

VETERINARY SURGERY AND RADIOLOGY

Course Structure

COURSE NO.	COURSE TITLE	CREDITS	SEM
VSR 601	PRINCIPLES OF SURGERY	2+0	I
VSR 602	CLINICAL PRACTICE - I	0+3	I
VSR 603	CLINICAL PRACTICE - II	0+3	II
VSR 604	SMALL ANIMAL ANAESTHESIA	2+1	I
VSR 605	LARGE ANIMAL ANAESTHESIA	2+1	II
VSR 606	DIAGNOSTIC IMAGING TECHNIQUES	2+1	I
VSR 607	VETERINARY OPHTHALMOLOGY AND DENTISTRY	1+1	II
VSR 608	SMALL ANIMAL SOFT TISSUE SURGERY	2+1	I
VSR 609	LARGE ANIMAL SOFT TISSUE SURGERY	2+1	II
VSR 610	ORTHOPAEDICS AND LIMB SURGERY	2+1	I
VSR 691	MASTER'S SEMINAR	1	I, II
VSR 699	MASTER'S RESEARCH	20	I, II
VSR 701	CLINICAL SURGICAL PRACTICE - I	0+2	I
VSR 702	CLINICAL SURGICAL PRACTICE - II	0+2	II
VSR 703	CLINICAL SURGICAL PRACTICE - III	0+2	I
VSR 704	ANAESTHESIA OF WILD AND LABORATORY ANIMALS	1+1	II
VSR 705	ADVANCES IN ANAESTHESIOLOGY	2+1	I
VSR 706	ADVANCES IN DIAGNOSTIC IMAGING TECHNIQUES	2+1	II
VSR 707	NEUROSURGERY	2+1	I
VSR 708	EXPERIMENTAL SURGICAL TECHNIQUES IN ANIMALS	1+1	II
VSR 789	SPECIAL PROBLEM IN ANAESTHESIA	0+2	I, II
VSR 790	SPECIAL PROBLEM IN SURGERY	0+2	I, II
VSR 791	DOCTORAL SEMINAR I	1	I, II
VSR 792	DOCTORAL SEMINAR II	1	I, II
VSR 799	DOCTORAL RESEARCH	45	I, II

VETERINARY SURGERY AND RADIOLOGY

Course Contents

VSR 601	PRINCIPLES OF SURGERY	2+0	SEM - I
Objective	To impart the basic knowledge of principles of surgery.		
Theory	<u>UNIT-I:</u> Wound healing, current concepts of inflammation and management, wound infections, antimicrobial therapy, principles of surgical asepsis, sterilization and disinfection. <u>UNIT-II:</u> Systemic effects of surgical stress, haemorrhage and haemostasis, metabolism of the surgical patient, fluid therapy in surgical patients, acid-base balance, shock. Hyperalimantation. Blood transfusion. Host defense mechanism. <u>UNIT-III:</u> Biomaterials, surgical immunity, pre-operative assessment of the surgical patient, post-operative care of the surgical patient. Chemotherapy of tumors. <u>UNIT-IV:</u> Operating room emergencies, cardio-pulmonary embarrassment and resuscitation, monitoring of surgical patient. <u>UNIT-V:</u> Principles of laser surgery, cryosurgery, electrosurgery, lithotripsy and endoscopy, physiotherapy, stem cell therapy etc.		
Suggested Readings	Fossum TW. (Ed.). 2002. <i>Small Animal Surgery</i> . Mosby. Slatter DH. (Ed.). 2002. <i>Textbook of Small Animal Surgery</i> . WB Saunders.		
VSR 602	CLINICAL PRACTICE – I	0+3	SEM - I
Objective	To impart practical training in anaesthesia, diagnostic imaging techniques and surgery.		
Practical	Client management, public relations, code of conduct, management of surgical affections, designing of surgical hospital, hospital management, database management, attending to surgical cases, surgical facilities, equipments, disaster management.		
Suggested Readings	Auer JA. (Ed.). 2006. <i>Equine Surgery</i> . WB Saunders. Fossum TW. (Ed.). 2002. <i>Small Animal Surgery</i> . Mosby. Fubini SL & Ducharme NG. (Ed.). 2004. <i>Farm Animal Surgery</i> . WB Saunders. Slatter DH. (Ed.). 2002. <i>Textbook of Small Animal Surgery</i> . WB Saunders.		
VSR 603	CLINICAL PRACTICE – II	0+3	SEM - II
Objective	To impart practical training in surgery, anaesthesia and diagnostic imaging techniques.		
Practical	Client management, animal welfare and rehabilitation, public relations, code of conduct, management of surgical affections, designing of surgical hospital, hospital management, database management, attending to surgical cases, surgical facilities, equipments and personnel, disaster management.		
Suggested Readings	Auer JA. (Ed.). 2006. <i>Equine Surgery</i> . WB Saunders. Fossum TW. (Ed.). 2002. <i>Small Animal Surgery</i> . Mosby. Fubini SL & Ducharme NG. (Ed.). 2004. <i>Farm Animal Surgery</i> . WB Saunders. Slatter DH. (Ed.). 2002. <i>Textbook of Small Animal Surgery</i> . WB Saunders.		
VSR 604	SMALL ANIMAL ANAESTHESIA	2+1	SEM - I
Objective	To impart the basic and practical knowledge of principles of small animal anaesthesia.		
Theory	<u>UNIT-I:</u> General considerations for anaesthesia, peri-operative and post-operative pain and its management. <u>UNIT-II:</u> Sedation: analgesia and pre-medication, anaesthetic agents (injectable		

