

ジンバブエ大学獣医学部視察報告

I. 大学設立の背景

ジンバブエの主要輸出品は、過去、現在共に畜産加工品（一部生肉）である。1970～75年にかけて、白人経営の大規模農場にダニ媒介性伝染病をはじめとして、多くの疾病が発生し、問題となった。当時、このような疾病の診断および予防に対処できる機関がなかったため、ジンバブエ獣医師会はEC（欧州共同体）に診断センター設立を要請した。1975年頃よりこの設立案が具体的にECとジンバブエ政府間で検討され、ジンバブエ政府からの獣医学部設立要請にECが援助する形で、診断センターを含む獣医学部の設立が合意された。初期の段階では、その設立場所としてルサカ（ザンビア）およびハラレ（ジンバブエ）が挙げられたが、生活環境をはじめ、教育・研究に必要な資機材の購入が容易なハラレに設立することが決定した。

II. 沿革

1980年、FAO（食糧農業機関）は、南部アフリカ7か国の獣医教育施設開発計画を発表し、“SADCC (South African Development Coordination Conference) 域内共通の Regional Veterinary School をザンビアおよびジンバブエに設置する”ことを勧告した。

1982年、学部設立が決定し、1984年4月に着工、1985年12月に臨床部門が完成した。

1986年12月には第1期生が卒業し、1989年まで約50名の獣医師を輩出している。

1990年にPhase IIが終了し、プロジェクトの進捗状況の評価がなされる。このプロジェクトは1995年に終了する予定である。

III. 運営

校舎はECの援助により、オーストラリアマードック大学獣医学部（西オーストラリア・パース市）をモデルとして建てられた。学部設立予算1,200万ジンバブエ・ドル、建物予算900万ジンバブエ・ドル、合計2,100万ジンバブエ・ドル（約12.6億円）であった。建築資材の95%はジンバブエ国内で調達、残り5%をヨーロッパから輸入した。教育・研究活動の活発化に伴って施設拡張の必要性が増し、再び国際的援助による拡張の道を検討している。

学部の運営は教育、研究ともオランダ・ユトレヒト大学との人的・物的援助によるところが大きい。

運営経費は年間約300万ジンバブエ・ドル（日本円換算1億8,000万円）である（入

件費、経常費、その他すべてを含む)。

IV. 組 織

1. 講 座

獣医学部は、Department of Preclinical Veterinary Science、Paraclinical Veterinary Science、およびClinical Veterinary Scienceの3講座から構成されている。獣医臨床・検査部門を重点的に整備し、教育・研究をこれに沿って行うよう組織されている。

2. スタッフ

現在の獣医学部長はDr. F. W. G. Hill (オランダ人)である。

設立当初計画(1982/83)では31の教官ポストが割り当てられた。1990年の時点で教官27名を確保している。今後、教官ポスト40への増加、research fellow 枠3の確保をめざしている。ジンバブエ人の教官育成に努めているが、その成果はまだ十分には上がっていない。オランダ(主としてユトレヒト大学)やアメリカ合衆国などから随時短期講師を招聘しているが、国外からの教官招聘は必ずしも順調ではない。

現在任用されている技官、その他の職員は合計約130名であり、現在なお増員の努力を続けている。

V. 教 育

1. 学部教育

ジンバブエにおける初等および中等教育期間は合計13年である。

獣医学部は1学年定員30名である。ジンバブエ人学生が大半をしめるほか、SADCC諸国からの学生も受け入れている。1989年度の29名の入学生のうち3名はSADCCからの学生である。獣医学の教育期間は5年で、2年目に基礎獣医学を、3年目に応用獣医学、さらに5年目で臨床獣医学を履修する。

卒業後の資格はBVScであり、国家試験制度はない。

大学院は整備されておらず、大学側もその設置には消極的と言う。このため、ジンバブエ人教官の育成が遅れる傾向にある。

2. 卒業後教育

ジンバブエ大学が主催する卒業後教育を行っている。1989年にはヨーロッパから講師を招聘して講演会を開催した。獣医学部学生その他、理学部、医学部からの学生も参加し、聴講人数は40名を数えた。

また、現在5名の卒業生が国外で大学院教育を受けている。

VI. 研究活動

研究面においてはユトレヒト大学との共同研究が多く、1989年は6課題について研究を行った。諸外国から研究費援助を受けており、1989年の受け入れ額は約130,000ジンバブエ・ドル(約800万円)であった。今後、大動物診療について研究活動を拡大する必要性が指摘されている。

業績発表は誌上発表および学会発表の形で行っている。Zimbabwe Veterinary Journalが年4回発行されており、1989年には約50編の論文を同雑誌および国外の学術雑誌に発表した。

研究活動上の問題点も指摘されているようである。すなわち、ヨーロッパ人研究者が短期間研究材料採取のために滞在、これを持ち帰り、ヨーロッパの学術雑誌に発表する例が多いため、ジンバブエ人若手研究者育成上問題がある。このため、長期的研究をジンバブエ人研究者を指導する形で行うなどの対応が指摘されている。

VII. 施設・設備

1. 家畜病院

家畜病院の設備として、大動物用X線撮影装置、可動式保定枠、大動物手術台、動物入院舎などを持つ。入院舎は牛10教頭、豚および羊20～30頭、馬教頭、その他中小動物多数が収容可能である。病気の診断にはDiagnostic Laboratoryと有機的な連携を保っている。診断は有料である。報酬額は、ジンバブエ獣医師会の定める額に準じ、それよりも10%程度安くしている。収入分は一旦大学の収入とした後、獣医学部で使用し、機器類、試薬その他の消耗品費にあてている。

2. Diagnostic Laboratory

Diagnostic Laboratoryには生化学、血液および家禽病の3部門があり、その業務は、1) 家畜病院で診療を受ける動物の臨床検査、2) 依頼検定材料の臨床検査、および、3) 家禽病などに対するワクチネーションプログラムの指導、その他の家畜衛生指導などである。各部門に配置されている技官が臨床検査を行い、学部教官がこれを監督して診断を下す。

3. 図書室

図書室はジンバブエ大学中央図書館の分室として位置づけられている。25種類の学術雑誌(年間約300冊)、および単行本を購入しているが、蔵書数は十分でない。図書の

購入は Barclays 銀行、EC および ロックフェラー財団の援助による。1989年の援助額は 8,000 万 円 (日本円換算約 180 万円) であった。IBM コンピューターの導入により、中央図書館と連絡して文献検索などのデータベース管理を可能にしている。

4. その他の施設・設備

講義室：4つの階段教室を持つ。各教室にはスライド撮影機およびオーバーヘッドプロジェクターが備えられている。

実験室：

病理解剖室：大動物解剖台、電動ノコギリなどを備える。クレーンにより、病理解剖室に隣接した冷蔵庫、あるいは焼却炉に運搬が可能ないように設計されている。

排水施設：

自家発電装置：この装置を備えることにより、冷蔵庫、コンピューターその他の使用に高い信頼性を与えている。

実験動物飼育室：動物種(小動物)ごとに、空調設備を整えた飼育室を設置している。

昆虫飼育室：

Ⅷ. 社会活動

現在ジンバブエには約 140 名の獣医師が活躍している。卒業生のおよそ半数は公共機関に勤務し(獣医臨床、行政、研究所、大学など)、また半数は民間企業に就職している。民間企業への就職は、白人経営の牧場、および養鶏場が主である。1989年の 12 名の卒業生の就職先は次のとおりである。

民間企業	5
獣医局	5
ジンバブエ大学獣医学部	1
ジンバブエ国軍	1

今後の問題点として、大規模農場ばかりでなく、地方に多く存在する小規模経営牧場に対する技術指導などを強化する必要性が指摘されている。

SAMORA MACHEL SCHOOL OF VETERINARY MEDICINE

HAND BOOK

1990/91

THE UNIVERSITY OF ZAMBIA

P.O. BOX 32379, LUSAKA

TEL: 251985

TABLE OF CONTENTS

	<u>Page</u>
Officers of the University	i
Deans of Schools and Directors of Institutes	ii
Staff of the School of Veterinary Medicine	iv
Introduction	1
Board of Studies	3
Entrance Requirements and Regulations	4
Staff Development Programme	6
Higher Degrees in the School of Veterinary Medicine	6
Regulations for the Bachelor of Veterinary Medicine Degree ...	12
Courses and Degree Structure	15
Textbooks	26
Prizes for Distinguished Performance	30
Sessional Dates	31

