

## B.Sc. in Animal Production Study Plan

### University Compulsory Courses 16 C.H

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### University Elective Courses 9 C.H

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### Faculty Compulsory Courses 21 C.H

Line No.	Code	Course	C.H
622040	PP204	PRINCIPLES OF AGRICULTURAL ECONOMICS	3
622621	PP262A	EXTENSION AND TRANSFER OF AGRICULTURAL TECHNOLOGY	3
901021	MATH102A	CALCULUS(FOR BIO.SCI.STUDENTS)	3
911031	CHEM103A	GENERAL CHEMISTRY	3
921031	PHY103A	GENERAL PHYSICS	3
931030	BIO103	GENERAL BIOLOGY	3
1731160	CS116	SELECTED PROGRAMMING LANGUAGES (FOR NON COMPUTER SCIENCE INFORMATION STUDENTS)	3

### Department Compulsory Courses 77 C.H

Line No.	Code	Course	C.H
612060	AP206	PRINCIPLES OF ANIMAL SCIENCE	3
612320	AP232	FEEDS AND FEEDING	3
613000	AP300	FEED ANALYSIS AND RATION FORMULATITON	1
613020	AP302	PRACTICAL APPLICATIONS( I)	1
613112	AP311B	SHEEP AND GOTS PRODUCTION	3
613120	AP312	DAIRY CATTLE PRODUCTION	3
613130	AP313	POULTRY PRODUCTION	3
613131	AP313A	POULTRY PRODUCTION LABORATORY	0
613161	AP316A	POULTRY DISEASES AND PARASITES	2
613162	AP316	POULTRY DISEASES AND PARASITES	0
613210	AP321	ANIMAL PHYSIOLOGY	3
613211	AP321A	ANIMAL PHYSIOLOGY LABORATORY	0
613330	AP333	RANGE ANIMALS NUTRITION	3
613341	AP334A	POULTRY NUTRITION	3
613342	AP334	POULTRY NUTRITION	0
614000	AP400	SUMMER TRAINING	6
614010	AP401	PRACTICAL APPLICATIONS( II)	1
614110	AP411	ANIMAL HEALTH	2
614160	AP416	MEAT SCIENCE	3
614182	AP418B	ANIMAL GENETICSAND BREEDING	3
614183	AP418	ANIMAL GENETICSAND BREEDING	0
614230	AP423	REPRODUCTIVE PHYSIOLOGY OF FARM ANIMALS	3
614241	AP424A	ENVIRONMENTAL PHYSIOLOGY OF FARM ANIMALS	3
614260	AP426	ARTIFICIAL INSEMINATION	1
614310	AP431	MANAGEMENT AND TECHNOLOGY OF POULTRY FARMS	3
614350	AP435	RUMINANT NUTRITION	3
614910	AP491	SEMINAR	1

614940	AP494	GRADUATION PROJECT	3
622050	PP205	PRINCIPLES OF PLANT SCIENCE	3
622051	PP205A	PRINCIPLES OF PLANT SCIENCE (LABORATORY)	0
622130	PP213	INTRODUCTION TO BIOSTATISTICS	3
632510	NF251	AGRICULTURAL BIOCHEMISTRY	3
643310	NR331	RANGE MANAGEMENT	3
911072	CHEM107B	GENERAL CHEMISTRY LAB	1
912170	CHEM217	ORGANIC CHEMISTRY	3
931070	BIO107	GENERAL BIOLOGY (PRACTICAL)	1

### Department Elective Courses 9 C.H

Line No.	Code	Course	C.H
613150	AP315	RABBIT PRODUCTION	3
613180	AP318	DAIRY PRODUCTS TECHNOLOGY	3
613360	AP336	ANIMAL NUTRITION	3
614130	AP413	BEEF CATTLE PRODUCTION	3
614921	AP492A	SELECTED TOPICS(B)	2
614922	AP492B	SELECTED TOPICS(C)	1
614923	AP492C	SELECTED TOPICS(A)	3
623320	PP332	FORAGE PRODUCTION	3
623321	PP332A	FORAGE PRODUCTION LABORATORY	0
624510	PP451	FARM MANAGEMENT	3
643520	NR352	GRAZING MANAGEMENT	3

