD 408	Report Writing in Agricultural Extension	003	1	1 - 3 Hrs. Paper
ANS 402	Poultry Management Practices	003	1	1 - 3 Hrs. Paper
ANS 404	Sheep and Goat Management Practices	003	1	1 - 3 Hrs. Paper
ANS 406	Pig Management Practices	003	1	1 - 3 Hrs. Paper
ANS 408	Fish and Aquaculture Management Practices	003	1	1 - 3 Hrs. Paper
CPP 402	Management of Tree Crops	003	1	1 - 3 Hrs. Paper
CPP 404	Plant Propagation	006	2	1 - 3 Hrs. Paper
CPP 406	Nursery Practices and Vegetable Production	003	1	1 - 3 Hrs. Paper
CPP 408	Report writing in Plant Science	003	1	1 - 3 Hrs. Paper
SLM 402	Site-Soil Characterization (Pedology)	003	1	1 - 3 Hrs. Paper
SLM 408	Report writing in Soil Science	003	1	1 - 3 Hrs. Paper
AGE 402	Farm Mechanization Practices	006	2	1 - 3 Hrs. Paper
AGE 408	Report writing in Agricultural Engineering	003	1	1 - 3 Hrs. Paper
AGR 400	Farm Practices	009	3	1 - 3 Hrs. Paper
Total Units			22	

TOTAL UNITS FOR PART FOUR = 43

FIFTH YEAR (PART V) Harmattan (First) Semester

Course Code	Course Title	LTP	Units	Examination
COMPULSORY				
ANS 501	Animal Biochemistry	203	3	1-3 Hrs. Paper
ANS 505	Animal Health	203	3	1-3 Hrs. Paper
ANS 513	Research Methodology I	103	2	1-3 Hrs. Paper
ELECTIVES (Take a minimum of any 12 Units)				
ANS 503	Animal Breeding and Genetics	203	3	1-3 Hrs. Paper
ANS 507	Swine Production	203	3	1-3 Hrs. Paper
ANS 509	Poultry Production	203	3	1-3 Hrs. Paper
ANS 511	Reproductive Physiology	203	3	1-3 Hrs. Paper
ANS 515	Animal Biotechnology	203	3	1-3 Hrs. Paper
ANS 517	Feed Lot Operations	203	3	1-3 Hrs. Paper
ANS 519	Small Ruminant Production	203	3	1-3 Hrs. Paper
ANS 521	Animal Behaviour and Welfare	203	3	1-3 Hrs. Paper
ANS 523	Micro livestock production	203	3	1-3 Hrs. Paper
Total Units			20	

FIFTH YEAR (PART V) Rain Semester

Course Code	Course Title	LTP	Units	Examination
COMPULSORY				
ANS 502	Animal Nutrition	203	3	1-3 Hrs. Paper
ANS 506	Animal Products	203	3	1-3 Hrs. Paper
ANS 514	Research Methodology II	116	4	1-3 Hrs. Paper
ANS 516	Animal Science Practice	203	3	1-3 Hrs. Paper
ELECTIVES (Take a minimum of any 6 Units)				
ANS 504	Forage production and Management	203	3	1-3 Hrs. Paper

ANS 508	Fish Production and Industry	203	3	1-3 Hrs. Paper
ANS 510	Applied Animal Breeding	203	3	1-3 Hrs. Paper
ANS 512	Beef and Dairy Cattle Production	203	3	1-3 Hrs. Paper
ANS 518	Reproductive Technologies	203	3	1-3 Hrs. Paper
ANS 520	Feed Manufacturing and Technology	203	3	1-3 Hrs. Paper
ANS 522	Livestock Biodiversity	203	3	1-3 Hrs. Paper
Total Units			19	

TOTAL UNITS FOR PART FIVE = 39

2.7 COURSE CONTENT/DESCRIPTION OF COURSES DESCRIPTION OF COURSES

ANS 201: ANATOMY AND PHYSIOLOGY OF FARM ANIMAL 2-0-3 (3 Units)

Introduction to livestock animals: general morphology, animal cell and tissue types, Ecology, stress and adaptation in farm animals. Animal behaviour. Comparative anatomy and physiology of digestive, respiratory, cardio-vascular, urogenital, endocrine, skeleto-articular and neuro-sensory systems.

ANS 202: INTRODUCTION TO AGRICULTURAL GENETICS 2-0-3 (3 Units)

The cell, mitosis, meiosis, spermatogenesis and oogenesis. Mendelian laws of segregation and independent assortment. Genetic ratios, linkage and crossing over. Chromosomal aberrations. Gene structure: deoxyribonucleic acid, ribonucleic acid, gene replication and gene-mutations. Protein synthesis. Genetic properties of populations, gene frequencies, Hardy-Weinberg equilibrium, factors affecting gene frequency changes.

