2. Problems based on monohybrid and dihybrid inheritance
3. Basic statistical principles – estimation of mean, variance, standard deviation and standard error

Semester II

Name of the Course: Introductory Animal Breeding
Course No. AHD-152; Cr. Hrs. 2 (1+1)
Theory

1. Breeding rules
   a. Inbreeding – types, uses, genetic and phenotypic effects
   b. Out breeding - types, uses, genetic and phenotypic effects
   c. Selective breeding
   d. Livestock breeding strategies in Rajasthan
   e. Selection and culling
   f. Basis and types of selection
2. Techniques to improve performance
3. Importance and maintenance of pedigree record, progeny record and breeding record

Practical

1. Estimation of inbreeding coefficient
2. Estimation of relationship coefficient
3. Pedigree and breeding records
4. Basic computer operative principles

Farm Practice (Non-Credit Course)
Course no. AHD 161; Cr. Hrs. (0+6) First semester and AHD 162; Cr. Hrs (0+6) Second Semester

Hands on training and demonstration on proper housing, rearing and hygiene practices and maintenance of domestic / Farm animals like cattle, sheep, goat, pigs, horse, camel and poultry etc.

2nd Year AHDP

Paper – I : Introductory Veterinary Pharmacology

Semester I

Name of course: Introductory Veterinary Pharmacology -I
Course No. AHD 211; Cr. Hrs. 3 (2+1)
Theory

1. Glossary of pharmacology viz. Indian pharmacopoeia, British pharmacopoeia, meteorology.
2. Weights and measures; their symbol used during prescription.
3. Description of the Roman words used in the prescriptions.
4. Compounding and dispensing, powders, mixtures, electuary, ointment, lotion, paste, pultis, procedure and application/uses.
5. Route of administration of drugs viz. per os, per nose, per rectum, in urogenital tract, topical application etc. injections i.e. intravenous, intramuscular, subcutaneous, intratracheal, intra ruminal.
6. Posology/doses factors affecting dose rate viz. age, body weight, sex, environment, habitat, disease, route of administration, effect of drug, rate of excretion of drug.

7. Pharmaceutical classification, table of veterinary formulae and pharmacopial formulae viz. manufacturing drugs having base as water, alcohol, vinegar, oil etc.
8. Result of drug action.
9. Classification of drugs on the basis of their action e.g. mouth antiseptic, stomachic, aromatic, antisialics, gastric antacid, and anti emetics, carminative, purgative, laxative, astringent, anthelmentics, diuretics, ecbolic, galactogogue, uterine anti coagulant, haemostatic, haematinic, vasodilator, vasoconstrictor, bronchodilator, bronchoconstrictor, expectorant, respiratory stimulant, respiratory sedative, cerebral stimulant, analgesic, sedative, hypnotic, narcotics, tranquillizers, anesthetic, euthanasia, mydiatriatic, myotic, antipyretic, alterative tonic, nutrient, vitamins, anti histaminics, anti inflammatory, irritant, caustic, traumatic, refrigerants, detergents, deodorants, antibiotics, antiseptics, anti-parasitic.

Practical

1. An introduction to basic pharmacology laboratory.
2. Basic knowledge of weights, measures and weighing.
3. An introduction to compounding and dispensing.
4. Powders
5. Mixtures
6. Electuary
7. Ointment
8. Lotion
9. Paste
10. Pultice
11. Administration of drugs viz. per os, per rectum, injections (I/M, I/V, S/C, I/ruminal) etc.
12. To understand prescription of veterinarian and to treat animal accordingly.
13. Functions of alcohol, potassium permanganate, iodine, paraffins, wax etc. in pharmacology preparations.

Semester II

Name of course: Introductory Veterinary Pharmacology -II
Course No. AHD 212; Cr. Hrs. 3 (2+1)
Theory

1. Materia Medica
   a) Alkali metal and ammonia- sodium chloride, sodium hydroxide, sodium carbonate, sodium bicarbonate, potassium chloride, potassium permanganate, potassium carbonate, potassium bicarbonate, potassium nitrate, potassium iodide, sodium citrate, ammonium chloride, liquor ammonia fort, ammonium carbonate, spirit ammonia aromaticus.
   b) Alkali earth metal- calcium chloride, calcium gluconate, calcium borogluconate, calcium lactose, calcium phosphate, calcium hydroxide, creatapreparata, plaster of paris, magnesium carbonate, magnesium sulphate.
   c) Heavy metals – Aluminium hydroxide, kaolin, lead acetate, zinc sulphate, zinc oxide, calamine, copper sulphate, silver nitrate, mercurous chloride (calomel), bin iodide of mercury, mercurochrome, argirol, pretargol, ferrous sulphate, ferric chloride, tincture ferri-perchloride, cobalt chloride.
   d) Metalloids- bismuth carbonate, bismuth sub nitrate, potassium antimony tartrate (tartar emetics), acetyl arsan, suramin, arsenic trioxide, calcium glycero phosphate.
   e) Non-metal halogen- chlorine, iodine, oxygen, sulphur (sublimed), wood charcoal.
2. Systemic Pharmacology

