

IAAS BULLETIN



Course Catalogue of B.V.Sc. and A.H.



TRIBHUVAN UNIVERSITY
INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE
RAMPUR CAMPUS, RAMPUR
CHITWAN, NEPAL
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Foreword

The IAAS has been making a continuous and strenuous efforts to tackle issues of concern in agricultural education in Nepal since its inception in 1972. In the course of time, many of the programs started in the past have been modified and/or up-graded to attune the role in addressing the pressing needs and priorities of agricultural sector in the country. It is necessary for the institute to effectively carry out its mandate and ensure that its curricula is relevant and responds well to the social transformation and national development. The constant restructuring of syllabi should bear such contents as to enable skill development in operational aspect of agriculture and contribute to productivity. With these objectives IAAS started its Post-graduate Program from the academic year 1998/99 to produce higher qualified graduates, academicians and researchers. IAAS offers M.Sc. programs in more than 13 departments and Ph.D. in some. IAAS has now emerged as a high potential academic centre for agricultural education and research and is trying to achieve *Academic Excellence in Mountain Agriculture*. The M.Sc. and Ph.D. courses are offered under semester system. The on-going undergraduate program under annual system also needed to be converted into semester system. In this endeavour IAAS subject matter committee thoroughly and critically discussed and developed a curriculum to be offered under semester system. Later it was put before a curriculum development workshop for a wider participation of consumer agencies, planners, administrators, field-workers in agriculture and farming communities. The recommendation of the workshop was incorporated in the curriculum and then it was put before the Faculty Board of IAAS for further discussion and modifications and finally to recommend it to the Academic Council of the Tribhuvan University for approval. The present Bulletin is the outcome of this whole process. IAAS is committed to effectively carry out its mandate and ensure that its curricula addresses and responds to the national priority of *Poverty Alleviation through Sustainable Agriculture* in the country.

This curriculum of B.V.Sc. and A.H. has been implemented beginning academic year 2002 (2059/2060 B.S.) at Rampur Campus. The duration of this course is five years including six months internship to prepare competent professionals in the areas of veterinary science and animal husbandry.

This bulletin contains the academic information, rules and regulations for admission requirements and course description. The curriculum development is dynamic and it demands a continuous and strenuous efforts of periodic review and update. Therefore, I appreciate receiving suggestions, comments or criticism from faculty members, students, consumer agencies, planners and field workers in agriculture and rural development to make this curriculum still more meaningful, forward looking and relevant for agricultural development of Nepal.

I would like to thank all the participants involved in the preparation of this bulletin. The Chairpersons and the members of Subject Committees and the Faculty Members of IAAS deserve special thanks and appreciations for their commendable works in bringing out this bulletin in the present shape.

I hope, this bulletin will be for the benefit and guidance of students and teachers of this institute and it will also be useful to all concerned. Thanks.

Sincerely,

(Tej Bahadur K.C., Ph.D.)
Professor and Dean

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INTRODUCTION

1. Objectives of IAAS

The Institute of Agriculture and Animal Science (IAAS) is one among the five technical institutes under Tribhuvan University, Nepal. The mission of IAAS is to train competent manpower in agriculture and allied disciplines, and to promote research, development and technology dissemination in agriculture. The objectives of IAAS are as follows:

- To design and implement educational programs in agriculture in order to obtain an appropriate balance among established and emerging needs of the agricultural sector in Nepal.
- To promote excellence in instruction, research and technology dissemination in agriculture.
- To develop technically competent agricultural graduates ready to apply the knowledge and skills in technical agriculture, agricultural extension, agricultural education, agribusiness and agricultural and rural development programs.
- To encourage and support faculty members and students for research and scholarly activities relevant to the needs of Nepalese agriculture and farmers.
- To foster students self-development, commitment and responsibility for the welfare of Nepalese society.