ANS 204: AGRICULTURAL CHEMISTRY II 2-0-3 (3 Units)

Chemistry of living matter, Cells, enzymes and intermediary metabolism. Tissues: vascular–corpuscles and plasma chemicals, epithelium, keratin. Hormones – classification, control and interactions. Use of natural and synthetic hormones in animal production. Chemistry and metabolism of carbohydrates, definition, classification. Reactions of monosaccharides, tests for carbohydrates. Glycolysis, citric acid cycle, hexose monophosphate shunt, gluconeogenesis, glycogenesis, glycogenolysis. Chemistry, physical properties and metabolism of lipids: definition and classification. Biosynthesis of saturated fatty acids, synthesis of acylglycerols, oxidation of SFA. Energy balance sheet from SFA oxidation. Chemistry and metabolism of proteins, enzymes and nucleic acids. Amino acid structure, properties and reactions. Enzymes: properties, functions and inhibition.

ANS 208: INTRODUCTION TO FISHERIES AND WILDLIFE 2-1-0 (3 Units)

Goals of wildlife conservation; Importance of Wildlife; Wildlife Ecosystem; Ecology of Behaviour; Dynamics of Social behaviour and Foraging; Dispersal, Dispersion and Distribution; Population dynamics; Intraspecific and Interspecific Competition; Wildlife conservation; Endangered Species Decree; Wildlife Control. Introduction to Fisheries; Ecology and Management of Inland water fishes; Aquaculture; Fish pond construction; Conditions for Fish culture; Pond management Techniques; Fish feeds and Feeding; Hatchery management; Fingerling production; Breeding Techniques; Fish diseases and parasites

ANS 301: NON-RUMINANT ANIMAL PRODUCTION 2-0-0 (2 Units)

Rabbits: characteristics, breeds, nutrition and management practices. Poultry: characteristics, breeds, nutrition and management practices. Pigs: characteristics, breeds, nutrition and management practices.

ANS 302: RUMINANT ANIMAL PRODUCTION 2-0-0 (2 Units)

Classification and importance of ruminant animals; anatomy and physiology of the digestive tract of ruminants, the Nigerian ruminant animal production and distribution. Terms used in ruminant production; characteristics of the local and exotic breeds of cattle, sheep and goats. Performance traits, reproduction and mating in cattle, sheep and goats. Establishment of cattle, sheep and goat production enterprises; buildings and equipment, health and general management practices; feeding and nutrition. Metabolic diseases of ruminants.

ANS 401: LIVESTOCK FEED PRODUCTION 0-0-3 (1 Unit)

Nutrient categories, functions and requirements; identification and classification of livestock feed ingredients (conventional and unconventional); livestock diet formulation; feed mill and equipment; livestock feed manufacturing, processing and storage.

ANS 402: POULTRY MANAGEMENT PRACTICES 0-0-3 (1 Unit)

Poultry management systems. Poultry housing for chicks, growers, layers, breeders, ducks, turkeys, quails, local chickens. Deep litter, Battery cage system. Poultry feeding, Ration formulation, ration mixing. Preparations for brooding of day old chicks, rearing of growers, daily routine management practices of chick starters, growers, finishers, layers and breeders. Health management practices; Immunization, Vaccination, Drug administrations, Post mortem, Record keeping, Waste disposal in poultry production, egg collection, egg grading, culling, debeaking. Hygiene and sanitation.

ANS 403: BEEF CATTLE MANAGEMENT PRACTICES 0-0-3 (1 Unit)

Orphan calf care, implanting, sorting, castration, weighing, weaning and identification. Moving cattle, heat detection, artificial insemination, oestrus synchronization and pregnancy examination. Normal and abnormal calving.

Neonatal care, Stomach tubing, dehorning, deworming, bolusing and drenching. Control of parasites and foot rot, hoof trimming, loading and transporting.

ANS 404: SHEEP AND GOAT MANAGEMENT PRACTICES 0-0-3 (1 Unit)

Practical training in preparing feed materials for ruminants. Forages and their establishment: concentrates and agro – industrial / household by – products as feed materials. Housing systems – tethering, partial and total confinement, etc., type of pens: concrete, slated and litter floor pens. Routine management practices: deworming, delousing, dehorning, hoof trimming, weighing, dipping, castration and identification. Breeding methods: controlled and uncontrolled breeding. Weaning methods, zero weaning, controlled suckling and natural weaning. Small ruminants: characteristics and behaviour, similarities and differences between sheep and goat management practices.