anaesthetics, dissociative anaesthetics, inhalation anaesthetics), muscle relaxants, neuromuscular blocking agents and local analgesia.

UNIT-III: Anaesthetic techniques, anaesthetic equipments, artificial ventilation.

UNIT-IV: Anaesthesia of small animals, pediatric and geriatric patients, birds.

UNIT-V: Monitoring of anaesthesia, anaesthetic emergencies, complications and their management, euthanasia.

Practical

Anaesthetic equipments and instrumentation, artificial ventilation, use of various preanaesthetic and anaesthetic agents in small animals, anaesthetic triad, balanced anaesthesia, total intravenous anaesthesia.

Suggested Readings

Hall LW & Clarke KW. (Eds.). 1991. *Veterinary Anaesthesia*. Bailliere Tindall.

Paddleford RR. (Ed.). 1999. *Manual of Small Animal Anesthesia*. 2nd Ed. WB Saunders.

Thurmon JC, Tranquilli WJ & Benson JG. (Eds.). 1996. *Lumb and Jone's Veterinary Anaesthesia*. Williams & Wilkins.

Thurmon JC, Tranquilli WJ & Benson JG. (Eds.). 1999. *Essentials of Small Animal Anesthesia and Analgesia*. Lippincott Williams & Wilkins.

VSR 605 LARGE ANIMAL ANAESTHESIA 2+1 SEM - II

Objective

To impart the basic and practical knowledge of principles of large animal anaesthesia and mechanism of pain.

Theory

UNIT-I: General considerations for anaesthesia, peri-operative pain, and post-operative pain and its management.

UNIT-II: Pre-anaesthetic and anaesthetic adjuncts, injectable anaesthetics, dissociative anaesthetics, inhalation anaesthetics.

UNIT-III: Local anaesthetics, neuromuscular blocking agents.

UNIT-IV: Anaesthetic techniques, anaesthetic machines, breathing systems, artificial ventilation.

UNIT-V: Monitoring of anaesthesia, anaesthetic emergencies and complications, anaesthesia of pediatric and geriatric patients, euthanasia.

Practical

Anaesthetic equipments and instrumentation, artificial ventilation, use of various preanaesthetic and anaesthetic agents in large animals, anaesthetic triad, balanced anaesthesia, total intravenous anaesthesia.

Suggested Readings

Hall LW & Clarke KW. (Eds.). 1991. *Veterinary Anaesthesia*. Bailliere Tindall.