2. History of Development

The Institute of Agriculture and Animal Science (IAAS) began as a School of Agriculture under the Ministry of Agriculture in 1957 to train Junior Technical Assistants (JTAs) in agriculture. In 1968, the school was upgraded to College of Agriculture and a two-year Intermediate of Agricultural Science (I.Sc.Ag.) program was started. In 1972, the College of Agriculture was given the status of the Institute of Agriculture and Animal Science under Tribhuvan University. Until that time, the institute did not have its own buildings and facilities and was operated at *Jagdamba Bhawan* at Pulchok in Kathmandu. In 1974, the institute was relocated from Kathmandu to its present site at Rampur in Chitwan district where 110 hectares of land, buildings and facilities of then Panchayat Training Center were endowed to the institute. Later in 1978, 125 hectares of livestock farm under Ministry of Agriculture was handed over to IAAS for teaching. At present the institute has three campuses. The Rampur Campus, which is the main Campus located at Rampur, Chitwan district, other two campuses are the Lamjung Campus, located at Sundar Bazar, Lamjung established in 1975 and Paklihawa Campus located at Bhairahawa, Rupandehi district established in 1978. At present, the institute offers a B.Sc. Agriculture (Bachelor of Science in Agriculture), B.V.Sc.& A.H. (Bachelor of Veterinary Science and Animal Husbandry), M.Sc. Agriculture, M.Sc. Animal Science and Doctor of Philosophy (Ph.D.) programs at Rampur Campus. The other two campuses also offer initial two years of B.Sc. Agriculture course. The IAAS was started with a few permanent faculty positions in 1972, however, now it implements teaching, research and extension programs through a core of over 150 trained and dedicated faculty members at its campuses.

3. Academic Programs

Bachelor of Science in Agriculture (B.Sc.Ag.)

The aim of this program is to train academically competent and practical oriented professional agriculturists. The B.Sc. Agriculture program is a eight semester (four-year) course after I.Sc. (Basic Science) or I.Sc. (Agriculture). In the first three years most of the courses are from basic and core agricultural disciplines. In the fourth year, elective courses are offered to provide the students an opportunity to acquire knowledge and skills in the areas of their interest. Field practicals, project works and study visits are part of the academic curriculum. The students must fulfil four years of residential learning to complete the requirements of B.Sc.Ag. curriculum.

Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H)

The B.V.Sc. & A.H. program was started at IAAS beginning the academic year of 1993-94 (2050-051 B.S.). The aim of this program is to train skilled and competent manpower in the areas of livestock health, production and management. The regular B.V.Sc. & A.H. program is a five years course after I.Sc. (Basic Science) or I.Sc. (Agriculture) which includes nine semesters of academic courses and a final one semester of internship. The curriculum has been designed to integrate basic, production and management, practical and clinical subjects to impart both extensive and intensive knowledge in veterinary clinical sciences, animal breeding, livestock production and management.

M.Sc. Agriculture/M.Sc. Animal Science/M.Sc. Veterinary Science

Master of Science in Agriculture and Master of Science in Animal Science was started in Horticulture, Plant Breeding, Agriculture Economics and Animal Nutrition beginning academic year of 1998 (2055) in Horticulture. The program was expanded to Agronomy, Plant Pathology, Entomology, Plant Protection, Agriculture Extension and Rural Sociology, Fishery and Animal Breeding in 1999, Soil Science in 2000 and Livestock Production and Management in 2002. The M.Sc. Ag. (Environmental Science) and M.Sc. Veterinary Science, Meat Technology and Dairy Technology are planned for 2004.

Doctor of Philosophy

Doctor of Philosophy (Ph.D.) program in Horticulture and Animal Nutrition was initiated in the January Session of 2002. The program was further expanded to Plant Breeding, Plant Pathology and Entomology in the July Session of 2003.

4. Research Program

The research activities at IAAS are coordinated through the Directorate of Research. Funding support for the research activities includes IAAS own fund as well as external funding by national and international organizations. The research findings are published in the Journal of Institute of Agriculture and Animal Science (J. Inst. Agric. Anim. Sci.) which is an annual publication of IAAS.