ANS 405: RABBIT AND MICROLIVESTOCK MANAGEMENT PRACTICES 0-0-3 (1 Unit)

Characteristics of rabbits, breeds and breeding of rabbits. Housing, feeds and feeding of rabbits. Record keeping, processing and handling of rabbit products. Snail production in tropical humid environment. Bee keeping and Honey production. Grasscutter production. Giant rat production; unconventional livestock farming.

ANS 406: PIG MANAGEMENT PRACTICES 0-0-3 (1 Unit)

Advantages of pig over other domesticated animals. Breeds and breeding. Selection of foundation stock. Pig feeding and nutrition; feeding regimes in the different stages of pig management systems. Routine management practices.

ANS 407: ANIMAL HEALTH AND PRODUCTS 0-0-3 (1 Unit)

Whole meat processing – curing smoking, drying and refrigeration. Meat processing, ground meat, corned beef and sausages. Processing of offals – tripe, legs and skin. Egg quality assessment – candling, Haugh unit and egg shell thickness. Milk quality assessment – milk fat, total solids, non-fat solids, flavour, milk processing and storage. External features of live animals (cattle, sheep, goats, pigs, poultry, rabbits, etc.) and their appraisal. Ante mortem inspection, slaughtering techniques and equipment, Post mortem inspection. Dressing methods and equipment, gut removal and production of sausage casings. Carcass quality and yield grading, primal and retail cuts of the different species of animals. Health management practices – deworming, castration, dehorning, routine vaccination programme, control of external parasites, recognition of diseases, wounds and wounds management, common treatment of diseases, vaccines types and their preservation methods, plant and mineral poisons in animals.

ANS 408: Fish and Aquaculture Management Practices 0-0-3 (1 Unit)

Basic techniques in fish capture and culture. Fishing gears, fish capture methods and fish production systems. Hatchery and pond management. Fish processing and post harvest technology

ANS 501: ANIMAL BIOCHEMISTRY 2-0-3 (3 Units)

Chemistry of carbohydrates, and major pathways of carbohydrate metabolism; glucose catabolism and generation of high energy bonds; chemistry of lipids and fatty acids. Oxidation of triacylglycerols fatty acids, ketosis and ketone bodies. Cholesterol and general lipid metabolism. Chemistry and metabolism of proteins and amino-acids. Classification of enzymes, enzyme function and factors affecting enzyme activity. Nucleic acids, nucleotides and nucleosides. Structure and function of DNA and RNA. Genes, gene repair, mutation, recombination and cloning. Principles of recombinant DNA technology.

ANS 502: ANIMAL NUTRITION 2-0-3 (3 Units)

The chemical composition of the animal body. Water in relation to nutrition. Feedstuff, feeding standards and their inadequacies. Feed preparation in birds and its importance. Proximate analysis and ration formulation. Carbohydrates, lipids and protein metabolism and their requirements in the body. Schemes for describing the energy value and protein value of feeds. Mineral and vitamin metabolism requirements and their inter-relationships in nutrition. Feed additives, antibiotics, anti-oxidants, colouring and flavouring agents, growth promoters etc.

ANS 503: ANIMAL BREEDING AND GENETICS 2-0-3 (3 Units)

Gene frequency changes, migration, mutation and selection. Population means and variances, breeding value, heritability and its estimation; repeatability, selection for livestock improvement, inbreeding, inbreeding depression, cross-breeding. Heterosis and livestock production. Introduction to molecular genetics; marker-assisted selection, genetic engineering of domestic animals, applications of biotechnology to animal genetics and breeding. Artificial insemination, multiple ovulation and embryo transfer, cloning and DNA fingerprinting.

ANS 504: FORAGE PRODUCTION AND MANAGEMENT 2-0-3 (3 Units)

Common terminologies in pasture and range; morphology of the grasses and legumes: vegetative parts, reproductive parts. List of common grasses and legumes in Nigeria; distribution of natural pastures in Nigeria – Vegetational zones; a description of some indigenous and introduced pasture species; desirable characters in herbage species evaluation. Nutritive value of the tropical pastures. Fertilizer in pasture production; forage yield determination; forage conservation – hay, silage, haylage, husklage. Grassland management and utilization; harvesting frequencies, nutritive value. Systems of grazing management; determination of Stocking Rate (S.R); Range versus pasture.