a) Drugs action on Brain, nervous system – volatile general anaesthetic (chloroform, ether, trilene, ethylene, CCl_4), Narcotics (Alcohol), chloral hydrate, urea derivatives (Barbiturates) sulfonyl, group (Sulfonal), Alkaloid narcotics (opium, morphine, codeine), Cannabis, Cocaine, Nux vomica, Nikethamide, musk, Belladona, hyocyamus, Dhatura stramonium, vasaka, Tobacco, carbachol.
b) Drugs action on digestive system -
    i. Digestive ferments, vegetable bitters and sweetening agents–pulv zinger, malt, pepsin, sucrose, honey, saccharine.
    ii. Purgative–castor oil, tincture asafetida, oil of alsi, croton oil, linseed oil, aloe
    iii. Emollients and demulcents–olive oil, groundnut oil, cotton seed oil, mustard oil, coconut oil, liquid paraffin, glycerin, gum acacia, starch, barley.
    iv. Vegetable astringent–tannic acid, catechu.
    v. Volatile oil.
    vi. Carminative group – clove oil, cardamom, coriandrum, antithum, anisi, cinnamon.
    vii. Counter irritant group – Turpentine, eucalyptus, capcicum, black pipper, garlic, onion.
c) Urinary antiseptic and diuretic –sandle wood
    i. Solid volatile oil–camphor, menthol, thymol.
    ii. Aloe, Gum, Resins–Asafoetida.
d) Anthelmentic
    i. Round worm and hook worm–oil of chinapodium, piperazine adipate, diethyl/carbamazine CCl_4.
    ii. Stomach worm–Fenovas, promentic, Butia semina, Beronia.
    iii. Tapeworm–Nux acacia, Diclorofen, Kamala, Pumpkin seed
    iv. Fluke worm–CCl_4
    v. Blood worm–Tarter emetics, Neguvon
e) Drugs action on circulatory system–cardiac depressant (aconite) cardiac tonic (digitalis, siquil) vasoconstrictor (adrenaline, amphetamine), vasodilator (amylnitrate).
f) Drugs act on respiratory system–expectorant (ipecacuhana)
g) Drugs act on reproductive system–Caffeine, sodium salicylate, potassium nitrate, theobromine, theophylline, ergot, oxytocin.
h) Drugs act on skin (integumentary system)–paraffin, vaseline, lard wax, gamaxene, soap, detergent, cetramide etc.
i) Dosage and mode of action of sulpha drugs and antibiotics used for the treatment of animal disease.
j) Incompatibility, toxic drugs and prevention thereof.

Practical

1. Importance of following in pharmacological preparations: sodium chloride, potassium permanganate, potassium iodide, sodium citrate, liquor ammonia fort, spirit ammonia aromaticus, calcium borogluconate, plaster of paris, magnesium sulphate, zinc sulphate, kaolin, calamine, silver nitrate, bin iodide of mercury, bismuth subnitrate, iodine, sulphur, charcoal.
2. Collection of blood, urine, faeces and milk for laboratory examination and dispatch of samples.
3. To prepare carminatives.
4. To prepare astringents.
5. Common names and uses of counter irritants, purgatives, urinary antiseptics, anthelmentics. Incompatability of drugs.

Paper-II: Introductory Veterinary Medicine

Semester I

Name of the Course: Introductory Veterinary Clinical Medicine
Course No. AHD-221; Cr. Hrs. 3 (1+2)
Theory

1. Clinical examination of sick animal.
2. Signs of health and disease in different animals.
3. Significance of temperature, respiration and pulse in animals.
4. Care of sick animals and care of neonates.
5. Etiology, symptoms, treatment, prevention and control of following diseases.
    a. Diseases of digestive system–stomatitis, pharyngitis, choke, simple, indigestion, acid indigestion, alkaline indigestion, constipation, tympany, impaction of rumen, colic, enteritis, traumatic reticulitis, intestinal obstruction etc.
    b. Diseases of respiratory system–upper respiratory tract infection, pneumonia, drenching pneumonia, pleurisy etc.
    c. Diseases of urinary system–urinary tract infection, nephritis, cystitis etc.
    d. Diseases of nervous system–meningitis, encephalitis etc.
    e. Diseases of skin, eye and ear–dermatitis, eczema, scabies, conjunctivitis, otitis etc.
    f. Diseases of musculoskeletal system–myositis etc.
    g. Disease of circulatory system–traumatic pericarditis etc.
    h. Metabolic diseases–milk fever, downer cow syndrome, ketosis, post parturient hemoglobinurea, hypomagnaesmic tetany etc.
    i. Deficiency diseases–vitamins & minerals deficiencies.