**TOTAL 132 C.H**

**\* For prerequisite & equivalent courses see the Courses' Description.**

## B.Sc. in Animal Production

### Courses' Description

#### AP 206 Principles of Animal Science (3CH: 3T)

The role of farm animals in providing food and other products to the human being. Basic terminology common to animal science. Common breeds of farm animals, the basic scientific principles of breeding, feeding and management of farm animals. (*Prerequisite: BTO 103*)

#### AP 232 Feeds and Feeding (3CH: 3T)

Nutritive and physical characteristics of various feed stuffs. Nutrient requirements during various stages of life and balanced ration formulation of balanced rations for farm animals. (*Prerequisite: AP 206*)

#### AP 300 Feed Analysis and Ration Formulation (1CH: 3L)

Chemical analysis for feedstuffs to determine content of moisture, crude protein, fat, carbohydrates, ash, fiber, energy, digestibility, and ration formulation for farm animals. (*Prerequisite: AP232*).

#### AP302 Practical Applications 1 (1CH: 3P)

Seasonal applications in cattle, sheep and poultry. (*Prerequisite: Completion of 60 CH*).

#### AP311 Sheep and Goats Production (3CH: 3T)

Characteristics of various breeds of sheep and goats. Principles of feeding, breeding, reproduction, management, and marketing. (*Prerequisite: AP232*).

#### AP 312 Dairy Cattle Production (3CH: 3T)

Breeding, feeding, reproduction, lactation, and health management of dairy herds. (*Prerequisite: AP 232*).

#### AP 313 Poultry Production (3CH: 2T; 3P)

The poultry industry. Anatomy, physiology, and breeds of chickens. Principles of poultry breeding, nutrition, brooding, and rearing. Housing and equipment. Incubation and hatchery management, control of diseases and parasites, marketing. (*Prerequisite: AP 232*).

#### AP315 Rabbit Production (3CH: 3T)

Description of breeds, feeding, rearing, reproduction, record keeping, housing and equipments. (*Prerequisite: AP 232*).

#### AP316 Poultry Diseases and Parasites (2CH: 1T; 3L)

Poultry houses hygiene and disinfection. Viral, bacterial, fungal, and parasitic diseases. Prevention and control of infectious and non-infectious diseases. Vaccine and vaccination. Isolation and quarantine. Carcasses and waste products disposal. (*Prerequisite: AP 313*).

#### AP 318 Dairy Products Technology (3CH: 3T)

Chemical and physical properties of milk. Milk collection, study of dairy industry processes including pasteurization, homogenization, separation technology and packaging. An introduction to dairy product manufacturing including liquid milk, yogurt, labaneh, cheese, and milk powder. Cleaning of dairy plant. (*Prerequisite: AP 206*).

#### AP 321 Animal Physiology (3CH: 2T; 3L)

The functions of various systems and organs of the body as related to the contents and distribution of body fluids. Physiology of blood, nerves, and muscles. Functions of cardiovascular, respiratory, and renal systems of domestic animals. (*Prerequisite: AP 206*).

#### AP 333 Range Animal Nutrition (3CH: 3T)

Animal nutrition on range land, which includes nutrition, management, grazing systems and forage classifications. (*Prerequisite: AP 232*).

#### AP 334 Poultry Nutrition (3CH: 2T; 3L)

Digestion and metabolism of various nutrients. Nutrient requirements at various stages of production, factors affecting those requirements, nutrient deficiencies. Feed formulation and calculation of nutrients of different diets for poultry. (*Prerequisite: AP 232*).

#### AP 336 Animal Nutrition (3CH: 3T)

Nutrition of domestic animals, which includes: nutrient classes and their functions in the body, digestion, absorption and metabolism. (*Prerequisite: AP 232*).