ANS 505: ANIMAL HEALTH 2-0-3 (3 Units)

Bacterial and viral infections of livestock industry in Nigeria, their prevention and control. Infections and immunity; wound and wound infections. Helminth and protozoan parasites of domestic livestock: their classification, diagnosis, epidemiology, prevention, treatment and control; their impact on the livestock industry in Nigeria. External parasites and diseases they transmit: their control in ruminants. Plant poisoning, diseases and their prevention. Use of medicaments and routine vaccination of livestock. Zoonotic diseases and their public health importance. Ethno veterinary practices.

ANS 506: ANIMAL PRODUCTS 2-0-3 (3 Units)

Classification of animal products and animal by products, Nigerian meat and animal products industry. Animal growth and development, body composition, conversion of muscle to meat, fresh meat properties, meat preservation, processing and storage. Milk production and processing, milk quality, milk sterilization and pasteurization, milk by – products: butter, whey, cheese etc. Production and processing of other animals and fish, food poisoning, Inspection, packaging and distribution of animal products.

ANS 507: SWINE PRODUCTION 2-0-3 (3 Units)

Importance of swine raising in the tropics. Breeds, breeding and selection. Feeding and nutrition, management and health care, buildings and equipment requirements, processing of pig products. Swine recording and monitoring.

ANS 508: FISH PRODUCTION AND INDUSTRY 2-0-3 (3 Units)

Fish pond construction and engineering, fresh water pond ecology and dynamics, hatchery management, inland water management, freshwater fish cage culture and marine culture, fish feeding and feed formulations, fish genetics and breeding, fingerling production, fish parasites and fish pathology. Fish, processing and post harvest technology. Introduction to marine science and marine products, biotechnology applications in fisheries and aquaculture.

ANS 509: POULTRY PRODUCTION 2-0-3 (3 Units)

Poultry industry in Nigeria. Biology and morphology of domestic chicken; physiology of egg production; egg formation process; hormonal effect on male and female reproductive organs; egg incubation and hatchery management; care of baby chicks, growers and laying hens; broiler bird production; ration formulation, poultry nutrition and feedings nutrition of baby chicks, growers and laying hens. Poultry buildings, equipment and appliances. Poultry production systems. Rural poultry production. Family poultry production. Production of other poultry – muscovites, ducks, guinea fowls, turkey, geese, quail and ostrich.

ANS 510: APPLIED ANIMAL BREEDING 2-0-3 (3 Units)

Production traits of various species of livestock, their measurement and evaluation, selection and breeding for improvement of various species of

livestock with emphasis on dairy cattle, beef cattle, swine, poultry, sheep, goats and rabbits. Performance testing. Breeding programmes used in various species of livestock. Identifying and incorporating genetic markers and major genes in animal breeding programs, DNA tests and segregation analysis for genetic disorders. Determining associations between genetic markers and Quantitative Trait Loci (QTLs).

ANS 511: REPRODUCTIVE PHYSIOLOGY 2-0-3 (3 Units)

Embryology of the reproductive system; functional anatomy of the male and female reproductive system; male and female germ cells; spermatogenesis; oogenesis; folliculogenesis; oestrus cycle; mating and sexual behaviour, fertilization; pregnancy; parturition; suckling and maternal behaviour; uterine involution and post partum resumption of oestrus; reproductive hormones.

ANS 512: BEEF AND DAIRY CATTLE PRODUCTION 2-0-3 (3 Units)

World demand and supply of beef and dairy products. The Nigerian beef and dairy industries. Beef production systems and types of cattle. Performance traits of beef and dairy cattle. Characteristics of local and exotic breeds of beef and dairy cattle. Establishment of beef and dairy cattle production enterprises: buildings and equipment. Beef and dairy cattle management practices; Reproduction and mating. Breeding and selection. Slaughter methods, meat hygiene and carcass quality; Milk and other dairy products.

ANS 513: RESEARCH METHODOLOGY I 1-0-3 (2 Units)

Covers essentially the design of experiments in the different fields of Animal Sciences and Production, Analysis of Livestock Data. Conceptualization of and preparation for research project

ANS 514: RESEARCH METHODOLOGY II 1-1-6 (4 Units)

Practical experimentation in animal production and management, e.g. housing, nutrition and health, animal products, reproductive physiology, breeding and genetics, fish biology and aquaculture, etc. Research project execution, report and presentation.

ANS 515: FUNDAMENTALS OF ANIMAL BIOTECHNOLOGY 2-0-3 (3 Units)

Definition of biotechnology/recombinant DNA technology/genetic engineering. Tools: cloning, marker-assisted selection, QTL mapping, physical and genetic mapping transgenes, trans-genesis, gene banks, gene sequencing, DNA-fingerprinting, informatics. Applications in animal and feed production, nutrition, reproduction, genetics and breeding, disease and metabolic control pollution abatement and environmental management. Use of DNA tests for meat

quality genotype identification, paternity testing, disease diagnostics, *etc...*
Conservation of animal genetic resources, *ex situ* and *in situ*.