5. Extension Program

Extension program was regularly initiated only after the establishment of the Directorate of Extension in 1999. It organizes short courses for farmers, extension and development workers and provides veterinary health services through mobile veterinary health camps. It also provides technical services, seeds, and planting materials to the farmers.

6. Physical Facilities

Classrooms and Laboratories

Two separate building complexes have been developed for B.Sc. Agriculture and B.V.Sc. & A.H. programs, which include classrooms, laboratories and office space for the faculty members. The laboratories are maintained by the respective departments to support practical training prescribed in the courses. The laboratories are equipped with equipment for basic teaching and analytical works. A new laboratory annex has been developed for Postgraduate teaching and research. The facilities of these laboratories are also utilized to support faculty research program.

Student Hostels

There are six students' hostels at the Rampur Campus including one girl's hostel with the total accommodation capacity of 600 students. The hostels have facilities of common rooms, mess, indoor games and recreation. One P.G. hostel with capacity of 50 students is also in use from July of 2003 at IAAS. Other campuses also have adequate residential facilities for the students.

Library

The IAAS library at Rampur Campus has a two-storied building with the total floor spaces of 19,671 square feet. The library maintains collection of over 32,000 books, journals, monographs, thesis and dissertation, annual reports and bibliographies. At present, the IAAS library subscribes 83 technical journals, bulletins and periodicals. In addition the library also subscribes 24 newspapers and magazines, both national and international. An electronic library with 170 world famous periodicals from 1993 to 96 for postgraduate studies has also been added in the library. The library is open for the students and faculty everyday except on the public holidays. Relatively small number of relevant books and journals are in collection in other two campuses as well.

Veterinary Teaching Hospital

A veterinary teaching hospital with modest facilities has been operating since 2000. It provides clinical services to farm animals at the hospital.

Farms

The Rampur Campus at Rampur maintains four farms – Agronomy farm (51 ha), Horticulture Farm 28 (ha), Livestock Farm 98 ha) and Fish Farm (1.5 ha). These farms support teaching and research requirements and are also used for production purposes. The field plots of Agronomy farm and well laid out with irrigation and drainage facilities and

offers excellent opportunity for research in irrigated and rained conditions. The Livestock Farm maintains local as well as exotic breeds of cattle, buffaloes, sheep, goat, swine and poultry. The Horticultural Farm includes vegetable production block, orchard and space for propagation of fruits and ornamental plants. Green house and screen house facilities have also been developed to a modest level for controlled environment experimentation. The other two campuses also have adequate farm facilities for students' teaching and research.

Computer Center

The Rampur Campus maintains a computer center for faculty, students and staff use. The facilities of the computer center are used for students training, analysis of research data, maintaining administrative database, word-processing and preparation of teaching materials.

Sports and Extra Curricular Activities

The institute has modest facilities for indoor and outdoor sports such as football, volleyball, basketball, badminton, table tennis and lawn tennis. Television sets have been provided in the boys and the girls' hostels for recreation. The IAAS administration as well as students' clubs and union organize events or sports and extra curricular activities from time to time.

Transportation and Communication

Rampur is linked by an all season black topped road to Bharatpur, the headquarter of Chitwan District. Regular public transport is available from Narayanghat and Bharatpur to Rampur. The institute also maintains a pool of vehicles for transportation. There is regular bus service, in the morning and evening up to Narayanghat for the local staff and students. Bus service is also available for students, faculty and staff for marketing at Narayanghat. The Rampur Campus is also linked with telephone, facsimile, internet and electronic mail services available for the students, faculty and staff. The other two campuses also have easy access by road and tele-communication.

Medical and Health Care

The Rampur Campus maintains a dispensary, which provides free medical service to students, faculty and staff and their families. The dispensary has its own furnished building and equipment for minor medical checkup and treatment. Services of medical practitioners are available in other two campuses also.

Post Office

A Post Office operate within the premise of the Rampur Campus, which provide banking and postal services to students, faculty and staff and neighboring communities.

School for Children

A secondary and a primary school are operating at the campus for the children of faculty, staff and students. The campus administration provides some budgetary, manpower and material support for the schools.