Muir WW & John AE. (Eds.). 1991. *Equine Anesthesia*. Mosby.

Thurmon JC, Tranquilli WJ & Benson JG. (Eds.). 1996. *Lumb and Jone's Veterinary Anaesthesia*. Williams & Wilkins.

VSR 606 DIAGNOSTIC IMAGING TECHNIQUES 2+1 SEM - I

Objective

To impart the basic and practical knowledge of principles of diagnostic imaging techniques and interpretation of radiographs, ultrasonograph/CT/ MRI and other imaging techniques.

Theory

UNIT-I: Conventional and digital X-ray machine, quality of radiation, formation of radiograph technique chart, artifacts and their prevention, special diagnostic radiographic procedures, radiographic quality, radiographic accessories, differentiation of radiographic densities in relation to clinical diagnosis.

UNIT-II: Principles of radiographic interpretation, plain and contrast radiographic techniques of small and large animals, image intensification.

UNIT-III: Principles of radiation therapy, medical radioisotope curves, radiation laws and regulations.

UNIT-IV: Principles of ultrasound, basic physics, transducers, equipment controls, display models, terminology of echotexture and artifacts, application of ultrasound in small and large animals.

UNIT-V: Doppler techniques echocardiography and its application, introduction to MRI,

CT scan, nuclear medicine, xeroradiography, positron emission tomography technique and other imaging techniques.

UNIT-VI: Electromagnetic radiations, hazards of electromagnetic radiations and protection and bio-safety.

Practical

Acquaintance with imaging equipments, dark room processing techniques and X-ray film handling, formulation of technique chart with fixed kVp and variable mAs, basics of radiographic interpretation of diseases, computer aided image acquisition and retrieval, radiographic positioning of different regions in domestic animals, angiography, cardiac catheterization and other contrast radiographic techniques of different types, interpretation of ultrasonographs, MRI, CT scans etc.

Suggested Readings

Bargai U, Bharr, JW & Morgan JP. (Eds.). 1989. *Bovine Radiology*. Iowa State University Press, Ames.

Bushong SC. (Ed.). 1975. *Radiologic Science for Technologists*. CV Mosby.

Gillette EL, Thrall DE & Lebel JL. (Eds.). 1977. *Carlson's Veterinary Radiology*. Lea & Febiger.

Goddard PJ. (Ed.). 1995. *Veterinary Ultrasonography*. CABI.

Kealy JK. (Ed.). 1987. *Diagnostic Radiology and Ultrasonography in Dogs and Cats*. 2nd Ed. Saunders, Philadelphia.

Morgan JP. (Ed.). 1972. *Radiology in Veterinary Orthopaedics*. Lea & Febiger.

Singh AP & Singh J. (Eds.). 1994. *Veterinary Radiology*. CBS.

Thrall DE. (Ed.). 2007. *Textbook of Veterinary Diagnostic Radiology*. 5th Ed. Saunders, Philadelphia.

VSR 607

**VETERINARY OPHTHALMOLOGY
AND DENTISTRY**

1+1

SEM - II

Objective

To impart the basic and practical knowledge of diagnosis and treatment of diseases of eye and teeth in domestic animals.

Theory

UNIT-I: General Anatomical and physiological considerations for ophthalmic surgery.

UNIT-II: Ophthalmic examination and diagnosis, local anaesthesia of eye, ocular therapeutics, diagnostic instruments.

UNIT-III: General consideration for eye surgery, diseases and surgery of eye lids, lacrimal apparatus, naso-lacrimal duct.

UNIT-IV: Diseases of conjunctiva, cornea, sclera, iris, orbit, lens, vitreous and aqueous humor, retina and optic nerve.

UNIT-V: Ocular manifestation of systemic diseases.

UNIT-VI: Anatomy of teeth, examination of teeth. Diseases of teeth- congenital anomalies (retained deciduous teeth, impacted teeth, abnormalities in the shape of teeth). Diseases of teeth- acquired diseases (dental caries, fracture of teeth, endodontic disease, dental materials and dental radiography). Restorative dentistry, periodontal disease, tooth extraction, gum diseases. Current techniques in dentistry.