ANS 516: ANIMAL SCIENCE PRACTICE 2-0-3 (3 Units)

Job opportunities; Consultancy services in animal production; Professional ethics of Animal science; preparation of feasibility and environmental impact assessment reports for animal production; Computer applications in livestock operation.

ANS 517: FEEDLOT OPERATIONS 2-0-3 (3 Units)

Feedlot location and operation; feedlot design and management; feedmill operations; feed preparation, cattle feeding; control of feedlot disease and parasites; manure management, processing feedlot cattle; role of the feedlot consultant.

ANS 518: REPRODUCTIVE TECHNOLOGIES 2-0-3 (3 Units)

Artificial insemination technique; sex determination and manipulation; sex reversal; gamete and embryo sexing; induction and synchronization of oestrus and ovulation; multiple ovulation and embryo transfer technique, heat detection methods; cryopreservation technique, pregnancy diagnosis, induction of parturition and lactation; weaning methods; *in vitro* maturation and fertilization; DNA probing; nuclear transfer; cloning.

ANS 519: SMALL RUMINANT PRODUCTION 2-0-3 (3 Units)

Sheep and goats – Breeds of sheep and goat; production systems, feeding of sheep and goats; breeding programme in sheep and goats; selection programme. Common diseases of sheep and goats; their prevention and treatments. Modern improvement methods, biotechnology, modern innovations in rearing of sheep and goats in the tropics. Routine management practices.

ANS 520: FEED MANUFACTURING AND TECHNOLOGY 2-0-3 (3 Units)

The Nigerian feed resource: identification and classification of livestock feed ingredients (conventional and non-conventional). Livestock diet formulation. Livestock feed manufacturing, processing, storage and distribution. Trends in feed technology.

ANS 521: ANIMAL BEHAVIOUR AND WELFARE 2-0-3 (3 Units)

Introduction to ethology; animal domestication; natural versus artificial selection; physiology of behaviour: social behaviour, reproductive behaviour. Biology of animal stress; animal ethics; welfare in intensive versus extensive production systems; transport and slaughter. Bioclimatology, bioregulation and animal adaptation; animal stress and stressors. Livestock building design; Livestock – environment interaction.

ANS 522: LIVESTOCK BIODIVERSITY 2-0-3 (3 Units)

Origin and differentiation of breeds; ecological adaptation of breeds; genotype – environment interaction; adaptation to hot and cold regions; livestock biodiversity and sustainable development, global food security and livestock biodiversity; assessment and characterization of livestock biodiversity; conservation of livestock biodiversity; cryopreservation, *in situ* conservation.

ANS 523: MICRO LIVESTOCK PRODUCTION 2-0-3 (3 Units)

Rabbits: breeds, feeds and nutrition; management and health care, buildings and equipment. Processing of rabbit products. Record keeping. Snail production in the tropics. Guinea pig production in tropical humid environment. Bee keeping and Honey production. Grasscutter production. Giant rat production; Unconventional livestock farming.

3.0 POSTGRADUATE PROGRAMME

3.1 Introduction

Postgraduate training in the field of Animal science will provide qualified students in Agricultural or Biological Sciences, the opportunity of specializing in Animal Nutrition, Animal Breeding, Animal Health and Animal Physiology and Animal Products.

3.2 Degree Awarded

The Department offers M.Sc, M Phil and Ph.D. Programmes in Animal Science based on course work and original research.

3.3 General Requirements

3.4 General Departmental Requirements/Admission Requirements

The entry requirements for admission to the M.Sc. and M.Phil. Programmes are as stipulated in the Postgraduate School Regulations. The degree must be in Agriculture, Biological Sciences or Chemistry. The entry requirements for admission to the Ph.D. Programme are those stipulated in the Regulations. In addition, candidates must show evidence that they have successfully completed courses in the following areas during their B.Sc. degree programme to be allowed to undertake the advanced work required for the M.Sc., M.Phil., or Ph.D.degree.

- (i) General Biochemistry
- (ii) Anatomy and Physiology of Domestic Animals
- (iii) Fundamentals of Animal Nutrition
- (iv) Animal Breeding
- (v) Agricultural Statistics or Biometry

Where candidates are deficient in any of the above courses or their equivalent, such candidates may be required to audit these courses during the first two semesters of their enrolment for the M.Sc. degree.