DEANS OF SCHOOLS

Agricultural Sciences:	Dr. V.R.N. Chinene, B.Agric. Sc. (Zambia), M.Sc. (Fageimagent) Ph.D. (Hawaii)
Education	Dr. P.M. Haamujompa, M.SEd (Indiana), Med. EdS. (Col.) B.A.
Engineering:	Dr. J.M. Mwenechanya, M.Sc., Ph.D. (Manch.), BEng. MIEEE
Humanities and Social Sciences:	Dr. M.C. Ndulo, B.A. (Zambia), M.A. (Cinc.), Ph.D. (Mich.)
Law:	Prof. L.G. Shimba, Ph.D. (Lond.) LL.M.
Medicine:	Dr. K. Mukelabai, B.Sc. MBChD, (Zambia) DABP (US).
Mines:	Dr. E.B. Jere, B.Sc. (Rutgers) M.Sc. Ph.D. (Lehigh)
Natural Sciences:	Dr. D. Theo, D.Sc. (Zambia) M.Sc., Ph.D. (Wales)
Veterinary Medicine:	Prof. C.E. Lovelace, B.Sc. (Birm.) Ph.D. (Lond.) Ag.
Dean of Students Affairs:	Dr. B.L. Mwape, B.A. (Zambia), M.Sc. (Lond.), Ph.D. (Pipt)

DIRECTORS

Centre for the Arts:	Dr. H. Mtonga, B.A. (Zambia) M.A. (Ghana), Ph.D. (Lond.)
Centre for Continuing Education:	Dr. B. Siaciwena, BA.Ed. (Zambia), Dip. Ed., M.A. (Lond.), Ph.D. (Wales)
Computer Centre	Mr. M.P. Bennett, B.Sc. (Eng. MDCS)
Education Research Bureau:	Prof. E.K. Waddimba, M.A. Ed.D. (W.Mich) Dip. Ed. (Bristol)
Institute for African Studies:	Dr. O.S. Saasa, B.A. (Zambia), M.Sc., Ph.D., (Sotho)

Institute of Human Relations:

Abdi A. Mahdi, B.Sc. (East Africa)
M.A. (Brandeis)

Rural Development Studies Bureau:

Dr. J.T. Milimo, Doc. Soc. Antr.
(Oxford Univ.), M.Litt. (Oxford Univ.)
S.T.L. (Masters in Theology) Gregorian
Univ., Rome

SAMORA MACHIEL SCHOOL OF VETERINARY MEDICINE

SCHOOL OFFICE

<u>NAME</u>	<u>POSITION</u>	<u>QUALIFICATIONS</u>
Prof. C.E.A. Lovelace	Acting Dean/ Associate Professor	B.Sc. (Birmingham), Ph.D. (London)
Dr. T.R. Ayliffe	Assistant Dean (Postgraduate)	B.Sc., BVM, Ph.D. M.R.C.V.S. (London)
Dr. G.S. Pandey	Assistant Dean, (Undergraduate)	B.Sc. Agr., B.V. Sc. & A.H. M.V. Sc. (Agra)
Mr. A. Chishimba	Admin. Assist. to the Dean	Dip. Per. Admin., B.A. Public Admin. (Zambia)
Prof. Y. Tsutsumi	JICA Team Leader/ Head/Professor	DVM (Tokyo), Ph.D. (Osaka)
Mr. O. Kosegawa	JICA Coordinator	B.Sc. Agric. (Tokyo)

ACADEMIC STAFF OF THE SCHOOL OF VETERINARY MEDICINE
DEPARTMENT OF BIOMEDICAL SCIENCES

Dr. D.N. Kisauzi	Acting Head/Senior Lecturer	B.Vet. (Makerere), Med., Dip. Nutri. Physiology (Copenhagen), Ph.D. (Dublin)
Prof. C.E.A. Lovelace	Associate Professor	B.Sc., (Birmingham), Ph.D. (London) Biochemistry
Dr. T.R. Ayliffe	Senior Lecturer	B.Sc., BVM., Ph.D. (London), Pharmacology, M.R.C.V.S.
Prof. V. Ramkrishna	Associate Professor	B.Sc., B.V.Sc. & A.H., M.V.Sc., & A.H., (Jabalapur) Ph.D. (Ludhiana) Anatomy/Histology
Dr. S. Brozdowski	Senior Lecturer	B.V.Sc., M.V.Sc., (Lublin) Ph.D. (Warsaw) Physiology
Dr. K. Sabbe-Verstraelen	Lecturer	Dr. Med. Vet. (Ghent) Histology/Embryology
Mr. K.M. Mizinga	Lecturer	M.Sc., B.Sc. Agric. (UNZA) M.V. Sc. (Tuskegee) Physiol. (on study leave for Ph.D.)

DEPARTMENT OF CLINICAL STUDIES

Prof. J.O. Omamegbe	Head/Assoc. Prof.	D.V.M. (Ibadan), M.V.M. (Glasgow) Surgery
Dr. C.J. Siame	Lecturer	B.V.M., M.Sc. Farm (Karl-Marx) Animal Medicine
Dr. I.G.K. Phiri	Lecturer	B.V.Sc., M.V.S.C., (Karl-Marx) Dip. Trop. Vet. Med. (Free Univ. Berl) Cert. Trop. Vet. Med. (Edinburg) Surgery
Dr. J. Muleya	S.D.F.	B.V.M., (Zambia) Small Animal Clinic
Dr. O. Patel	S.D.F.	B.V.M., (Zambia) Reproduction (on study leave for M.Sc.)
Dr. F. Sabbe	Lecturer	D.V.M., (Ghent) Protozoological Disease, Reproduction
Dr. J.H.R.N. de Bont	Lecturer	B.V.Sc., D.V.M. (Belgium), Dip. Trop. Vet. Med. (Cum Laude)
Dr. H. Kobayashi	Teaching Assist.	B.V.M., (Kitasato) Small Animal Clinic

DEPARTMENT OF DISEASE CONTROL

Prof. G. Sato	Head/Professor	DVM, Ph.D. (Hokkaido) Public Health
Prof. T. Kaji	Professor	DVM, Ph.D. (Azabu) Public Health
Dr. Y. Sato	Senior Lecturer	M.V.Sc. (Osaka) Clinical Pathology (Haematology & Pathology)
Dr. G.S. Pandey	Senior Lecturer	B.Sc. Agr. (Agra) B.V. Sc. & A.H. M.V. Sc. Clinical Pathology
Dr. J.E.D. Mlangwa	Lecturer	B.V.M. (Nairobi), D.P.V.M., Ph.D., (Copenhagen) Epidemiology
Dr. K.L. Samui	Lecturer	D.V.M. M.Sc., Vet. Med. (Kishinev) Epidemiology
Mr. H. Chitambo	Lecturer	B. Agric. Sc. (Zambia), M.Sc. (Bangor) Parasitology (Protozoology) (on study leave for Ph.D.)

Dr. S. Inoue	Teaching Assist.	M.V. Sc. (Kitasato) Microbiology (Bacteriology/Virology)
Dr. A. Tsukihara	Teaching Assist.	D.V.M., M.Sc. (Kitasato)
Dr. A. Suzuki	Teaching Assist.	M.V. Sc. (Kitasato) Microbiology (Bacteriology)
Dr. M. Ngona	S.D.F.	B.V.M. (Zambia) Public Health. (Bacteriology) (on study leave for M.Sc.)
Dr. A. Mweene	S.D.F.	B.V.M., (Zambia) Microbiology (on study leave for M.Sc.)

DEPARTMENT OF PARACLINICAL STUDIES

Prof. Y. Tsutsumi	Head/Professor	D.V.M., (Tokyo) Ph.D. (Osaka), Parasitology (Protozoology)
Prof. K. Matsukawa	Professor	D.V.M., Ph.D. (Sapporo) Pathology
Prof. D.S. Misca	Associate Professor	B.V.Sc. M.V.S., Ph.D. (Agar) Microbiology (Bacteriology)
Dr. N. Seki	Senior Lecturer	D.V.M., M.Sc. (Hokkaido) Parasitology (Helminthology)
Dr. K. Madarame	Senior Lecturer	D.V.M., M.Sc., Ph.D. (Hokkaido) Pathology
Dr. M.M. Musonda	Lecturer	B.V.M. (Nairobi), Dip. Vet. Path. (Uppsala) F.R.V.C. Pathology (on study leave for Ph.D.)
Dr. E.T. Mwase	Lecturer	B.Sc. (Zambia), M.Sc., Ph.D. (London) Parasitology (Entomology)
Mr. R. Muimo	Lecturer	B.Agric. Sc. (Egypt), M.Sc. (Bengor) Parasitology (Helminthology) (on study leave for Ph.D.)
Dr. M. Iida	Teaching Assist.	M.V. Sci. (Hokkaido), Pathology
Dr. S. Yumura	Teaching Assist.	M.V. Sci., (Tokyo) Parasitology (Protozoology)
Dr. I.M. Dhaliyal	S.D.F.	BYM (Zambia), Pathology (on study leave for Ph.D.)