Practical

Ophthalmic instrumentation, examination of the eye and its adnexa, preparation of patient for eye anaesthesia and surgery, canthotomy, tarsorrhaphy, transplantation of cornea, keratoplasty, anterior chamber paracentesis, flushing of naso-lacrimal duct, iridectomy, lens extraction/implantation. Dentistry instrumentation, dental radiography, teeth cleaning, tooth extraction.

Suggested Readings

Gelatt KN. (Ed.). 1981. *Veterinary Ophthalmology*. Lea & Febiger.

Gelatt KN. (Ed.). 2000. *Essentials of Veterinary Ophthalmology*. Blackwell.

Gelatt KN. (Ed.). 2007. *Atlas of Veterinary Ophthalmology*. 4th Ed. Blackwell Publ.

Lavach JD. (Ed.). 1990. *Large Animal Ophthalmology*. CV Mosby.

Oehme FW & Prier JE. (Eds.). 1974. *Textbook of Large Animal Surgery*. Williams & Wilkins.

Slatter DH. (Ed.). 1981. *Fundamentals of Veterinary Ophthalmology*. WB Saunders.

Tyagi RPS & Singh J. (Eds.). 1993. *Ruminant Surgery*. CBS.

VSR 608 SMALL ANIMAL SOFT TISSUE SURGERY 2+1 SEM - I

Objective

To familiarize with various surgical affections of different body systems and their treatment in small animals.

Theory

UNIT-I: Skin and adnexa- the integument, management of skin wounds, principles of plastic and reconstructive surgery, pedicle grafts, skin grafts, burns, electrical chemical and cold injuries.

UNIT-II: Surgical approaches/ affections of ear, oral cavity and pharynx, abdomen, thorax, the salivary glands, oesophagus, stomach, intestines, rectum and anus, liver and biliary system, pancreas.

UNIT-III: Hernias- abdominal hernia, diaphragmatic hernia, perineal hernia, inguinal, scrotal, and umbilical hernia etc. Surgical approaches to thoracic wall, Pleura.

UNIT-IV: Respiratory system- functional anatomy, diseases of upper respiratory system and lower respiratory system.

UNIT-V: Surgical anatomy of the cardiovascular system, cardiovascular physiology, diagnostic methods, cardiac disorders, principles of vascular surgery, basic cardiac procedures, hypothermia, basic peripheral vascular procedures, peripheral vascular disorders, portacaval shunts and anomalies. Haemolymphatic system, bone marrow, spleen, tonsils, lymph nodes and lymphatics, thymus.

UNIT-VI: Male reproductive system- anatomy of the male genital organs, diagnostic and biopsy techniques, surgical affections of male genital organs; female reproductive system- anatomy, diagnostic techniques, surgical affections of female genital organs.

UNIT-VII: Urinary system- anatomy of the urinary tract, principles of urinary tract surgery, kidneys, ureters, surgery of the bladder, surgical diseases of the urethra, medical dissolution and prevention of canine uroliths, feline urologic syndrome.

UNIT-VIII: Endocrine system- pituitary, adrenals, thyroid, parathyroid, surgical affections of mammary glands and tail. Surgical affections of nervous system, special sense organs.

Practical

Practice of various surgical techniques of skin and adnexa, alimentary system, hernias, respiratory system, cardiovascular system, male and female reproductive systems, urinary system, mammary glands and tail.

Suggested Readings

Fossum TW. (Ed.). 2002. *Small Animal Surgery*. Mosby.

Slatter DH. (Ed.). 2002. *Textbook of Small Animal Surgery*. WB Saunders.

VSR 609 LARGE ANIMAL SOFT TISSUE SURGERY 2+1 SEM - II

Objective

To familiarize with various surgical affections of different body systems and their treatment in large animals.