3.5 Course work

Candidates shall be required to complete at least EIGHT courses (including ANS 611 and ANS 612) for the Masters degree chosen from the following courses or other approved University courses with the permission of the candidate's supervisor.

ANS	601	Advanced Protein and Energy Metabolism	3
ANS	602	Advanced Mineral and Vitamin Metabolism	3
ANS	603	Feedstuffs	3
ANS	604	Advanced Pasture and Range Management	3
ANS	605	Advanced Ruminant Nutrition	3
ANS	606	Advanced Non Ruminant Nutrition	3
ANS	607	Animal Physiology I	3
ANS	608	Animal Physiology II	3
ANS	609	Animal Microbiology	3
ANS	610	Recent Advances in Nutrition	3
ANS	611	Analysis of Livestock Data I	3
ANS	612	Analysis of Livestock Data II	3
ANS	613	Advanced Quantitative Genetics	3
ANS	614	Advanced Genetics of Livestock Improvement	3
ANS	616	Advances in Fish Production	3
ANS	617	Research Techniques in Animal Science	3
ANS	618	Agricultural Biotechnology	3
ANS	619	Animal Growth and Development	3
ANS	620	Advances in Animal Reproduction	3
ANS	621	Endocrinology	3
ANS	622	Animal Parasitology	3
ANS	623	Advances in Animal Reproduction	3
ANS	624	Climate Change and Animal Agriculture	3
ANS	625	Fish Breeding and Hatchery Management	3
ANS	698	Seminar	
ANS	699	research	1-3

Where a candidate with Master's degree of another University recognized by this University is registered for a Ph.D. degree, he may be given credit for any of the courses provided he can show evidence that he has satisfactorily completed their equivalent.

3.6 Course Examination

- (a) An M.Sc. or M.Phil. Student shall have completed a minimum of 24 units before taking his final oral examination.
- (b) A Ph.D. student who has completed the minimum course requirements and had his research project well under way shall be required to take a qualifying examination in accordance with the regulation guiding Postgraduate studies. This examination shall be taken at least 12 months before the final oral examination (thesis defense).
- iii. A Ph.D. student shall have completed a minimum of 36 units of course work before taking his final oral examination.

(c) **Thesis**

- (i) A dissertation based on analysis of data of a research carried out in the department or approved library research written according to standards prescribed by the Postgraduate College, shall be presented by the candidate for M.Sc. (Animal Sciences). The dissertation shall include a review of pertinent literature, materials and methods, results and discussion of the research work or analysis of data carried out by the candidate.
- (ii) A thesis based on original research work and written according to standards prescribed by the PG courses shall be presented by the candidate for M.Sc. The thesis shall include a review of pertinent literature, method and materials, results and discussion of the experimental work carried out by the candidates.
- (iii) A thesis based on original research and on a title and research plan approved by the P.G. College shall be presented by the candidate for Ph.D.
- (iv) Each dissertation or thesis shall be examined by an oral examination of the subject matter of the thesis or dissertation and overall knowledge of the field of study. For each M.Sc. and Ph.D. candidate, the panel of examiners shall be constituted according to the regulations of the PG College.

3.7 Staff for Graduate Programme

S/No	Name	Degrees	Status	Areas of Specialization
1.	E. O. Akinfala	B. Agric.Tech. (Akure),M.Sc., Ph.D (Ibadan)	Head/Professor	Non Ruminant Nutrition
2.	E. B.Sonaiya	B.Sc., M.Phil. (Ife), Ph.D (Cornell)	Professor	Meat and Muscle Biology
3	A. O. Aderibigbe	B.Sc.(Calif.), M.Sc.,Ph.D. (Oregon)	Professor	Ruminant Nutrition
4	O. G. Omitogun	B.Sc.,M.Sc. (Philippines), Ph.D. (France)	Professor	Animal Biotechnology/ Aquaculture
5	S. M. Odeyinka	B. Agric, Ph.D. (Ife)	Professor	Ruminant Nutrition
6	S. O. Oseni	B. Agric., M.Phil. (Ife),Ph.D (Georgia)	Professor	Animal Breeding and Genetics
7	S. I. Ola	B.Sc.Agric (Ibadan),M.Sc. (Ife), Ph.D (Ibadan)	Reader	Reproductive Physiology
8	A. A. Fatufe	B.Sc., M. Sc. (Ibadan),Ph.D(Halle)	Reader	Non Ruminant Nutrition