SENIOR TECHNICAL STAFF

<u>NAME</u>	<u>Position</u>	<u>QUALIFICATIONS</u>
Mr. W. Benkele	Chief Technician Central Services	Dip. Med. Lab. Sci. (Zambia) Cert. Vet. Tech. (London) Advanced Cert. Vet. Lab. Tech. and Radiology (Kobe), Cert. Agric. Teaching Methodology (Wolverhampton)
Mr. S. Chisembe	Chief Technician Paraclinical Studies	Sci. HND Applied Biology
Mr. J. Daka	Chief Technician Biomedical Science.	CGI Part I, II & III. Sci. (London) Lab. Tech. SIMA Cert. (Zambia) (Scientific Instrumentation) Vet. Instr. Cert.
Mr. W. D. Ulaya	Senior Technician Disease Control	City and Guilds Parts I & II (Sc. Lab. Tech.) SIMA Certificate in Scientific Technician (Zambia). (on study leave)
Mr. M. Mubiana	Senior Technician Clinical Studies	Dip. Agric. (Animal Science Major) Certificate. Animal Health and Management. (Zambia)
Mr. M. Kadono	Senior Technician Central Services	Eng. Spec. (Japan)
Mr. P.G. Phiri	Senior Technician Paraclinical Studies	Dip. Med. Lab. Techn. (Zambia) Cert. Anim. Health (Zambia) Cert. Haem. Disease of Cattle (Nairobi)
Mr. H. Chimana	Ag. Chief Technician (Technician I) Disease Control	Dip. Med. Lab. Techn. (E.H.C.)

THE UNIVERSITY OF ZAMBIA
SAMORA MACHEL SCHOOL OF VETERINARY MEDICINE

Introduction

In July, 1983, it was announced that the University of Zambia was to establish its own School of Veterinary Medicine to meet the critical shortage of qualified veterinary personnel, and with the cooperation of the Government of Japan the construction of a large and well equipped school began in February 1984 and was completed in 1986. However, due to the pressing need for veterinarians it was decided not to delay the introduction of the teaching programme until the buildings became available, and temporary premises were provided to enable the first class of 14 students to be admitted to the veterinary course in October 1983.

The intake has been increased annually in order to graduate a maximum of 30 veterinarians each year. The programme of study extends over 6 years and leads to the award of the degree of Bachelor of Veterinary Medicine of the University of Zambia.

The first year is by entry to the School of Natural Sciences to study biology, chemistry, physics and mathematics. The students enter the Veterinary School in second year, where they do anatomy, embryology and physiology in the Department of Biomedical Sciences, and biomathematics, agronomy, genetics, and biochemistry in the School of Agricultural Sciences and Natural Sciences. The third year covers more biomedical sciences, and animal nutrition. The fourth year is spent in the Department of Paraclinical Studies with pathology, microbiology, parasitology and pharmacology, and also animal production. The students start clinical work in their fifth year, where their lectures are split between the Departments of Disease Control and Clinical Studies. At the end of the sixth year the students are externally examined in their main areas of study including Medicine, Surgery, Theriogenology, Preventive Medicine, Public Health, Epidemiology, Economics and Extension.

The course is designed to produce practising Veterinarians, so the practical component is very important. In each of the vacations from third to fifth year, the students are expected to have practical experience, first on the farm, second in a diagnostic laboratory and lastly in a veterinary clinic.

The School has attached to it an active Small Animal Clinic, open to the public daily. It also runs an ambulatory farm clinic which visits a variety of farms, from large commercial enterprises to village small-holdings. These clinics provide a large number of clinical cases for student teaching and demonstration. The School also has a small animal hospitalization quarters, special accommodation for small laboratory animals and a covered-pen area for large animals. Cattle, horses, goats and sheep are kept in 13 hectare paddocks at the rear of the School. These are used for student teaching and for research. The School also has 50 hectares of arable land as part of the University Farm.

Research in the School is active, with a variety of diseases being studied. Several surveys are being carried out on important ruminant diseases, including zoonoses. The School has students doing postgraduate studies by research, some working in the laboratory and some out in the field. It is intended to start a postgraduate programme for M.Vet.Med. in Diagnostic Veterinary Medicine.

The prospects for graduates of the School of Veterinary Medicine are excellent at present. There are a variety of interesting, responsible jobs in Government, parastatal and private farming and pharmaceutical enterprises.

Dr. M.N. Shandome, B.V. Sc. (E. Africa); Dr. Vet. Med. (Vienna); M.Sc. (Edin.) served as co-ordinator of the School in its formative stages - 1983-85.

Deans of the School

1985-87 Prof. R.P. Lee - M.A. (Dub.), Ph.D. (NUI), MRCVS.

1987-89 Prof. R.J. Thomas - B.V. Sc., M.Sc. (Bristol), Ph.D. (Dunelm) MRCVS

1989 Prof. C.E.A. Lovelace - B.Sc. (Birmingham), Ph.D. (Lond.) Ag.

Graduates of the School

Academic Year	Male	Female	Total
1987/88	11	2	13
1988/89	13	2	15
Total	25	4	28

THE BOARD OF STUDIES

The Board of Studies is responsible for organising the structure and content of the courses of instruction and study. Its composition is as follows:

The Dean, School of Veterinary Medicine, Chairman.

The Dean, School of Agricultural Sciences or his representative.

The Dean, School of Education or his representative.

The Dean, School of Humanities or his representative.

The Dean, School of Natural Sciences, or his representative.

The Dean, School of Medicine or his representative.

The Dean of Students, or his representative.

The Librarian, or his representative.

The Director, Centre for Continuing Education or his representative.

The Director, Education Research Bureau or his representative.

The Director of Veterinary and Tsetse Control Services, Ministry of Agriculture and Water Development or his representative.

The Director of the Wildlife, Ministry of Agriculture and Water Development or his representative.

The Head, Department of Animal Sciences, School of Agricultural Sciences or his representative.

Dr. C.O. Oparaocha, Veterinary Surgeon in private practice.

All members of the academic staff of the School of Veterinary Medicine appointed on a fully time basis for teaching and research.

The Administrative Assistant to the Dean as its Secretary.

A student representative of the preclinical and paraclinical years.

A students representative of the clinical years.

OBJECTIVES

To produce veterinarians who will be recognised internationally and who will be competent to engage in:

- a) the promotion of animal production development in Zambia and elsewhere through improved animal health control, surgical intervention, breeding and nutritional programmes.
- b) the promotion of public health through the control of zoonotic diseases, and other infections and intoxications transmissible to man through animal products.
- c) basic and applied research in the field of veterinary medicine and surgery.
- d) teaching and academic curriculum development in veterinary education.
- e) appropriate livestock and poultry products industries.

ENTRANCE REQUIREMENTS AND REGULATIONS

1. Entrance Requirements to the School of Veterinary Medicine

- i) A clear pass with normally a minimum of C+ obtained at the first attempt in all courses of the first year School of Natural Sciences, University of Zambia or equivalent qualifications from other Universities or Schools. The student will have opted to study Veterinary Medicine.
- ii) For non school leavers the following requirements apply:
 - a) Natural Resources Development College (NRDC) or equivalent Colleges, Diploma in Agriculture or Animal Science with a Distinction. These will be admitted into the first year under the School of Natural Sciences.
 - b) B.Sc. University of Zambia or equivalent University with a credit will be admitted to the second year, School of Veterinary Medicine.
 - c) B.Agric. Sc. University of Zambia or equivalent University with a credit, will be admitted into the third year School of Veterinary Medicine.
- iii) There are limited places for both categories of candidates, and thus there may be considerable competition for admission. This may demand therefore, that selection for a place will depend on the attainment of higher levels of performance.

GENERAL ENTRANCE REQUIREMENTS

1. APPLICANTS OFFERING QUALIFICATIONS OF THE GENERAL CERTIFICATE OF EDUCATION OR THE CAMBRIDGE OVERSEAS SCHOOL CERTIFICATE.

- i) Every applicant must hold passes in at least five approved subjects.
- ii) The passes must include (a) English, (b) either Mathematics or an approved science subject.
- iii) "Approved subjects" are those approved for this purpose by the University of Zambia.
- iv) Attainment of Grade A, B or C in an examination at the Ordinary Level of the G.C.E. or on the Cambridge School Certificate will be regarded as a pass for the satisfaction of these entrance requirements.

2. APPLICANTS OFFERING QUALIFICATIONS OF OTHER EXAMINING BOARDS

Qualifications of other Examining Boards may be recognized in complete satisfaction of the requirements listed in paragraph 1 above, if, in the opinion of the University Senate, the standard of examination is sufficient high to warrant recognition for this purpose.

3. MATURE APPLICANTS

The University may modify the general entrance requirements in the case of applicants who are twenty-three years of age or over by 1st October of the year in which they begin their degree courses.

4. *EXCEPTIONALLY*, the University may admit an applicant whose qualifications do not conform to the general entrance requirements but who presents other evidence which, in the opinion of the Senate, indicates that he/she has the capacity and attainment to pursue the course of study proposed.