Theory

UNIT-I: Abdominal wall, integumentary system - skin and appendages; mammary gland, tail, affections of oral cavity.

UNIT-II: Surgical affections of respiratory system, cardiovascular and lymphatic system.

UNIT-III: Surgical affections of digestive system, urinary and genital system.

UNIT-IV: Surgical affections of nervous system, special sense organs.

Practical

Practice of various surgical techniques of skin, alimentary system, hernias, respiratory system, cardiovascular system, male and female reproductive system, urinary system, mammary glands and tail. Surgical affections of nervous system, special sense organs.

Suggested Readings

Auer JA. (Ed.). 2006. *Equine Surgery*. WB Saunders.

Fubini SL & Ducharme NG. (Eds.). 2004. *Farm Animal Surgery*. WB Saunders.

Oehme FW & Prier JE. (Ed.). 1994. *Textbook of Large Animal Surgery*. Williams & Wilkins.

Tyagi RPS & Singh J. (Eds.). 1993. *Ruminant Surgery*. CBS.

VSR 610 ORTHOPAEDICS AND LIMB SURGERY 2+1 SEM - I

Objective

To familiarize with various affections of bones, joints, tendons, ligaments and foot as well as their treatment in animals.

Theory

UNIT-I: Fractures and dislocations, fracture healing, ligaments and tendons - repair techniques.

UNIT-II: Treatment of fractures of different bones in domestic animals, bone diseases.

UNIT-III: Various affections of the joints, their diagnosis and treatment.

UNIT-IV: Conformation of the limb, anatomy of hoof.

UNIT-V Lameness and allied surgical conditions of fore limbs/hind limbs, rehabilitation of orthopaedic patient.

Practical

Internal and external fixation of fractures and dislocation, arthrotomy, tenotomy, examination of limbs for lameness, nerve blocks, injections in joints, operations for arthritis, hoof surgery and corrective shoeing, physiotherapy. Instrumentation, neurological examination, imaging the spine; skull and brain, surgical approach to the cervical spine; thoracolumbar spine and brain.

Suggested Readings

Auer JA. (Ed.). 2006. *Equine Surgery*. WB Saunders.

Fubini SL & Ducharme NG. (Eds.). 2004. *Farm Animal Surgery*. WB Saunders.

Newton CD & Nunamaber DM. (Eds.). 1985. *Textbook of Small Animal Orthopaedics*. JB Lippincott.

Oehme FW & Prier JE. (Eds.). 1974. *Textbook of Large Animal Surgery*. Williams & Wilkins.

Tyagi RPS & Singh J. (Eds.). 1993. *Ruminant Surgery*. CBS.

VSR 701 CLINICAL SURGICAL PRACTICE – I 0+2 SEM - I

Objective

To impart practical training in surgery, anaesthesia and diagnostic imaging techniques.

Practical

Client management, public relations, code of conduct, management of surgical affections, designing of surgical hospital, hospital management, database management, attending surgical cases, surgical facilities, equipments and personnel.

VSR 702 CLINICAL SURGICAL PRACTICE – II 0+2 SEM - II

Objective

To impart practical training in surgery, anaesthesia and diagnostic imaging techniques.

Practical

Client management, public relations, code of conduct, management of surgical affections, designing of surgical hospital, hospital management, database management, attending surgical cases, surgical facilities, equipments and personnel.

VSR 703 CLINICAL SURGICAL PRACTICE – III 0+2 SEM - I

Objective

To impart practical training in surgery, anaesthesia and diagnostic imaging techniques.

Practical

Client management, public relations, code of conduct, management of surgical affections, designing of surgical hospital, hospital management, database management, attending surgical cases, surgical facilities, equipments and personnel.

VSR 704 ANAESTHESIA OF WILD AND 1+1 SEM - II
LABORATORY ANIMALS

Objective

To impart the basic and practical knowledge of chemical immobilization, sedation and anaesthesia of laboratory animals, captive and free ranging wild animals.

Theory

UNIT-I: General considerations in chemical restraint of captive and free ranging wild animals.