7. Admission, Evaluation and Award of Degree

Admission Requirements for B.Sc.Ag. and B.V.Sc. & A.H.

Students with I.Sc. (Basic Science) or I.Sc. (Agriculture) with compulsory English, Physics, Chemistry and Biology securing a minimum of 50 percent marks in aggregate from Tribhuvan University or from other recognized universities and boards are eligible for admission to B.Sc. Agriculture program. Selection for admission is on a merit basis through an entrance examination.

An Admission Committee headed by the Dean of IAAS within the framework of Tribhuvan University rules and regulations formulates the policies concerning student intake and entrance examination. Girls students and students from disadvantage group are provided some preferences in terms of reserved quota and leverages in admission requirements. However, these are subjected to changes in the lines of national and Tribhuvan University policies. The policies for the admission in B.Sc. Agriculture and B.V.Sc. & A.H. programs are communicated in national media well in advance of the date of entrance examination and admission.

Evaluation and Examination System

Semester System

The institute follows a semester system of education. There are two semesters in each academic year. One semester covers a period of 90 effective working days of teaching and two weeks for final examination.

Evaluation and Examination System

The institute follows semester system of examination for evaluation. A total of 20% of full marks in theory in each subject is evaluated internally through an internal assessment. The student must secure at least 40 percent marks in the internal assessment to qualify for final examination. The course teacher gives one chance for makeup test to those who fail in the first internal assessment or missed for a valid reason.

The Examination Board of Tribhuvan University conducts a separate final theory examination with 80% of total marks and 100% of practical for each level externally through an external system of examination. A student must secure at least 40% marks in theory and practical separately to pass the final theory and practical examination in each subject. The students who fail in the final theory or practical examination are allowed to take a Back Paper Examination conducted by the Tribhuvan University Examination Board in each semester after about a month of announcement of final examination result for the previous semester. Such students need not to repeat the course provided they pass the internal assessment and qualify for final examination. Those who fail in the back paper examination should take the regular class along with the regular students of the particular semester.

Attendance Requirements

A student must attend at least 70% of classes in each subject to be eligible for final examination. Failure to meet the minimum attendance requirement may debar a student from

taking final examination. A student must have taken the internal assessment exam to be qualified for the final or the backpaper examination. For only practical course, a student must have attended the practical class as reflected in the attendance register of the course instructor.

Award of Degree and Transcript of Academic Records

A student becomes eligible for the award of degree of B.Sc. Agriculture or B.V.Sc. & A.H. after completion of all the requirements prescribed by the curriculum. No partial degree shall be awarded in case a student fails to complete any of the prescribed requirements. The Controller of Examination of Tribhuvan University issues transcript of Academic Record after the notification of results. The standing of the students is based on aggregate percentage of marks as under:

Distinction	80%
First Division	65%
Second Division	50%
Pass	40%
Fail	less than 40%

8. Students' Welfare

General

The facilities for students' welfare at the IAAS, central campus includes students' hostels, health care and medical facilities and facilities for sports, extra curricular activities and recreation. A member from IAAS faculty is appointed as Extra Curricular Activities Chief to organize and coordinate sports and extra curricular activities. In addition student clubs and cultural groups also organize extra curricular activities from time to time.

Scholarship

The institute provides scholarship to meritorious students. At present 25 percent of the students receive a scholarship of Rs. 200 per month upto maximum of 10 months in each academic year. In addition 20 percent of students are provided with freeship that waives payment of the tuition fees. The award of scholarship is however subjected to change depending upon availability of funds and Tribhuvan University policy.

9. Design and Delivery of Curriculum

The curriculums of B.Sc. Agriculture and B.V.Sc. & A.H. programs include courses in basic and core disciplines and also courses specific to agroclimatic and physiographic settings of Nepal and Nepalese farming systems. The Subject Committees in different areas of agriculture and veterinary sciences propose and design the courses. The content of the courses are critically discussed and modified by the Faculty Board of the institute. The course curriculum is implemented after approval of the Academic Council of Tribhuvan University.