5. REQUIREMENTS OF THE SCHOOL OF NATURAL SCIENCES

A pass in an O level subject shall for the purpose of the entrance requirements of the School of Natural Sciences be deemed to be the attainment of Grade A, B or C in that subject.

Within the framework of the G.C.E. all candidates require passes in five O levels subjects as follows:-

- 1) A pass in Mathematics in which the minimum acceptable standard that must be attained is Grade B;
- 2) A pass in Chemistry AND Physics OR Physical Sciences;
- 3) A pass in one further approved science subject preferably Biology;
- 4) A pass in English Language;
- 5) A pass in one other approved subject.

THE QUOTA SYSTEM

Selection for the various quotas takes place at the end of the first year and is based on Grades obtained in the first year and the students preferences.

STAFF DEVELOPMENT PROGRAMME

Since 1989 when the first graduates from the School became available there have been Staff Development Fellows in ten various Departments. Of the first three Staff Development Fellows, two have gone on to Further Degree studies in the U.K. and one to Japan. The first two House Surgeons have moved on to become Staff Development Fellows and will be departing for Further Degrees in 1990. There are at any one time up to four Staff Development Fellows within the School and they stand a good chance of advancing up the academic career ladder. On the non-academic side of postgraduate training there are up to two House Surgeons within the Clinical Studies Department augmenting the clinical staff capabilities.

HIGHER DEGREE IN THE SCHOOL OF VETERINARY MEDICINE

It is possible for postgraduate students to register for Masters and Ph.D. degrees by research. There are several students registered for such Masters degrees and one has been accepted for Ph.D. studies in the Department of Biomedical Sciences.

From 1990 it will also be possible to register for a Master's Degree in Veterinary Medicine (M.Vet. Med.) by coursework. The first such degree will be in Diagnostic Veterinary Medicine.

REGULATIONS

In addition to the general University regulations for the Degree of Master the following shall apply:-

ADMISSION REQUIREMENTS

1. The minimum qualification for admission as candidate for the degree of Master of Veterinary Medicine will be a Bachelor of Veterinary Medicine degree of the University of Zambia of sufficiently high standard or the equivalent from another University or Institution;
2. The candidate will normally have also been in full time veterinary practice for at least one year after graduation;
3. The candidate may be required to undergo such tests, or take other prerequisite or concurrent studies and examinations which the school may prescribe.

DURATION AND STRUCTURE OF THE DEGREE PROGRAMME

The Master's Degree programme in Diagnostic Veterinary Medicine is made up of 2 parts: Part I consists of advanced courses, equivalent to an Academic year of study. Part II consists of research under supervision on an approved subject, carried out during the subsequent twelve months and leading to the submission of a dissertation. Normally no candidate will be permitted to proceed to Part II unless he/she has passed all the courses in Part I.

PART I CURRICULUM

The curriculum for Part I consists of the following components, consisting of three full courses and one half course:-

Clinical Parasitology	YMM 740
Diagnostic Pathology	YMM 710
Clinical Microbiology	YMM 730
Scientific Methodology	YMM 791

There are written examinations at the end of the coursework and final assessment is based on performance in these examinations and in other exercises that constitute the courses. A candidate who fails in one course may take a supplementary examination but on failing the supplementary will be excluded from the programme. A candidate who fails more than one course will be excluded from the programme. A draft research proposal must be prepared for submission prior to the examination.

The pass mark will be 50% and the assessment will be made up as follows:

- a) Continuous assessment 50%
(including practical tests, laboratory reports, seminars and assignments)
- b) Final written examination 50%

PART II CURRICULUM

The dissertation submitted in partial requirement for the degree will be examined by a Board of Examiners appointed by Senate which will include an external examiner. The Board may call candidates for oral examination. The Board will recommend that the dissertation should pass, subject to minor correction, or not pass. If the dissertation does not pass, the School may recommend to Senate that the candidate may re-submit the dissertation in amended form after 3 to 6 months. A candidate whose dissertation fails to pass at a second examination will be excluded from the programme.

M. Vet. Med. Diagnostic Veterinary Medicine

PART I COURSE CONTENT

1. Diagnostic Pathology VMM 710

Collection, preservation and transport of specimens, necropsy and laboratory diagnostic techniques. Advanced histopathology, haematology, cytology and clinical chemistry. Pathology and clinical pathology of tropical diseases of livestock.

2. Clinical Microbiology VMM 720

Systematic bacteriology, virology and mycology. The aetiological and serological diagnosis of major livestock diseases. Isolation and identification of pathogens. Vaccine production.

3. Clinical Parasitology VMM 730

Entomology and protozoology of major parasites of livestock in Africa, particularly trypanosomes and tickborne pathogens. Physiology, immunology and chemotherapy of common helminths and helminth zoonoses.

4. Scientific Methodology VMM 791

The searching of and use of scientific literature. Scientific writing. The collection and processing of data, including statistical methods. The use of computers for word processing and data handling.

DIAGNOSTIC PATHOLOGY VMM 710

a) Clinical Pathology

Collection, preservation and shipment of specimens. Advances in haematology, cytology, biopsy techniques, clinical chemistry.

b) Necropsy

Instruction and practice in the diagnosis of animal disease by means of necropsy and related laboratory techniques. Emphasis will be placed on correlation and interpretation of gross and microscopic lesions and results of other tests. Lesion interpretation and correlation with aetiology and pathogenesis of disease. The use of instruments in necropsy procedures. Forensic pathology.

c) Histopathology

An advanced and comprehensive study of histopathological aspects of systematic and special pathology including interpretation of electronmicrographs. Selected aspects such as digestive system, cardio-pulmonary and urogenital system pathology will be studied. Pathology of

infective, toxic, nutritional deficiency, neuropathological and oncological diseases of domestic animals with an emphasis on ruminants.

d) Tropical diseases

Lectures on common tropical diseases of domestic animals with special reference to pathology and clinical pathology leading to diagnosis.

LECTURE HOURS

Lectures : 60 hours at 2 hours per week
Practicals : 90 hours at 3 hours per week
Seminars : 10 hours at 1 hour each

CLINICAL MICROBIOLOGY YMM 730

a) BACTERIOLOGY AND MYCOLOGY

Advances in bacterial, rickettsial, mycoplasmal and fungal classification. Ultrastructure of bacteria. Mechanisms of pathogenesis. Bacterial genetics in relation to metabolism and pathogenesis.

Identification of aetiological agents of animal diseases important to the region. The serological typing of bacteria for example, *Salmonella* serovars and *Escherichia coli*. The isolation of bacterial antigens, e.g. streptococcal antigens. Bacterial exotoxins and endotoxins and related tests. Bacterial plasmids and drug resistance. Drug sensitivity testing.

The use of immuno-fluorescent techniques, antibody separation and purification. ELISA techniques for the identification of bacterial antigens. Novel approaches to bacterial vaccines.

b) VIROLOGY

The study of viruses in tissue and cell culture and their propagation. Titration and neutralisation of viruses. Isolation and identification of viruses from clinical material. The ultrastructure of viruses. The passage of viruses in different cell culture systems. Vaccine production including modern methods such as the use of recombinant DNA technology.

The use of immunological tests for the diagnosis of viral diseases. Recent developments for rapid viral antigen detection, including adaptations of the ELISA technique such as the Dot-immunobinding assay.

LECTURE HOURS

Lectures : 60 hours at 2 hours per week
Practicals : 90 hours at 4-5 hours per week
Seminars : 10 hours at 1 hour each

CLINICAL PARASTIOLOGY VMM 740

a) ENTOMOLOGY

Identification of arthropods of veterinary importance with special emphasis on Ixodidae and Glossinidae with reference to: taxonomy, biochemistry, physiology, morphology, host immune responses, host-parasite-vector interactions, bionomics, and ecology. Practicals in the collection, identification, dissection and rearing techniques for Ixodidae and Glossinidae will be conducted.

b) PROTOZOOLOGY

Emphasis will mainly be on economically important diseases in the region such as trypanosomiasis, tick-borne diseases and coccidiosis. Other diseases such as toxoplasmosis also important in public health will be covered. Emphasis will be placed on biochemistry, physiology, pathogenicity and epidemiology of these parasites, together with clinical aspects and control strategies. Modern serological diagnostic methods, for parasite identification. Practicals will be conducted in field and laboratory techniques including parasite isolation and cloning.

c) HELMINTHOLOGY

Identification of helminths of economic and zoonotic importance with particular reference to parasite ultrastructure and metabolism, drug resistance and host immunity, and their implications in parasite control. Practical sessions will involve field surveys and collection techniques, immunological and other diagnostic methods.

LECTURE HOURS

Lectures : 60 hours at 2 hours per week
Practicals : 90 hours at 3 hours per week
Seminars : 10 hours at 1 hour each

SCIENTIFIC METHODOLOGY VMM 791

a) SCIENTIFIC COMMUNICATION

Library use, literature searches. Hypothesis formation. Writing of research proposals and protocols. Writing of scientific reviews and papers. Oral and other presentations, lecture techniques and use of audio-visual aids.

b) STATISTICS

Experimental design. Data collection and collation. Data processing. Statistical methods such as probability, variance, regression analyses, population distribution. Data presentation.

c) **COMPUTER USE**

Introduction, word processing, data bases, data handling.