UNIT-II: Methods of administration of anaesthesia in captive, free ranging animals and

laboratory animals.

UNIT-III: Local and general anaesthesia in exotic species, wild animals, zoo animals and laboratory animals.

UNIT-IV: Anaesthetic emergencies and complications.

Practical

Familiarization with capture equipments, local anaesthetic techniques, use of various preanaesthetic and anaesthetic agents in laboratory animals, monitoring of patient during general anaesthesia.

Suggested Readings

Selected articles from journals.

VSR 705 ADVANCES IN ANAESTHESIOLOGY 2+1 SEM - I

Objective

To impart the advanced knowledge of animal anaesthesia.

Theory

UNIT-I: Considerations for general anaesthesia, drug interactions in anaesthesia, perioperative pain and distress, effects of anaesthetics on CNS function.

UNIT-II: Pharmacology of preanaesthetics and anaesthetic adjuncts; injectable anaesthetics; dissociative anaesthetics; inhalation anaesthetics; local anaesthetics; muscle relaxants and neuromuscular blocking agents.

UNIT-III: Anaesthetic machines and breathing system, airway management and ventilation, acid-base physiology and fluid therapy during anaesthesia, monitoring of anaesthetized patients, anaesthetic emergencies and accidents.

UNIT-IV: Anaesthesia for selected diseases (cardiovascular dysfunction, pulmonary dysfunction, neurologic diseases, renal diseases, hepatic diseases, gastrointestinal diseases, endocrine diseases, airway diseases).

UNIT-V: Anaesthesia for special patients (ocular patients, heart patients, caesarian section patients, trauma patients, neonatal and geriatric patients), euthanasia.

Practical

Various procedures for catheterization of heart and great vessels, haemodynamic changes and pulmonary function tests during trials of anaesthetics, electrocardiographic, encephalographic evaluation of central nervous system activity, cybernetics, data acquisition and retrieval.

Suggested Readings

Selected articles from journals.

VSR 706 ADVANCES IN DIAGNOSTIC IMAGING 2+1 SEM - II
TECHNIQUES

Objective

To impart the advanced theoretical and practical knowledge of diagnostic imaging techniques and their interpretations.

Theory

UNIT-I: Biological effects of radiations (alpha, beta, X-ray and gamma rays) *in vivo* and *in vitro* cellular response following radiation as an immunosuppressive agent.

UNIT-II: Isotopes (natural and man-made); cyclotron reactor, half-life, decay pattern, storage and handling of radioactive material, fluoroscopy, magnetic resonance imaging and computerised axial tomography, xeroradiography, doppler techniques, indications for ultrasound diagnosis.

UNIT-III: Methods in the detection of isotopes, Geiger-Muller tubes, photo-multiplier tube, medical use of isotope, dosimetry, nuclear medicine and its use in diagnosis of thyroid, kidney, bone and liver function studies.

UNIT-IV: Labelling of isotope and biological uses, detonation and fission products.

UNIT-V: Radiation therapy in cancer patients, biological effects of radiation physics, physics of radiation.

UNIT-VI: Doppler techniques echocardiography and its application, MRI, CT scan, nuclear medicine, xeroradiography, positron emission tomography technique etc.

UNIT-VII: Electromagnetic radiations, hazards of electromagnetic radiations and protection and bio-safety.

Practical

Radiation safety measures, handling radioactive material, measurement of thyroid function

and cardiac output, demonstration of advanced radiological techniques.

Suggested Readings

Selected articles from journals.

VSR 707 NEUROSURGERY 2+1 SEM - I

Objective

To impart theoretical and practical knowledge of treatment of surgical affections of nervous system in animals.

Theory

UNIT-I: Nervous system- anatomy and physiology.

UNIT-II: Clinical neurology, pathogenesis of disease of the central nervous system.

UNIT-III: Diagnostic methods- electrodiagnostic methods, neuroradiology.

UNIT-IV: Fundamentals of neurosurgery, surgical approaches to brain, surgical diseases of peripheral nerves, surgical approaches to the spine, diseases of the spinal column, intervertebral disc diseases.