9	I. O. Dudusola	B. Agric. Tech., M.Sc. (Bauchi), Ph.D. (Ife)	Reader	Animal Breeding and Genetics
10	J. A. Odedire	B. Tech., (Ogbomoso) M.Sc., Ph.D (Ibadan).	Reader	Forage Science/ Animal Ecology
11	B. O. Oyebanji	D.V.M., M.Sc. (Ibadan), M. Tech (Ogbomosho), Ph.D (Ibadan)	Reader	Animal Physiology
12	O. A. Makinde	B. Sc., M.Sc., Ph.D (Ife)	Senior Lecturer	Animal Products
13	T. O. Abegunde	B. Agric. (Abeokuta), M.Sc., Ph.D (Ibadan)	Senior Lecturer	Ruminant Nutrition
14	T. O. Akande	B.Tech. (Ogbomoso), M.Sc.(Ibadan), Ph.D (Ogbomoso)	Senior Lecturer	Poultry Nutrition/Toxico logy
15	A. A. Adeyemi	B. Agric. Tech. (Akure), M.Sc., Ph.D (Ibadan)	Lecturer II	Reproductive Physiology
16	O. Orisasona	B. Agric. Tech. (Akure), M.Sc., Ph.D (Ibadan)	Lecturer II	Fisheries Nutrition

3.8 Course Syllabus

ANS 601 – Advanced Protein and Energy Metabolism (3 units) (206)

New outlook on carbohydrates, fats and protein metabolic mechanisms of cellular digestion and nutrient uptake.

ANS 602 – Advanced Mineral and Vitamin Metabolism 3 units (206)

The role of minerals, vitamin and provitamins in intermediary metabolism. Mode of action and interrelationships of vitamins and minerals in mammalian systems

ANS 603 – Feedstuffs (3 units) (206)

Feed classification. Schemes for describing the nutritive values of foods. The proximate composition, source and manufacturing methods of Nigerian feeds. Ration formation.

ANS 604 – Advanced Pasture and Range Management (3 units) (206)

Nigerian Vegetational Zones; Review of common pasture species; Classification of range plants; Forage yield determination; Forage conservation – Hay, Silage; Haylage; Systems of grazing management; Determination of Stocking Rate; Range versus pasture; Grassland management and utilization ; Rangeland environment; Classification of Range plants; Range management and utilization; Rangeland environment; Classification of Range plants; Range management principles; Rangeland improvement strategies.

ANS 605 – Advanced Ruminant Nutrition (3 Units) (206)

Comparative study of the anatomical and physiological development of rumen. Digestion, absorption and nutrient metabolism in relations to maintenance, growth lactation and reproduction in ruminant animals.

ANS 606 – Advanced Non-Ruminant Nutrition (3 units) (206)

Nutrient requirements for pigs, poultry and rabbits. Utilization of industrial By-products and farm wastes by monogastric animals.

ANS 607 – Animal Physiology I (3 units) (206)

General animal cell physiology; Thermodynamics, homeostasis, mediated transport systems, metabolism, Comparative physiology of the nervous, sensory, lymphatic, cardiovascular and muscular systems of livestock and micro-livestock animals.

ANS 608 – Animal Physiology II (3 units) (206)

Comparative physiology of the respiratory, gastrointestinal, renal, reproductive and endocrine systems of livestock and micro-livestock animals.

ANS 609 – Animal Microbiology (3 units) (206)

Microbiology of the rumen, meat, dairy and fermented animal feeds. Microbial toxins (fungal and bacterial origin). Micro-organisms and viruses in relation to animal diseases.

ANS 610 – Recent Advances in Nutrition (3 units) (206)

A review of current concepts in nutrition and related field with special emphasis on the tropical areas of the world.

ANS 611 – Analysis of Livestock Data I (3 units) (206)

A review of basic statistical concepts and terminologies. Design of experiments in Animal Sciences – uses of the Completely Randomized, Randomized Complete Block and Latin Square Designs in animal experimentation, Data description-Box plot technique. Inferences about population parameters- sample sizes and level of significance for statistical test. Categorical software in livestock data analysis.

ANS 612 – Analysis of Livestock Data II (3 units) (206)

Linear and multiple regression and the general linear model, model building, Analysis of variance (ANOVA) methods and multiple comparisons via Fisher's LSD, Tukey's W and the SNK procedures, ANOVA in some standard experimental designs (e.g. Completely Randomized, Randomized Complete Block and Latin Square Designs). Fixed, random and mixed effects models. Communicating and documenting the results of statistical analysis. Computer software in livestock data analysis.

ANS 613 – Advanced Quantitative Genetics (3 units) (206)

Changes of gene frequencies in small populations; effective population size, migration, mutation and selection, random drift, continuous variation: population mean, variance, breeding value, heritability and repeatability estimates. Selection methods and response. Inbreeding and crossbreeding; utilization of heterosis.