LECTURE HOURS

Lectures : 40 hours at 3 hours per week

Practicals : 40 hours at 4 hours per week

REGULATIONS FOR THE BACHELOR OF VETERINARY MEDICINE DEGREE

1. The degree of Bachelor of Veterinary Medicine will be awarded by the University Senate to a student who has completed to the satisfaction of the Examiners the required course of study, including Preclinical and Clinical Studies.
2. The normal length of undergraduate studies is six years subject to modifications arising from application of regulations concerning courses credited from other programmes and progression from one year of study to the next. The three clinical years and includes three periods of clinical practical vocational training.
3. University Examinations
Written and, where appropriate, practical and/or oral examinations will be held at the end of each academic year for those courses taught by the School of Veterinary Medicine. Examinations for the courses taught by other Schools will be held as to the requirements of the Schools.
4. The Examiners for all courses shall be Professors and Lecturers in the School and such additional Examiners as may be appointed by the University Senate on the recommendation of the Board of Studies of the School of Veterinary Medicine.
5. External Examiners may participate in the University Examinations held during 3rd, 4th, 5th and 6th years of the programme.
6. No candidate shall, without permission of the Senate granted on the recommendation of the Board of Studies, present him/her for examination in any course unless he has attended and duly performed the work prescribed for the course.
7. A student will be deemed to have passed a course if she/he obtains 50% of the total available mark and satisfies the examiners. The percentages allocated to theory, practical and oral examinations, and continuous assessment carried out during the year, are shown on pages
8. The following grades shall be used in assessing the performance of a candidate in a course. There shall be seven pass grades and four fail grades as follows:

A+	Distinction
A	Distinction
B+	Merit
B	Merit
C+	Pass
C	Bare Pass
D+	Bare Fail
D	Fail

APPENDIX 'B'

MEMBERSHIP OF THE JOINT JICA/UNZA COMMITTEE FOR MEETINGS HELD WITH THE SCHOOL OF VETERINARY MEDICINE, UNIVERSITY OF ZAMBIA

JICA/UNZA SCHOOL OF VETERINARY MEDICINE COMMITTEE

JICA SIDE

- Professor Y Shimizu - Leader JICA Consultative Mission
- Professor H. Kodama - Member of JICA Mission
- Mr. T. Ito - Member of JICA Mission
- Mr. T. Kusano - Official from JICA Headquarters and member of JICA Mission
- Mr. K. Noda - Member of JICA Mission

ZAMBIAN SIDE

- Professor C.E.A. Lovelace - Acting Dean, School of Veterinary Medicine (Chairman)
- Professor Y. Tsutsumi - JICA Team Leader Professor and Head of Paraclinical Studies Department
- Professor J.O. Omengebe - Associate Prof. and Head of Department of Clinical Studies, UNZA Veterinary Medicine
- Professor V. Ramkrishna - Associate Prof. Acting Head Department of Biomedical Sciences, UNZA Veterinary Medicine
- Professor G. Sato - Professor and Head of Dept. of Disease Control, UNZA Veterinary Medicine
- Dr. E.T. Mwase - Lecturer Dept. of Paraclinical Studies UNZA Veterinary Medicine
- Mr. W. Benkele - Chief Technician Vet. Medicine Central Services

IN ATTENDANCE

- Ms. J.M.F. Calder - Special Administrative Assistant to the Vice-Chancellor (Rapporteur)
- Mr. A. Chishimba - Administrative Assistant to the Dean School of Veterinary Medicine.

APOLOGIES

- Dr. T.R. Ayliffee - Senior Lecturer Biomedical Sciences Dept. and Assistant Dean Postgraduate (on home leave)
- Dr. G.S. Pandey - Senior Lecturer Disease Control Dept. and Assistant Dean Undergraduate (representing the School in Western Province)

Y.S.

NE	No Examination Taken
LT	Left without permission
F	Fail in Supplementary Examination.

9. Supplementary Examinations

On the recommendation of the Board of Studies the Senate may allow a student to take supplementary examination under the following conditions:

- a) A pass in at least 2 full courses with a grade C+ or better and;
- b) A pass in the continuous assessment part of the failed course.
- c) Supplementary examinations will be granted to a student in not more than two full course equivalents in any one year. The grade awarded will be either Pass or Fail.

10. Repeat Year

The Senate may on the recommendation of the Board of Studies allow a candidate in 3rd or 4th or 5th year to repeat all courses in the following academic year where:-

- a) A candidate does not qualify for a supplementary examination in a failed course.
- b) A candidate fails less than three full courses.
- c) A candidate fails a supplementary examination.

11. The University Senate may, on the recommendation of the Board of Studies allow a second year student to repeat the year if he produces documentary evidence to prove that he has been prevented from participating satisfactorily in classes due to illness or other unavoidable causes.

12. Part-Time

The University Senate may, on the recommendation of the Board of Studies allow a second year student to enroll on a part-time basis under the following conditions:

- a) A candidate fails not more than one course equivalent but fails to qualify for a supplementary examination.
- b) A candidate failing not more than one course equivalent in a supplementary examination.

13. Exclusion

The University Senate may, on the recommendation of the Board of Studies, exclude from study in the School of Veterinary Medicine.

- a) Any candidate who fails three or more full courses in any one year.
- b) Any candidate who fails a course in a repeat year or part-time studies
- c) Final year students who fail a course and do not pass or

qualify for supplementary examinations are allowed to repeat the year once.

- d) A second year student, if he has failed in any one course and does not qualify for supplementary examinations or part-time study, or fails in more than one course equivalent in supplementary examinations or after part-time study.

14. Deferred Examination

The University Senate may, on recommendation of the Board of Studies, grant deferred examinations to a candidate who has been prevented from presenting him/herself for examination due to illness or other unavoidable cause. An application for deferred examinations must be supported by a medical certificate obtained at the time of illness, or other documentation to show cause for absence.

15. Withdrawals

A student may request withdrawal from a course from the Dean of the School, and if allowed, a grade of WP, withdrawn with permission, will be given. If the student withdraws within three weeks of the commencement of the course, no grade will be recorded. If a student withdraws without permission, a grade of LT will be recorded.

Course Assessment

Course	Continuous Assessment	University Examinations	Practical Oral
		Theory	
	%	%	%
YMB 210	40	60	
YMB 211	30	60	10
CA 210	40	60	
AGG 311	40	60	
AGA 332	40	60	
AGC 342	40	60	
YMB 310	20	50	30
YMB 315	30	40	30
YMB 320	40	50	10
YMB 330	40	50	10
AGA 320	40	60	
YMB 303			Satisfactory/ Unsatisfactory
YMP 410	30	40	30
YMB 425	30	50	20
YMP 430	30	40	30
YMP 440	30	40	30
AGA 450	40	60	30
YMP 403			Satisfactory/ Unsatisfactory

VMD 510	30	40	30
VMC 510	30	40	30
VMD 515	30	40	30
VMC 520	30	40	30
VMC 535	30	40	30
VMD 511	40	40	20
VMC 503			Satisfactory/ Unsatisfactory
VMC 610	30	40	30
VMD 612	30	50	20
VMD 615	30	40	30
VMC 620	30	40	30
VMC 635	30	40	30
VMD 630	30	40	30

Vacation Practicals

Before a student is allowed to qualify at the end of the sixth year he/she will have satisfactorily undertaken vacation practicals as stipulated below:-

- a) VMB 303 Farm Practicals involving staying on a selected farm within Zambia for 7 weeks during the vacation after the 3rd year.
- b) VMP 403 Laboratory practicals at either the Government Central Veterinary Research Institute or the School of Veterinary Medicine for 10 weeks during the vacation after 4th year.
- c) VMC 503 Veterinary Clinical practicals in Government or private veterinary practice and abattoirs within Zambia for 10 weeks during the vacation after 5th year.

Qualifications

The degree of Bachelor of Veterinary Medicine (B.Vet. Med.) will be conferred on those that have fulfilled the requirements of the sixth year examination after approval by the Senate of the University of Zambia.

THE CURRICULUM

COURSES AND DEGREE STRUCTURE

In the curriculum the letters used to indicate course numbers should be interpreted as follows:

BZ, C, M, P, & CA	Courses taught by the School of Natural Sciences
AGG/AGA	Courses taught by the School of Agricultural Sciences.
VMB	Courses taught by the Department of Biomedical Sciences.
VMP	Courses taught by the Department of Paraclinical Studies.
VMC	Courses taught by the Department of Clinical Studies.
VMD	Courses taught by the Department of Disease Control.

The digits used to number the courses should be interpreted as follows:

The 1st digit indicates the year the course is normally taken.