UNIT-V: Intracranial surgery.

Practical

Instrumentation, neurological examination, imaging the spine; skull and brain, surgical approach to the cervical spine; thoracolumbar spine and brain.

Suggested Readings

Selected articles from journals.

VSR 708 EXPERIMENTAL SURGICAL 1+1 SEM - II
TECHNIQUES IN ANIMALS

Objective

To familiarize with designing of experiments and various surgical models for research.

Theory

UNIT-I: General considerations and protocols for designing experiments.

UNIT-II: Surgical models of various systems. Care and feeding of genobiotic experimental animals.

UNIT-III: Rumen and intestinal fistulae, production of experimental peritonitis and ascitis, nephrectomy, adrenalectomy.

UNIT-IV: Cannulation of various blood vessels and lymphatics, portacaval shunt.

UNIT-V: Principles of transplantation of organs and use of prosthetic material.

UNIT-VI: Tissue engineering-*in vitro*, *in vivo*, *ex vivo* techniques, regenerative therapy.

Practical

Various experimental surgical techniques and special problems related to veterinary surgery, radiology and anaesthesiology, transplantation of skin, fascia, tendon and blood vessels.

Suggested Readings

Selected articles from journals.

VSR 789 SPECIAL PROBLEMS IN ANAESTHESIA 0+2 SEM - I, II

Objective

To impart practical exposure to experimental models related to anaesthesia for research.

Practical

Investigative anaesthetic problems in clinical or experimental models. Didactic and interpersonnel learning-teaching, problem solving self-learning strategies in problems related to anaesthesia.

VSR 790 SPECIAL PROBLEMS IN SURGERY 0+2 SEM - I, II

Objective

To impart practical exposure to experimental models related to surgery for research.

Practical

Investigative surgical problems in clinical or experimental models. Didactic and interpersonnel learning-teaching, problem solving self-learning strategies in problems related to surgery.

VETERINARY SURGERY AND RADIOLOGY

List of Journals

- American Journal of Veterinary Research
- Australian Veterinary Journal
- British Veterinary Journal
- Canadian Veterinary Journal
- Compendium of continuing Education for the practicing Veterinarian
- Cornell Veterinarian
- Equine Practice
- Equine Veterinary Journal
- Indian Journal of Veterinary Research
- Indian Journal of Veterinary Surgery
- Indian Veterinary Journal
- Journal of American Veterinary Medical Association
- Journal of American Animal Hospital Association
- Journal of Bone and Joint Surgery –A & B
- Modern Veterinary Practice
- Journal of Camel Practice and Research
- Journal of Veterinary Emergency and Critical Care
- Journal of Small Animal Practice
- Journal of Veterinary Dentistry
- Journal of Veterinary Medicine – Series A
- Veterinary Anaesthesia and Analgesia
- Veterinary clinics of North America – Small animal practice
- Veterinary clinics of North America – Equine practice
- Veterinary clinics of North America – Exotic animal practice
- Veterinary clinics of North America – Large animal practice
- Veterinary clinics of North America – Food animal practice
- Veterinary Ophthalmology
- Veterinary Radiology and Ultrasound
- Veterinary Record
- Veterinary Research Communication
- Veterinary Surgery

e-Resources

- www.blackwellpublishing.com/journalasp (Veterinary Surgery)
- www.blackwellpublishing.com/summit.asp (Veterinary anesthesia and Analgesia)
- www.blackwellpublishing.com/journalasp (Veterinary Radiology and Ultrasound)
- www.blackwellpublishing.com/journalasp (Veterinary Ophthalmology)
- www.indianjournal.com/ijor.aspx (Indian Journal of Veterinary Surgery)

Suggested Broad Topics for Master's and Doctoral Research

- Evaluation of preanaesthetics and anaesthetics in domestic and laboratory animals
- Management of pain in animals
- Management of surgical disorders of different body systems in domestic animals
- Diagnostic imaging in animals