Practical

1. Different methods of administration of drugs in animals and birds.
2. Recording of symptoms of disease, temperature, pulse and respiration of animals and birds.
3. Passing of stomach tube, probang, catheter etc in animals.
4. Cleansing & sterilization of glasswares etc.
5. Separation of serum and plasma from blood.
6. Different staining method of blood films.

Semester II

Name of the Course: Introductory Veterinary Preventive Medicine
Course No. AHD-222; Cr. Hrs. 3 (1+2)
Theory

Etiology, symptoms, treatment prevention and control of following infectious diseases.

a) Bacterial diseases – Anthrax, Hemorrhagic Septicemia. Black Quarter, Brucellosis, Tuberculosis, Paratuberculosis, Actinomycosis, Actinobacillosis, Leptospirosis, Salmonellosis, Colibacillosis, Contagious Caprine Pleuro Pneumonia, Tetanus, Enterotoxaemia, Botulism, Bacillary haemoglobinuria, Foot rot and Mastitis etc.
b) Viral diseases – Rinderpest (R.P.), Foot and Mouth disease (F.M.D.), Pox (cow pox, sheep pox, goat pox, fowl pox etc.) Rabies, bovine malignant cararrh, mucosal disease complex, ephemeral fever, mycoplasma, African horse sickness. Ranikhet diseases, Marek‟s diseases, Pulloram disease, Chronic Respiratory Disease (CRD), Bird flu and Gumboro disease.
c) Fungal diseases – Ring worm and Aflatoxicosis.

d) Protozoan diseases – Theileriosis, Babesiosis, Surra, Leishmaniasis and Coccidiosis etc.
e) Rickettsial diseases - Anaplasmosis etc.
f) Parasitic diseases of animals – Parasitic gastroenteritis in ruminants, Hemonchosis in ruminants, Ascarid infestations, Strongylosis, Lungworm infestation, Fasciolosis, Amphistomosis, Tapeworm infestations, Nasal bots, Ticks infestation, Louse infestations and Mites infestations etc.

Practical

1. Method of collection and examination of blood, faeces, urine, milk, skin scrapings from animals etc. for laboratory diagnosis.
2. Different methods of administration of vaccines in animals & birds.
3. Cleaning and sterilization of glasswares etc.
4. Separation of serum and plasma from blood.
5. Different staining methods.

Paper-III: Minor Veterinary Surgery

Semester I

Name of the Course: Minor Veterinary Surgery-I
Course No. AHD-231; Cr. Hrs. 3 (1+2)
Theory

1. Methods of sterilization
2. Definition of sepsis and asepsis.
3. First aid for animal wound.
4. Anaesthetization of animal
5. Suturing of skin and the instrument used thereof.
6. Firing, tattooing, dehorning and docking.

Practical

1. Awareness and uses of surgical instruments.
2. Sanitization/sterilization of instruments used in hospital, first-aid and bandaging of wounds etc.

Semester II

Name of the Course: Minor Veterinary Surgery-II
Course No. AHD-232; Cr. Hrs. 3 (1+2)
Theory

1. Firing, tattooing, dehorning and docking.
2. First aid of wound, abscess.
3. Dislocation, sprain in animals – Sign and treatment.
4. Various types of bone fractures and their treatment
5. Knowledge of instrument, used in laboratory or hospitals.

Practical

1. To prepare site for operation and to help veterinary doctor during operation.
2. Demonstration of castration and other minor surgical procedures.

Paper IV- Introductory Animal Reproduction

Semester I

Name of the Course: Introductory Animal Reproduction-I

Course No. AHD-241; Cr. Hrs. 3 (1+2)

Theory:

Anatomy and physiology of male and female reproductive organs, reproductive endocrinology, introductory chemistry and functions of reproductive hormones, puberty.

Estrous cycle, signs of estrus and estrous detection, properties of estrous mucus, gestation and pregnancy diagnosis, parturition.

Introduction of spermatogenesis, breeding soundness examination (BSE) of males, collection of semen, testing of fresh semen (macroscopic and microscopic), introduction of preservation of semen, handling of frozen semen, methods of artificial insemination and record keeping and follow up of inseminated females.