The 2nd digit indicates the subject area.

The 3rd digit indicates the time the course is taken.

- (0) - full course taught over one academic year
- (1) - half course taught in the first half year
- (2) - half course taught in the second half year
- (3) - half course taken during vacation
- (5) - half course taught throughout the academic year.

The courses are as follows:

<u>Year</u>	<u>Course No.</u>	<u>Subject Matter</u>	<u>Unit</u>
1	BZ 110	Introductory Biology	1
	C 110	Introductory Chemistry	1
	M 110	Introduction to Mathematics	1
	P 110	Introductory Physics	1
2	YMB 210	Veterinary Anatomy & Physiology	1
	YMB 211	Veterinary Embryology	½
	CA 210	Organic Chemistry & Biochemistry	1
	AGG 311	Probability & Statistical analysis	½
	AGA 332	Animal genetics and breeding	½
	AGC 342	Forage Crops Pasture and Range Management	½
3	YMD 310	Veterinary Anatomy	1
	YMD 315	Veterinary Histology	½
	YMD 320	Veterinary Physiology	1
	YMD 330	Veterinary Biochemistry	1
	AGA 320	Basic and Applied Animal Nutrition	1
	YMD 303	Farm Practicals	½
4	YMP 410	Veterinary Pathology	1
	YMD 425	Veterinary Pharmacology	½
	YMP 425	Veterinary Microbiology	1
	YMP 440	Veterinary Parasitology	1
	AGA 450	Animal Production	1
	YMP 403	Veterinary Laboratory Practicals	½
5	YMD 510	Special and Preventive Medicine	1
	YMC 510	Clinical Veterinary Medicine I	1
	YMD 515	Veterinary Clinical Pathology I	½
	YMD 511	Veterinary Epidemiology & Economics	½
	YMC 520	Veterinary Surgery I	1
	YMC 535	Veterinary Reproduction and Obstetrics I	½
	YMC 503	Veterinary Clinical Practicals	½
6	YMD 610	Veterinary Medicine II	1
	YMD 630	Veterinary Public Health	1

YMD 612	Veterinary Extension & Jurisprudence	½
YMD 615	Veterinary Clinical Pathology II	½
VMC 620	Veterinary Surgery II	1
VMC 635	Veterinary Reproduction and Obstetrics II	½

FIRST YEAR (NATURAL SCIENCES)

Course No.
BZ 100

Description

INTRODUCTORY BIOLOGY

An introduction to the most important areas of biology

Basic cell biology, animal structure, function and physiology.

Plant structure, function and physiology.

Genetics, ecology, evolution and diversity of animals and plants.

C 110

INTRODUCTORY CHEMISTRY

An introductory course in chemistry covering such topics as stoichiometry, atomic and molecular structure, the periodic table, chemical reactions, equilibrium and simple organic compounds.

M 110

INTRODUCTION TO MATHEMATICS

Preliminary algebra, introductory set theory, elementary functions, analytical geometry and vector analysis, matrices and determinants, calculus.

P 110

INTRODUCTORY PHYSICS

Basic principles of matter structure, density and mechanical properties. Geometrical optics reflection, refraction, mirrors, lenses and simple instruments.
Mechanics - kinematics, dynamics, circular, statics and motion, vibrations and waves.

Heat - thermometry, simple kinetic theory, specific heat and elements of thermodynamics.

Electricity and magnetism - electrostatics, D.C. circuits, the magnetic fields, A.C. circuits.

Modern physics - the atom and radio activity.

Associated laboratory course.

SECOND YEAR

YMD 210

VETERINARY ANATOMY AND PHYSIOLOGY

General Anatomy: terminology, body regions, different organ systems, Skull, vertebral column,

general skeleton.
Physiology: general cell physiology. Nerve cell and muscle physiology blood and body fluids. General endocrinology.
Cytology: The cell and its components: cell membrane, nucleus, organelles, cytoplasm. Cell division.
General Histology: Epithelia, connective, supportive, muscular and nervous tissues.

VMB 211

VETERINARY EMBRYOLOGY

Introduction, primary organs of reproduction and gametogenesis, fertilisation, cleavage and formation of morula and blastula, gastrulation and formation of the germ layers.

Establishment of the embryonic membranes and body structures, development of organ systems in avian and mammalian embryos.

CA 210

ORGANIC CHEMISTRY AND BIOCHEMISTRY

Broad coverage of organic chemistry whose treatment is factual in nature.

Bonding in organic compounds, isomerism, reaction of organic functional groups and their derivatives, synthetic transformations and compounds of biological importance. Analytical chemistry, precipitation, acid base, redox equilibria. The major constituents of the cell, their chemical structure, function and analysis including carbohydrates, lipids, proteins and nucleic acids.

Biochemical energetics and properties of enzymes.

AGG 311

PROBABILITY AND STATISTICAL ANALYSIS

Summation and product operations. Random variable, sample space and sampling techniques. Summary of the data. Normal probability distribution and related distributions. Statistical estimations.

Normal population:- interference about population mean and population variance, comparison of two population means, comparison of two population variances. Regression analysis. Analysis of variance. Chi-squared analysis. Experimental designs. Procedures in scientific experimentation.

AGA 332

ANIMAL GENETICS AND BREEDING

Introduction to basic process of inheritance, basic Mendelian genetics - segregation, linkage, mutation and independent assortment; multiple alleles, sex linkage, sex determination, elements of population genetics.

Quantitative genetics - variation, normal distribution, correlation, regression, heritability, repeatability.

Selection - response to selection, types of selection, selection methods.

Breeding systems - in-breeding, out-breeding, cross-breeding, coefficient of breeding, relationship, heterosis, species - hybridization.

Artificial Insemination in livestock genetic improvement.

AGC 342

FORAGE CROPS PASTURE AND RANGE MANAGEMENT

Introduction to forage crops, historical review of evolution of grass and legumes.

Physiology of grasses and legumes, establishment of pasture and legumes; pasture management and carbohydrate reserves, antiquality factors forage conservation and wet storage systems, seed production.

Forage quality and utilisation, grazing behaviour.

THIRD YEAR

YMB 310

VETERINARY ANATOMY

Systematic, topographic and applied anatomy of the digestive respiratory, urinary, reproductive, cardiovascular and lymphatic systems; eye, ear, hoof, and mammary glands. Emphasis in the course will be on the cow with comparisons to the horse, dog, pig, sheep, goat and birds.

YMB 315

VETERINARY HISTOLOGY

Histological structure of the nervous, cardiovascular, respiratory, digestive, reproductive, urinary and lymphatic systems. Eye and ear. Endocrine system. Integument.

Reference will be made to anatomical, physiological and histopathological conditions whenever appropriate.

YMB 320

VETERINARY PHYSIOLOGY

Descriptive, quantitative and comparative analysis of the normal functioning of the nervous, endocrine, cardiovascular, digestive, renal, respiratory and reproductive systems of

domestic animals. Physiology of lactation and growth. Homeostasis with emphasis on acid - base balance, water balance, electrolyte homeostasis, glucose homeostasis, thermoregulation. Environmental physiology. Neonatal physiology.

VMB 330

VETERINARY BIOCHEMISTRY

Protein structure and functions, plasma proteins, haemoglobin. Energy metabolism, enzymes. Carbohydrates, digestion and metabolism. Lipids, digestion, transport and metabolism, prostaglandins, steroids. Rumen biochemistry and ruminant energy metabolism. Lactation. Nitrogen balance and amino acid metabolism. Excretion and detoxication. Vitamins. Nucleotides, porphyrins, bile pigments. Nucleic acid structure, function, replication. Genetic code and protein synthesis. Mineral metabolism. Metabolic regulation. Biochemistry of individual tissues. Biochemical veterinary investigations.

AGA 320

BASIC AND APPLIED ANIMAL NUTRITION

Chemical constituents of plants and animal body, properties and role of water in nutrition. Digestion and metabolism of protein carbohydrates, fat and minerals in ruminants and non-ruminants; methods of estimating feed value chemical analysis, gross energy, digestion coefficients, total digestible nutrients, digestible energy, net energy, starch equivalent. Nutrient sources - protein, energy, minerals and vitamins for farm animals.

Principles and practical computation of rations for livestock and poultry. Specific aspects of the nutrition of livestock, poultry and fish, feed-lot nutrition. Nutritional diseases, emphasis on metabolic pathway disorders and food toxins.

Nutrition of pet animals. (for Veterinary students).

FOURTH YEAR

YMP 410

VETERINARY PATHOLOGY

Introduction, history and scope of pathology, its relation with other disciplines, extrinsic, and intrinsic causes of disease. Retrogressive changes including various types of degenerations and infiltrations pigmentation, calcification and necrosis. Disturbances of growth, disturbances of circulation. Defence of body against injury. Gross and microscopic studies of neoplasms of domestic animals including poultry.