ANS 614 – Advanced Genetics of Livestock Improvement (3 units) (206)

Components of genetic and environmental variation. Polygenes and polygenic mutation. Analysis of line crosses. Estimation procedures- parent-offspring regression and sib analysis. Genotype-environment interactions. Nucleus breeding schemes. Design of sustainable genetic improvement programmes. Molecular markers, principles of marker assisted selection Mapping and characterizing QTLs. Molecular diagnostics of animal diseases. Molecular genetics and reproductive technologies for animal breeding. Gene isolation, Bio-informatics.

ANS 616 – Advances in Fish Production (3 units) (206)

Recent trends in fish nutrition, breeding, health, processing, production systems etc. Advances in the study of the freshwater and marine ecosystems and processing. New technologies and developments in aquaculture and fisheries management.

ANS 617 – Research Techniques in Animal Sciences (3 units) (206)

Methods, and techniques in planning and conducting experiments in nutrition, breeding parasitology and physiology. Cell and molecular tools in

studying animal health, genetics reproduction, etc. Writing and presenting scientific papers and thesis. Grant proposal writing.

ANS 618 – Agricultural Biotechnology (3 units) (206)

Molecular tools in studying genes and gene activities: cloning, Polymerase chain reaction, sequencing, bioinformatics, site-directed mutagenesis, physical and genetic mapping, etc. Genomics, marker-assisted selection, Quantitative trait loci. Applications of biotechnology in plant and animal production and health.

ANS 619 – Animal Growth and Development(3 units) (206)

Overview of Growth: Muscle Biology – Anatomy, Biochemistry and Differentiation of skeletal muscle and fat; Physiology and Metabolism of Growth; Energetics of Growth; Growth Regulation and Regulations; Assessment of Growth and Body Composition.

ANS 620 – Advances in Animal Reproduction (3 units) (206)

Comparative physiology of reproduction in higher animals with the emphasis on the domestic animals endocrine functions involved in fertility; research techniques used to enhance reproductive process; genetic and environmental variations in fertility.

ANS621 – Endocrinology (3 units) (206)

The endocrine systems and mechanism in vertebrates and invertebrate farm animals. Chemistry and functions of peptide, steroid and eicosanoid hormones and pheromones. Hormonal assay methods.

ANS 622 – Animal Parasitology (3units) (206)

Classification of helminthes parasites. Helminthes infections and their impact on animal productivity in the tropics. Control of helminthes parasites. Classification of other parasites, e.g. protozoan parasites of the digestive tract, cardiovascular systems and reproductive tract, their economic importance and control.

ANS 623 – Advances in Animal Products and Processing Methods (3 units) (206)

Slaughtering, processing storage and marketing of Beef, Mutton, Chevron, Pork, Poultry, Rabbit, Milk and Milk by-products. Value-addition principles

ANS624– Climate Change and Animal Agriculture (3 units)(206)

Livestock and greenhouse gas emissions, Green economies, ecosystem services and sustainable livestock development, Livestock and greenhouse gas emission, Climate mitigation options, Body size and physiological

adaptation, Adaptation to extreme climatic conditions, Livestock emergency guidelines and standards

ANS625 – Fish Breeding and Hatchery Management (3 units) (206)

Hormonal control of fish reproduction. Natural and artificial propagation in fishes. Selection and maintenance of broodstock, Larviculture, Incubation of eggs and fry. Feeds and feeding. Fish brood stock health and parasites. Fish hatchery operations and maintenance. Marketing and distribution of fingerlings.

ANS 698 – Seminar (100)

Discussion of current literature; preparation and presentation of scientific reports. Compulsory attendance for all students.

ANS 699 – Research (006)

(2 unit Semester up to a maximum of 3 units of Ph.D, 2 units for M. Phil and 1 unit for M.Sc.)

3.9 Area of Active Research

Research Interests of Staff

- a. Forage crop utilization and animal performances
- b. Feed evaluation and feeding systems
- c. Energy and nutrient metabolism
- d. Nutrient requirements of various classes of livestock
- e. Stress, adaptation and reproductive performances in domestic animals
- f. Breeding and Improvement of farm animals
- g. Meat Science and Technology
- h. Ruminant Management Studies
- i. Animal Biotechnology
- j. Animal Products
- k. Animal Ecology
- l. Hydroponic fodders production and utilization

A handwritten signature in black ink, featuring a large, stylized initial 'E' followed by 'O. Akinfala' in a cursive script.

Prof. E. O. Akinfala
Head of Department