

***ANATOMY AND
PHYSIOLOGY***

Kansas State University

GRADUATE PROGRAM AND CAREER OPPORTUNITIES

The Department of Anatomy and Physiology offers opportunities for graduate studies leading to both MS and PhD degrees. Cardiopulmonary physiology, immunophysiology, neuroscience and pharmacology are the major themes of research of the department. Specific areas of interest include comparative exercise physiology, food animal immunophysiology, molecular biology of membranes, mechanisms of stress phenomena, molecular genetics and gene mapping, neural control of cardiovascular function and pathophysiology of microcirculation. Faculty from other departments comprise a strong ancillary support group. Career options available with an advanced degree in anatomy or physiology include academic positions in various animal and human health science-related institutions such as Colleges of Veterinary Medicine and Schools of Medicine and Dentistry, as well as positions in industry and agribusiness.

FACILITIES

The department occupies the first two floors of Coles Hall in the Veterinary Medical Center on the campus of Kansas State University. Excellent physical facilities and modern equipment enhance the research programs offered by the department. Central departmental facilities include molecular biology facilities, a microscopy/image analysis facility and a high-speed equine treadmill.

ADMISSION REQUIREMENTS

To be admitted with full standing, the applicant must have an average of B or better in the junior and seniors years, a bachelor's or Veterinary Medical degree from an approved institution, and adequate undergraduate preparation in the proposed field.

For the Master of Veterinary Biomedical Science degree, applicants must complete a minimum of 30 hours of credit, which includes 6-8 hours of research credit. Applicants with a bachelor's degree who are concurrently pursuing a DVM degree may apply 12 hours from relevant courses toward both the master's and DVM degrees if the grades in these courses are adequate. Applicants already possessing the DVM degree can likewise select 12 hours from the professional curriculum to be applied toward the M.S. degree.

For the Ph.D. degree, 90 semester hours of graduate study beyond the bachelor's degree are required, including at least 30 hours of research. For DVM candidates, if 12 hours of dual credit have not been applied to the Master of Science degree, they may be applied toward the Ph.D.

FINANCIAL SUPPORT

Teaching and research assistantships ranging from \$14,000 (for the non-DVM) to \$20,000 (for the DVM) are available on a competitive basis to qualified applicants based on experience. Students are admitted into the graduate program only if there is support available or the student can identify another source of support.

APPLICATION PROCEDURE

To apply, submit an initial letter of interest to: Coordinator of Graduate Studies, 228 Coles Hall, College of Veterinary Medicine, Kansas State University, Manhattan, KS 66506-5802.

FACULTY AND RESEARCH INTERESTS

Cardiovascular and Respiratory Physiology, Immunophysiology, Pharmacology and Neuroscience are major themes within the Department of Anatomy and Physiology. These research interests are addressed by the members of the Department using a variety of research methodologies ranging from cellular and molecular biology through whole animal physiology techniques. Core research facilities available include molecular biology, video microscopy and image analysis, and a large animal treadmill.

FRANK BLECHA, University Distinguished Professor, Department Head. Ph.D. 1981, Washington State University. Immunophysiology, innate immunity, antibacterial peptides..

WALTER CASH, Professor, Assistant Department Head. DVM 1971, Kansas State University; Ph.D. 1982, Kansas State University. Neuroanatomy and Electrodiagnostics.

ELIZABETH DAVIS, Assistant Professor. Ph.D. 2005, Kansas State University.

HOWARD ERICKSON, Roy W. Upham Professor of Veterinary Medicine, Professor. DVM 1959, Kansas State University; Ph.D. 1966, Iowa State University. Equine exercise physiology, cardiopulmonary physiology.

LISA FREEMAN, Associate Dean for Research and Graduate Programs, Professor. DVM 1986, Cornell University; PhD 1989, The Ohio State University. Ion channel structure/function relationships in cardiac and ovarian cells.

MICHAEL KENNEY, Professor. Ph.D. 1988, University of Iowa. Central neural control of the sympathetic nervous system.

S. BUTCH KUKANICH, Assistant Professor. DVM. 1997. Virginia-Maryland Regional College of Veterinary Medicine. Ph.D. 2005. North Carolina State University.

MEENA KUMARI, Assistant Professor. Ph.D. 1985. University of Delhi. Regulation of glutamate receptor gene expression.

DANIEL MARCUS, University Distinguished Professor. D.Sc. 1976, Washington University. Cellular mechanisms of ion transport in epithelial cells.

TIMOTHY MUSCH, Professor. Ph.D. 1981, University of Wisconsin-Madison. Physiology, skeletal muscle blood flow control.

DAVID POOLE, Professor. Ph.D. 1986, University of California, Los Angeles. Respiratory Physiology, muscle microcirculatory function..

JUDY PROVO-KLIMEK, Associate Professor. DVM 1988, Purdue University School of Veterinary Medicine, MS 1996, Purdue University. Educational techniques for anatomy.

CHRIS ROSS, Professor. DVM 1981, University of Missouri; Ph.D. 1990, University of Missouri. Myocardial physiology and inflammation.

BRUCE SCHULTZ, Associate Professor. PhD 1991, Cornell University. Physiology and Pharmacology of epithelial ion transport.

MASAAKI TAMURA, DVM. 1973. Kitasato University. Ph.D. 1980. Azabu Veterinary College.

DERYL TROYER, Professor. DVM 1972, Kansas State University; Ph.D. 1985, Kansas State University. Stem cell biology, neural repair and gene transfer.

PHILINE WANGEMANN, Professor. PhD 1987, Albert Ludwig University, Freiburg, Germany. Cellular mechanisms of fluid and ion homeostasis.

MARK WEISS, Professor. Ph.D. 1986, University of Pennsylvania-Philadelphia. Central neural control of blood pressure and blood volume.

ANCILLARY FACULTY

TOM BARSTOW, Associate Professor, Kinesiology. Ph.D. University of California-Davis.

TONATIUH MELGAREJO, Assistant Professor, Human Nutrition. DVM 1986. National A. University. Ph.D. 1998. Purdue University.

BONNIE RUSH, Associate Professor, Clinical Sciences. DVM 1989, KSU. Equine Internal Medicine, Pulmonary Immunology and Neurological Diseases.

THOMAS SCHERMERHORN, Assistant Professor, Clinical Sciences. VMD, University of Pennsylvania. Ph.D.

DOLORES TAKEMOTO, Professor, Biochemistry. Ph.D., University of Southern California.

JOHN TOMICH, Professor, Biochemistry. Ph.D., Guelph-Waterloo.

RUTH WELTI, Associate Professor, Biology. Ph.D., Washington University in St. Louis.

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