Studies of gross and microscopic lesions in cardiovascular, haemopoietic, respiratory, uro-genital, nervous.

endocrine, locomotor and digestive systems and sensory organs, skin and appendages.

Pathology and pathogenesis of infectious diseases of domestic animals and poultry.

VMB 425

VETERINARY PHARMACOLOGY

Introduction with drug action, receptor theory, pharmacokinetics, pharmacodynamics. Prescription writing. Routes of administration of drugs.

Autonomic nervous system and smooth muscle pharmacology, peripheral nervous system with neuromuscular blocking drugs and local anaesthetics. Drugs acting on the cardiovascular, renal respiratory, and gastro-intestinal systems. Central nervous system drugs including tranquillisers, sedatives, anaesthetics and anti-epileptic drugs.

Chemotherapy of microbial and parasitic diseases. Inflammation and its treatment, corticosteroids and their uses.

VMP 430

VETERINARY MICROBIOLOGY AND IMMUNOLOGY

Historical background, classification, morphology, characteristics and physiology of pathogenic organisms including bacteria, mycoplasma, rickettsia and fungi.

Microbiological techniques and methods, sterilization and disinfection.

Infection, resistance and immunity, toxin and antitoxin agglutination and precipitation, cytolysis and complement fixation, phagocytosis, anaphylaxis and allergy, modern developments in immunology.

The viruses, general characteristics and methods used in their study, classification and characteristics of each of the important virus groups.

VMP 440

VETERINARY PARASITOLOGY

The biology and morphology of helminths, arthropods and protozoa in relation to the pathogenesis, epidemiology, diagnosis, treatment, control and prevention of diseases (including the zoonoses) caused by metazoan and protozoan parasites of domesticated and wild animals.

AGA 450

ANIMAL PRODUCTION

The husbandry of meat animals with special coverage of beef, sheep, goats, pigs, rabbits and poultry production in Zambia. Different animal management systems. The

husbandry of dairy animals with emphasis on systems of dairying, growth and development of dairy animals, breeding plans for dairy cattle, milk production, milking and milk quality. Livestock Production Economics.

FIFTH YEAR

VMD 510

SPECIAL AND PREVENTIVE VETERINARY MEDICINE

Special medicine, Bacterial, fungal and viral conditions. Diseases caused by mycoplasma, chlamydia, rickettsia, protozoa, helminths and arthropods parasites. Miscellaneous diseases of importance. Diseases of wildlife and fish.

Preventive Medicine, Livestock movement, quarantine procedures, vaccination and disease prophylaxis management systems. General methods of disease control and herd health programmes.

VMD 510

CLINICAL VETERINARY MEDICINE I

General Medicine; Clinical examination of farm livestock. Diseases of the newborn including hereditary and congenital conditions. General systemic states. Diseases of the cardiovascular, gastrointestinal, respiratory, urinary, central nervous, endocrine and musculoskeletal systems. Conditions of the skin, the blood and blood forming organs and the liver. Metabolic, nutritional, stress and allergic conditions.

Bovine differential diagnosis; Differential diagnosis of diseases causing alimentary, nervous, respiratory, integumentary and cardiovascular disorders. These topics to be covered in tutorials given in conjunction with the relevant lectures.

VMD 511

VETERINARY EPIDEMIOLOGY AND ECONOMICS

Epidemiology

Introduction; Data and Sources of Data; Tests, Sampling; Measuring; Disease and Productivity; Descriptive Epidemiology; Causation; Observational Studies; Monitoring and Outbreak Investigation. Intervention studies.

Economics

Introduction; Prices; Costs; Disease Control planning; Implementation; Monitoring and Evaluation.

VMD 515

VETERINARY CLINICAL PATHOLOGY I

Cytology

Definition of descriptive terms, collection and examination blood and bone marrow, blood smears, normal blood values, blood cell counting, haemoglobin, erythrocyte, sedimentation

rate and packed cell volume, protein, fibrinogen, erythrocyte and its disorders, leukocyte, and its disorders, thrombocytopenia and haemostatic disorders, interpretation of haematological findings in relation to disease.

Clinical chemistry

Kidney function test, urine analysis, clinical enzymology, liver function tests, pancreatic function tests, cardiovascular disease tests, calcium, phosphorus and metabolic bone disorders, cerebro-spinal fluid examination, serum biochemistry abnormalities, thyroid function.

Dermatology

Mycotic and parasitic skin lesions.

Autopsies

Attendance at Post-Mortem examinations in the Clinic.

VMC 520

VETERINARY SURGERY I - ANAESTHESIOLOGY & RADIOLOGY

General Principles of surgery, sterile techniques, fluid therapy and shock. Burns and other skin lesions. Veterinary Radiology; History, radiation safety, the X-ray machine and accessory equipment. Density and contrast. Radiographic positioning, development and interpretation, radiotherapy.

Veterinary Anaesthesia. The principles of veterinary anaesthesia, local, regional spinal epidural and lumbar analgesis. Premedication and general anaesthesia.

Surgery; Abdominal incisions. Surgery of the digestive system, organs of the head and neck, hernia, heart and great vessels, urogenital systems, liver, spleen, pancreas, tendons and fascia, fractures and joints, neoplasms, amputations, vertebral column and spinal cord.

VMC 535

VETERINARY REPRODUCTION AND OBSTETRICS I

Revision of the anatomy of the reproductive system and associated structures, the physiology of reproduction, embryo development, foetal membranes and the gestation period, development anomalies and teratology, physiological parturition and the postpartum period, care of the new born, the pathology of the gestation period and infertility in male and female animals.

The types, causes, diagnosis and treatment of dystocia, procedures before handling dystocia and obstetrical operations. Surgery of the female and male genital organs. The physiology and pathology of lactation, surgical operations of the mammary glands.

SIXTH YEAR

VNC 610

VETERINARY MEDICINE II

Continuation of Veterinary Medicine I with more practical orientation and ambulatory service.

VMD 612

VETERINARY EXTENSION AND JURISPRUDENCE

Administration and Organisation of Veterinary Services and Schemes for livestock development, and animal health. The relationship of the veterinarian to the public and colleagues. The administration of Legal Acts involving animal health and production, veterinary clinical services, and livestock and wildlife control.

VMD 615

VETERINARY CLINICAL PATHOLOGY II

Continuation of Veterinary Clinical Pathology I

VNC 620

VETERINARY SURGERY II

Continuation of the Veterinary Surgery I with more practical orientation and ambulatory services.

VMD 630

VETERINARY PUBLIC HEALTH

Role of the Veterinarian in Veterinary Public Health. Food hygiene: Food use of organs and tissues. The processing and preservation of food. Prevention of food-borne diseases and food-poisoning. General pathology of animals in relation to food hygiene and food additives.

Meat and milk hygiene: The construction, layout and sanitation of abattoirs, management of animals before slaughter, ante-mortem inspection, method of slaughter. Preparation of carcasses and offals. Post-mortem veterinary inspection. Bacteriology of meat and milk, and factors spoiling quality of milk and meat. Treatment and use or disposal of by-product and condemned meat. Inspection and control of poultry meat and fish. The hazards of milk hygiene and processing.

Environmental hygiene: Air and water pollution. Bacteriological and bio-chemical inspection of drinking and industrial water. Treatment of the industrial and general abandoned materials and water. Eradication of injurious insects, rats and others.

Zoonoses: Definition and classification of zoonoses. Epidemiology of zoonotic diseases. Prevention and eradication of zoonoses.

Laboratory animals: Hygiene feeding, management methods, prevention of infectious diseases of laboratory animals.

VETERINARY REPRODUCTION AND OBSTETRICS

Continuation of Veterinary Reproduction and Obstetrics I with more practical orientation and ambulatory services.

ARTIFICIAL INSEMINATION:

Historical background, advantages and disadvantages, revision of genital organs; semen production composition conservation, the art of artificial insemination conception rates, non-return rates and factors affecting the reproductive efficiency; records, oestrous synchronisation and embryo transfer in livestock improvement program, management and selection of artificial insemination animals, application of artificial insemination in livestock improvement programmes, the organisation of national artificial insemination services.

TEXTBOOKS (For courses taught by the School of Veterinary Medicine)

YMB 210 VETERINARY ANATOMY AND PHYSIOLOGY

Junqueira, L.C. & Carneiro, J. Basic Histology Latest Edition.

Ganong, W.F. Review of Medical Physiology. Latest Edition.

Dyce, Lack and Wensing. Textbook of Veterinary Anatomy
1987 Edition.

YMB 211 VETERINARY EMBRYOLOGY

Noden, D.M. and de Lahunta, A. The Embryology of Domestic
Animals. 1985 Edition.

YMB 310 VETERINARY ANATOMY

Nickel, R., Schummer, A. and Seiferle, E. The Viscera of Domestic
Mammals. Latest Edition.