Introduction of andrology, preliminary knowledge of male infertility, ailments of testes, penis, prepuce etc., infectious reproductive diseases of males.

Practical:

Reproductive examination of female, pregnancy diagnosis, practice of intrauterine pipetting, examination of fern pattern of estrous mucus, testing of frozen semen, techniques of artificial insemination.

BSE of male, collection of semen, testing of fresh semen.

Castration of male.

Handling, care, maintenance and sterilization of various materials and instruments used in reproductive techniques, keeping of reproductive records.

Semester II

Name of the Course: Introductory Animal Reproduction II

Course No. AHD-242; Cr. Hrs. 3 (1+2)

Theory

Introduction of gynaecology, infectious and noninfectious female infertility delayed puberty, congenital defects, hypoplasia of ovaries, cystic ovarian degeneration, anestrus, repeat breeding problem, infectious and venereal causes of infertility, metritis, pyometra.

Abnormal gestation, abortions and other complications of gestation like mummification, maceration, hydropsy of pregnancy etc.

Dystocia, maternal and fetal causes of dystocia, uterine torsion, cervico-vaginal and uterine prolapse, retained fetal membranes.

Practical:

Name, use and maintenance of gynaecological and obstetrical instruments, administration of intrauterine medicines, practice of handling of dystocia using phantom box, foetotomy operations, management of cases of prolapse, retained fetal membranes, uterine torsion, name and care of surgical instruments for caesarian operation, preparation of surgical packs, post operative care of animals.

PAPER – V: Introductory Animal Nutrition

Semester- I

Name of the Course: Introductory Animal Nutrition-I

Course No. AHD-251; Cr. Hrs. 2 (1+1)

Theory

1. Composition of animal body and plants.
2. Nutritional terms and their definitions.
3. Common feeds and fodders, their classification, availability and importance for livestock and poultry production.

4. Various physical, chemical and biological methods of feed processing for improving the nutritive value of inferior quality roughages.
5. Preparation, storage and conservation of livestock feed through silage and hay and their uses in livestock feeding.
6. Harmful natural constituents and common adulterants of feeds and fodders.
7. Feeding standard, their uses and significance, merit and demerits of various feeding standard with reference to ruminants.
8. Use of NPN compounds for ruminants.

Practical

1. Familiarization of various feed stuff, fodder and their selection.
2. Preparation and processing of samples for chemical analysis – herbage, faeces, urine and silages.
3. Demonstration of laboratory ensiling of green fodders. Silage pit preparation.
4. Improving nutrient state of low quality fodder by Physical methods.
5. Improving nutrient state of low quality fodder by Chemical methods.
6. Improving nutrient state of low quality fodder by Biological methods.

Semester II

Name of the Course: Introductory Animal Nutrition-II
Course No. AHD-252; Cr. Hrs. 2 (1+1)
Theory

1. Importance of minerals (major and trace elements) in health and production, their requirements and supplementation in feed.
2. Importance of vitamins in health and production, their requirements and supplementation in feed.
3. Feed additives in the rations of livestock and poultry.
4. Balanced ration and its characteristics.
5. General principles of computation of rations
6. Formulation of rations and feeding of dairy cattle and buffaloes during different phases of growth, development and production (neonate, young, mature, pregnant, lactating and dry animals; breeding bull and working animals).
7. Formulation of ration and feeding of sheep during different phases of growth, development and production (milk, meat and wool).
8. Formulation of ration and feeding of goat during different phases of growth, development and production (milk, meat and hairs).
9. Feeding of diseased animals.
10. Grazing farm management.

Practical

1. Formulation of rations for cattle and buffalo with conventional and unconventional feed ingredient.
2. Formulation of rations for sheep with conventional and unconventional feed ingredient.
3. Formulation of rations for goat with conventional and unconventional feed ingredient.
4. Formulation of rations for swine with conventional and unconventional feed ingredient.
5. Formulation of rations for poultry with conventional and unconventional feed ingredient.
6. Formulation of rations for feeding of livestock during scarcity.

Hospital Practice Course no. (Non Credit Course)

AHD 261:(0+6) First semester and AHD 262: (0+6) Second semester

Hands on training and skill development in routine practices to be followed in medicine, surgery and gynecology clinics. Preliminary knowledge of Diagnosis and treatment. Introduction of A.I. assistance to doctor‟s of different clinical departments.

Note: Syllabus is being provided in Hindi for ease of students opting Hindi medium, however, English version should be referred in case of confusion and English version should be deemed to be standard.