The delivery of courses of B.Sc. Agriculture and B.V.Sc. & A.H. programs at the central campus is carried out through Instructional Departments.

Course Code

The course codes listed in this curriculum have a short text of the subject matter. The digits are read from left to right. The first digit indicates the year in which a course is offered, the second digit indicates the first (1) or the second (2) semester of the academic year and third digit indicates serial number of the course in sequence in the semester offered by an Instructional Department. Alphabet "E" in a course code refers to elective subject. Each theory or practical credit hour is equivalent to 25 marks in theory or practical. For Example, a course with credit hours of 2+1 has full marks of 75 (Theory 50 and Practical 25). One credit for theory means one-hour of lecture per week, and for practical means two to three hours of practical per week.

Core Courses

The core courses are compulsory subjects offered by different Instructional Departments. All the students of B.Sc.Ag. or B.V.Sc. & A.H. program are required to study and pass the core courses as prescribed in the curriculum.

Elective Courses

Elective courses have been designed to provide specialized knowledge and skills in the areas of students' interest. The elective courses are offered in the fourth year of B.Sc. Agriculture program. A student must register and pass elective courses of 12 credits from one or more related departments. The packages of elective courses are announced by the concerned Instructional Departments in the beginning of each academic year. B.V.Sc. and A.H. program has no elective courses.

Project Works

Project work in agronomy, horticulture and animal husbandry are integral part of B.Sc.Ag. program. The students are given independent responsibility for crop and vegetable cultivation and rearing of farm animals where they learn and acquire skills on crop and animal husbandry.

Work Experience

This course is designed to inculcate in the students the dignity of work. The students will be required to accomplish various activities related to agriculture, society, sanitation, landscaping, environment protection, etc.

Internship Program

The internship for one semester is integral part of B.V.Sc. & A.H. degree program. The objective of the program is to provide pre-service field training in the areas of veterinary science and animal husbandry.

10. Other Requirements and Rules

The aspects of instruction, evaluation, and other areas of academics not mentioned in here are as per rules and regulations of the Tribhuvan University.

**SEMESTERWISE DISTRIBUTION OF COURSES
FOR B.V.Sc. & A.H. PROGRAM**

SEMESTER 1	Cr.Hr.	Ref. Page
VAN 111 Gross Anatomy-I	2+2=4	
VAN 112 Gross Anatomy-II	1+1=2	
BCH 111 General Biochemistry	2+1=3	
LPM 111 Cattle and Buffalo Production (LPM-I)	1+1=2	
ANU 111 Principles and Practices of Fodder Production	2+1=3	
AEC 111 Principles of Economics	2+0=2	
EXT 111 Rural Sociology	2+0=2	
WEP 111 Work Experience Program	<u>0+1=1</u>	
	12+7=19	
SEMESTER 2		
VAN 121 Gross Anatomy-III	1+2=3	
VAN 122 General Histology & Embryology	2+1=3	
VPY 121 Physiology-I	2+1=3	
BCH 121 Physiological Chemistry	2+1=3	
LPM 121 Sheep and Goat Production (LPM II)	2+1=3	
ANU 121 Principles of Animal Nutrition	2+1=3	
LPM 122 Wildlife, Bee and Pet Animal Management	2+1=3	
AEC 121 Farm Management, Production Economics and Planning	2+1=3	
WEP 121 Work Experience Program	<u>0+1=1</u>	
	15+10=25	
SEMESTER 3		
VAN 211 Systemic Histology	1+1=2	
VPY 211 Physiology-II	2+1=3	
VPA 211 Parasitology-I	2+1=3	
VMI 211 Microbiology-I	2+1=3	
VPP 211 General Pathology	2+1=3	
ANU 211 Applied Animal Nutrition-I	2+0=2	
LPM 211 Pig and Poultry Production	2+1=3	
BCH 211 Clinical Biochemistry	1+1=2	
ANB 211 Principle of Genetics and Animal Breeding	2+1=3	
AQU 211 Introductory Ichthyology	<u>1+1=2</u>	
	17+9=26	