Nickel, R., Schummer, A. and Seiferle, E. Anatomy of the Domestic
Birds. Latest Edition.

de Lahunta, A. and Habel, R.E. Applied Veterinary Anatomy
Latest Edition.

Garrett, P.D. Guide to Ruminant Anatomy based on the Dissection
of the Goats.

YMB 315 VETERINARY HISTOLOGY

Bellmann, H. and Brown, E.M. Textbook of Veterinary Histology.
Latest Edition.

Banks, W.H.J. Applied Veterinary Histology. Latest Edition.

YMB 320 VETERINARY PHYSIOLOGY

Ganong, W.F. Review of Medical Physiology. Latest Edition.

Swanson, W.J. Duke's Physiology of Domestic Animals.
latest Edition.

YMB 330 VETERINARY BIOCHEMISTRY

Laboratory Manual for YMB 330.

Devlin, T.M. Textbook of Biochemistry with Clinical Correlations
1986.

Martin Jr. D.W., Mayers, P.A. and Rodwell, V.W. Harper's Review of Biochemistry. 1983.

Stryer, L. Biochemistry. 1988.

Smith, E.L., Hill, R.L., Lehman, I.R., Lefrowitz, R.J., Handler, P and White, A. Principles of Biochemistry II. Mammalian Biochemistry. 1983.

YMP 410 VETERINARY PATHOLOGY

Thomson, R.G. Special Veterinary Pathology. D.C. Decker, 1988.

YMB 425 VETERINARY PHARMACOLOGY

Brander, Pugh and Bywater. Veterinary Applied Pharmacology and Therapeutics. 4th Edition. 1982.

Kellerman, Coetler and Naude. Plant Poisonings and Mycotoxicoses of Livestock in Southern Africa. 1988 Edition.

YMP 430 VETERINARY MICROBIOLOGY

Tizard, I. Veterinary Immunology. An Introduction. 3rd Edition, 1987.

Fenner, F. et al. Veterinary Virology. 1987.

Carter, Claus and Rikisha. Essential of Veterinary Bacteriology 3rd Edition, 1986.

Otterridge. Veterinary Immunology. 1985.

Timoney, J.F., Gillespie, J.H., Scott, F.W. and Barloven, J.E., Hagan and Bruner's Microbiology and Infectious Diseases of Domestic Animals. 8th Edition, 1988.

YMP 440 VETERINARY PARASITOLOGY

Kreier, J.P. Parasitic Protozoa (4 volumes)

Kettle, D.S. Medical and Veterinary Entomology. 1984

Soulsby Helminths Anthropods and Protozoa of Domesticated Animals . 7th Edition, 1982.

YMC 510 VETERINARY CLINICAL MEDICINE I

Chandeler, E.A. Canine Medicine and Therapeutic.

VMC 520 VETERINARY SURGERY I - ANAESTHESIOLOGY & RADIOLOGY

Piermattei and Greeley. Atlas of Surgical Approaches to the bones of Dogs and Cats.

Turner and McIlwraith, C. F. Techniques in Large Animal Surgery

Adams, O. Lameness in Horses.

YMD 510 SPECIAL AND PREVENTIVE MEDICINE

Blood, D.C., Radostis, O.H. Veterinary Medicine. 7th Edition, 1989.

Timoney, J.F., Gillepsie, J.H. Scott, F.W. and Barloven, J.E. Hagan and Bruner's Microbiology and Infectious Diseases of Domestic Animals. 8th Edition, 1988.

Leman, A.D. et al. Diseases of Swine. 6th Edition, 1986

Rosenberger, G. Clinical Examination of Cattle. 1979.

Fraser, C.M. et al. The Merck Veterinary Manual. 6th Edition, 1986.

Schmorrenberger, P.R., Sharman, R.S. and Wise, G.H. Attacking Animal Diseases Concepts and Strategies for Control and Eradication. 1987.

Radostis, M. and Blood, D.C. Herd Health. A Textbook of Health and Production Management of Agricultural Animals. 1985.

Hofstad, M.S. et al Diseases of Poultry. 8th Edition, 1984.

YMD 511 VETERINARY EPIDEMIOLOGY AND ECONOMICS

Martin, S.W., Meek, A.H., and Willeberg, P. Veterinary Epidemiology : Principles and Methods. 1987.

Patt, S.N.H., Shaw, A.P.M., Woods, A.J., Tyler, L. and James, A.D. Veterinary Epidemiology and Economics. ILCA, 1987.

Thrusfield, M.V. Veterinary Epidemiology. 1986.

YMD 515 VETERINARY CLINICAL PATHOLOGY I

Doxey, D.L. Clinical Pathology and Diagnostic Procedures 2nd Edition. 1983.

Jain, N.C. Schalm's Veterinary Haematology. 4th Edition, 1986.

Kelly, W.R. Veterinary Clinical Diagnosis. 3rd Edition, 1984.

Coles, E.H. Veterinary Clinical Pathology. 4th Edition, 1986.

Benjamin, M.M. Outline of Veterinary Clinical Pathology.
3rd Edition, 1986.

VMD 612 VETERINARY EXTENSION AND JURISPRUDENCE

Sharma, S.N. Veterinary Jurisprudence. 1985.

Adams, M.E. Agricultural Extension in Developing Countries. 1984.

VMD 615 VETERINARY CLINICAL PATHOLOGY II

Kaneko, J.J. Clinical Biochemistry of Domestic Animals.
4th Edition, 1989.

VMD 630 VETERINARY PUBLIC HEALTH

Schwabe, C. Veterinary Medicine and Human Health. 3rd Edition,
1979.

Rieman, H. and Bayan, F.L. Food-borne Infectious and Intoxications
2nd Edition, 1979.

Hobbs, D.C. and Roberts, D. Food Poisoning and Food Hygiene.
5th Edition, 1987.

Gracey, J.F. Meat Hygiene. 8th Edition, 1986.

Hubbert, W.T. et al. Diseases Transmitted from Animals to Human.

Purdum, P.W. Environmental Health. 2nd Edition, 1980.

VMC 610 VETERINARY MEDICINE I

Chandler, E.A., Feline Medicine and Therapeutics

Hendersen, J.A. Veterinary Medicine Blood D C Radostits

VMC 620 VETERINARY SURGERY II

Witticks, W.G. Canine Orthopaedics.

Slatter, D.H. Textbook of Small Animal Surgery, Vol. I and II

Catcott, E.J. Equine Medicine and Surgery.

PRIZES FOR DISTINGUISHED PERFORMANCE

The School has the following Prizes which are donated by the sponsors. On the recommendation of the Prizes and Scholarship Committee all prizes are awarded by the University Senate.

1. Cooper (Z) Limited Prize for outstanding graduating student (K1,000.000)
2. Veterinary Association of Zambia Prize for best final year student in Veterinary Medicine (K500.00).
3. Arthur George Calder Memorial Prize to best student in Veterinary Surgery (K500.00).
4. Hoeschst (Z) Ltd Prize for best student in Reproduction and Obstetrics (K500.00).
5. Lusaka Hindu Association Prize for best student in Veterinary Public Health (K501.00).
6. Lusaka Hindu Association Prize for best student in Veterinary Pathology (K501.00).
7. Prof. R.P Lee Prize for best student in Parasitology (IR£50.00).
8. Shell Chemicals (Z) Ltd. Prize for best 3rd year student (K1,000.00).

**THE UNIVERSITY OF ZAMBIA
SESSIONAL DATES FOR 1990/91 ACADEMIC YEAR**

TERM I

MONDAY	26th November, 1990	Registration of First Year Students
WEDNESDAY	5th December, 1990	Registration of Returning Students
MONDAY	10th December, 1990	Classes Begin
SATURDAY	22nd December, 1990	Graduation Day
FRIDAY	15th February, 1991	Last Day of Classes
SATURDAY	16th February, 1991	Holidays Begin

RESIDENTIAL SCHOOL

SUNDAY	17th February, 1991	Arrival of Correspondence Students
MONDAY	18th February, 1991	Residential School Starts
FRIDAY	1st March, 1991	Residential School ends

TERM II

SUNDAY	3rd March, 1991	Students Arrive
MONDAY	4th March, 1991	Classes resume
FRIDAY	10th May, 1991	Classes end
SATURDAY	11th May, 1991	Holidays begin

TERM III

SUNDAY	26th May, 1991	Students Return
MONDAY	27th May, 1991	Classes resume
FRIDAY	2nd August, 1991	Last Day of Classes
WEDNESDAY	14th August, 1991	Examinations Begin
FRIDAY	30th August, 1991	Examinations End
SATURDAY	31st August, 1991	Holidays Begin
MONDAY	30th September, 1991	Publication of Results

SUPPLEMENTARY AND DEFERRED EXAMINATIONS

MONDAY	14th October, 1991	Supplementary and Deferred Examinations Begin
FRIDAY	18th October, 1991	Supplementary and Deferred Examinations End
FRIDAY	28th October, 1991	Publication of Results

JICA