#### AP 400 Summer Training (6CH: 18P)

This course offers practical training and applications on various areas of animal production. No simultaneous courses could be registered with these courses. (*Prerequisite: Completion of 90 C.H*).

#### AP401 Practical Applications 2 (1CH: 3P)

Seasonal applications in cattle, sheep and poultry. (*Prerequisite: Completion of 90 CH*).

#### AP 411 Animal Health (2CH: 2T)

Introduction to livestock and poultry health, disease definition, occurrence, ways of disease transmission and preventive measures of disease spread. The student will learn how to distinguish sick animals from healthy and how to isolate sick animals for appropriate treatment. (*Prerequisite: AP 321*).

#### AP 413 Beef Cattle Production (3CH: 3T)

Various breeds of beef cattle. Principles of feeding, breeding, management, marketing, and health. (*Prerequisite: AP 232*).

#### AP 416 Meat Science (3CH: 3T)

The origin of meat animals, growth and development of meat animals, factors affecting animal growth and meat production. Chemical and physiological structure of muscular and associated tissues, conversion of muscles to meat. Slaughtering methods and factors affecting production, meat quality and treatments affecting meat quality. Carcass classification and grading, meat inspection, cutting methods, meat nutritive value. (*Prerequisite: AP 321*).

#### AP 418 Animal Genetics & Breeding (3CH: 2T; 3L)

Animal breeding principles; gene frequency, continuous variation, resemblance between related individuals, heritability, repeatability, genetic and phenotypic correlations, selection, types of mating. (*Prerequisite: PP 213*).

#### AP 423 Reproductive Physiology of Farm Animals (3CH: 3T)

Anatomy and physiology of reproductive systems, reproductive hormones, puberty, estrous cycle, gamete production, fertilization, physiology of gestation and parturition, reproductive management and causes of reproductive failure. Group discussions, reports, seminars and technical writing will be included. English conversation skills will be emphasized. (*Prerequisite: AP 321*).

**AP 424 Environmental Physiology of Farm Animals (3CH: 3T)**

Housing requirements and animal comfort. Effects of heat stress, geographic location, altitude, photoperiod, and other environmental factors on animal production. Animal behavior in relation to the environment. Environmental diseases: etiology and control. (*Prerequisite: AP 321*).

**AP 426 Artificial Insemination (1CH: 3L)**

Semen collection, analysis, dilution, and preservation. Insemination techniques in farm animals and poultry. (*Prerequisite: AP 423*).

**AP 431 Management and Technology of Poultry Farms (3CH: 3T)**

Management operation by computer; computer use in mechanical and administrative operations. Biotechnology of poultry breeding. Housing, environmental control, cages, hatchery, and poultry processing. (*Prerequisite: AP 313*).

**AP 43 Ruminant Nutrition (3CH: 3T)**

The process of digestion and metabolism in ruminants. Nutrient requirements of ruminants at various stages of their life cycle; energy partitioning, metabolic disorders, environmental influences on feeding ruminants. (*Prerequisite: AP 232*).

**AP 491 Seminar (1CH: 1T)**

Individual term paper presentation and group discussions by students on current subjects and problems within the area of Animal Sciences. This course cannot be repeated for credit. (*Prerequisite: Completion of 90 CH*).

**AP 49 Special Topics (3C.H) (3T or 2CH, 2T or 1CH, 1T)**

This course covers topics related to Animal Science which are not covered in other courses. A student can register this course for one time only. (*Prerequisite: Completion of 90 CH*).

**AP494 Graduation Project (3CH: 9P)**

This course gives students the opportunity to develop their skills in animal production topics, based upon previous and current courses and laboratory experiences. Students are assigned a small project under the supervision of a faculty member. Projects are selected in areas of current interest in animal production and may involve field trials, surveys, case reports, literature reviews or feasibility studies. Students are required to prepare a report on the study carried out and an oral presentation session should successfully be accomplished. (*Prerequisite: Completion of 90 CH*).