SEMESTER 4

VPY 221	Physiology-III	2+1=3
VPT 221	General and CNS Pharmacology	2+1=3
VPA 221	Parasitology-II	2+1=3
VMI 221	Microbiology-II	2+1=3
VPP 221	Systemic Pathology	2+1=3
ANB 221	Molecular Genetics and Biotechnology	3+0=3
ANU 222	Principle and Practices of Pasture Management	1+1=2
AQU 221	Principles of Aquaculture	1+1=2
ANU 221	Applied Animal Nutrition II	2+1=3
AST 221	Agricultural Statistics	<u>2+1=3</u>
		19+9=28

SEMESTER 5

VEP 311	Environmental Hygiene	1+1=2
VEP 312	Epidemiology	2+1=3
COM 311	Computer application	0+1=1
VPT 311	Autonomic and Systemic Pharmacology	2+1=3
VPA 311	Parasitology-III	2+1=3
VMI 311	Microbiology-III	2+1=3
EXT 311	Fundamentals of Agricultural Extension	2+1=3
VPY 311	Physiology - IV	1+1=2
VAN 311	Applied Anatomy	0+2=2
VPP 311	Special Pathology	2+1=3
LPM 321	Animal Product Technology	<u>1+1=2</u>
		15+12=27

SEMESTER 6

EXT 321	Agricultural Communication	2+1=3
VPT 321	Chemotherapy	2+1=3
VPT 322	Toxicology	2+1=3
VPA 321	Parasitology-IV	2+1=3
VMI 321	Microbiology-IV	2+1=3
VPP 321	Poultry Pathology & Oncology	2+1=3
VMC 321	Internal Medicine-I	2+1=3
VCP 321	Clinical Practice-I	0+1=1
ANB 321	Selection & Mating System	2+0=2
EXT 322	Social Mobilization and Community Development	<u>2+0=2</u>
		18+8=26

SEMESTER 7

AEC 411	Agribusiness Management, Marketing and Cooperatives	2+1=3
VOG 411	Theriogenology-I	2+1=3
VSR 411	General Surgery & Anaesthesiology	2+1=3
VSR 412	Radiology	1+1=2
VMC 411	Internal Medicine-II	2+1=3
VMC 412	Preventive Medicine-I	2+1=3
VCP 411	Clinical Practices-II	0+1=1
AQU 411	Fish Diseases	<u>2+1=3</u>
		13+8=21

SEMESTER 8

AEC 421	Agricultural Project Planning	2+1=3
VOG 421	Theriogenology-II	2+1=3
LPM 421	Introduction to Dairy Science	2+1=3
VSR 421	Regional and Clinical Surgery-I	2+1=3
VMC 421	Internal Medicine-III	2+1=3
VMC 422	Preventive Medicine-II	2+1=3
VCP 421	Clinical Paractices-III	0+2=2
VCC 421	Clinical Conference I	0+1=1
ANU 421	Applied Human Nutrition	2+0=2
VEP 421	Meat Inspection and Abbatoir Practices	<u>2+1=3</u>
		16+10=26

SEMESTER 9

VOG 511	Theriogenology-III	2+1=3
VOG 512	Theriogenology-IV	1+1=2
VSR 511	Regional & Clinical Surgery-II	2+1=3
VMC 511	Preventive Medicine-III	2+1=3
VMC 512	Ethics & Jurisprudence	1+0=1
VCP 511	Clinical Practices-IV	0+2=2
VCC 511	Clinical Conferences-II	0+1=1
LPM 511	Principles of Dairy Technology	2+1=3
VEP 511	Zoonosis and Public Health	1+1=2
ANB 511	Animal Breeding and Biotechnology	<u>3+0=3</u>
		14+9=23

SEMESTER 10

Internship – Six months

TOTAL CREDIT HOURS IN B.V.SC. & A.H. PROGRAM 138+83=221