ANIMAL BIOSCIENCES

OVERVIEW

The research program focuses on farm animal agriculture involving a combination of courses and graduate research. Areas of research interest include nutrition, metabolism, lactation, reproduction, genetics, and animal health.

An interdisciplinary program leading to the M.S. and Ph.D. degrees in Animal Biosciences is offered under the direction of a committee composed of program graduate faculty members. The goal of this interdisciplinary program is to provide advanced education and research training in mammalian physiology and endocrinology, mammalian biology, basic and applied nutrition, animal genetics and genomics, or animal health. All graduate students will complete a common core of courses as well as specific courses to support their research programs. The program provides the flexibility necessary for students to gain competence in the area of their choice.

DEGREES

- Animal Biosciences AMP (http://catalogue.uvm.edu/graduate/animalbiosciences/animalbiosciencesamp/)
- Animal Biosciences M.S. (http://catalogue.uvm.edu/graduate/animalbiosciences/animalbiosciencesms/)
- Animal Biosciences Ph.D. (http://catalogue.uvm.edu/graduate/animalbiosciences/animalbiosciencesphd/)

FACULTY

Barlow, John; Associate Professor, Department of Animal and Veterinary Sciences; DVM, University of Illinois Urbana-Champaign; PhD, University of Vermont
Dann, Heather; Adjunct Assistant Professor, Department of Animal and Veterinary Sciences; PHD, University of Illinois Urbana-Champaign
Etter, Andrea J.; Assistant Professor, Department of Nutrition and Food Sciences; PHD, Purdue University
Freeman, Kalev; Assistant Professor, Department of Surgery; MD, PhD, University of Colorado Boulder
Grant, Richard; Adjunct Professor, Department of Animal and Veterinary Sciences; PHD, Purdue University
Greenwood, Sabrina Louise; Associate Professor, Department of Animal and Veterinary Sciences; PHD, University of Guelph
Guo, Ming Ruo; Professor, Department of Nutrition and Food Science; PHD, University College Cork
Jetton, Thomas Lawrence; Professor, Department of Medicine-Endocrinology; PHD, Vanderbilt University
Kraft, Jana; Associate Professor, Department of Animal and Veterinary Sciences; PHD, Friedrich-Schiller-University of Jena
McKay, Stephanie Dawn; Associate Professor, Department of Animal and Veterinary Sciences; PHD, University of Alberta
Morrison, Sarah Y.; Adjunct Assistant Professor, Department of Animal and Veterinary Science; PHD, University of Illinois, Urbana-Champaign

Smith, Julia M.; Research Associate Professor, Department of Animal and Veterinary Sciences; DVM, Cornell University
Testroet, Eric; Assistant Professor, Department of Animal Science and Veterinary Sciences; PHD, Iowa State University
Townson, David H; Professor, Department of Animal and Veterinary Sciences, PHD, Ohio State University
Van Amburgh, Michael; Adjunct Professor, Department of Animal Science and Veterinary Science; PHD, Cornell University
Zhao, Feng-Qi; Professor, Department of Animal and Veterinary Sciences; PHD, University of Alberta

Animal, Nutrition Food Sci Courses

ANFS 395. Advanced Special Topics. 1-18 Credits.
Lectures, laboratories, readings, or projects relating to topics in animal, nutrition and food sciences. Pre/co-requisite: Graduate standing.

ANFS 491. Doctoral Dissertation Research. 1-18 Credits.

ANFS 496. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

Animal Sciences Courses

ASCI 215. Physiology of Reproduction. 3 Credits.
Fundamental principles of the physiology of reproduction with emphasis on, but not limited to, farm animals. Prerequisite: ASCI 111 and ASCI 120; or ASCI 141; or Instructor permission.

ASCI 216. Endocrinology. 3 Credits.
Physiology of endocrine and autocrine/paracrine systems and growth factors. Prerequisites: BIOL 001, BCOR 011, or BCOR 021; CHEM 026 or CHEM 141; ASCI 120, ASCI 141, ANPS 019, or ANPS 020.

ASCI 220. Lactation Physiology. 3 Credits.
Physiological mechanisms that control and affect lactation in domestic and laboratory animals with emphasis on dairy cattle. Includes mammary anatomy, development and health, and milk synthesis. Prerequisite: CHEM 023 or CHEM 031; and ASCI 141 or both ASCI 111 and ASCI 120.

ASCI 263. Clin Top: Companion Animal Med. 3 Credits.
Case studies in companion animal medicine are used to develop clinical, analytical, and diagnostic skills based on a knowledge of anatomy and physiology. This course also explores problem-based learning in medicine. Prerequisites: ASCI 118; and ASCI 141 or both ASCI 111 and ASCI 120; minimum Junior standing.

ASCI 272. Adv Top: Zoo, Exotic, Endang Spec. 3 Credits.
An exploration of modern zoo philosophy and ethics and the extent of human intervention necessary for the preservation of endangered species. Prerequisites: ASCI 171 and Instructor permission.
ASCI 278. Molecular Epidemiol Infect Dis. 3 Credits.
Provides a foundation of knowledge on the use of molecular biology tools to study infectious disease problems; explores how biologists and health scientists link epidemiological methods and molecular biology techniques to address global health issues. Prerequisites: Minimum Junior standing, one 100-level course in BioCore, Biology, Health, Health Sciences, or Microbiology and Molecular Genetics or ASCI 118 or ASCI 177 or Graduate student standing or Instructor permission.

ASCI 279. One Health: Antimicrob Resist. 3 Credits.
Provides a foundation of knowledge on the problem of antimicrobial resistance and factors that contribute to the emergence and spread of resistant micro-organisms. Considers antimicrobial resistance from a One Health perspective, integrating animal, environmental and human health. Prerequisites: Minimum Junior standing, one 100-level course in BioCore, Biology, Health, Health Sciences, or Microbiology and Molecular Genetics or ASCI 118 or ASCI 177 or Graduate student standing or Instructor permission.

ASCI 301. ASCI Graduate Journal Club. 1 Credit.
Students learn to critically read and discuss current scientific literature in terms of scientific method and merit. Pre/corequisite: Graduate standing.

ASCI 302. ASCI Graduate Seminar. 1 Credit.
Topics of current faculty and graduate student interest presented in a seminar-discussion format. Pre/corequisite: Graduate standing.

ASCI 303. Research Proposal Writing. 2 Credits.
Students discuss and practice the grant/proposal writing process by developing and writing a research proposal in response to a specific request for proposals. Students practice grant writing and review, and they share their work and review the work of others. Pre/Corequisites: Graduate standing; recommended be taken prior to/during the semester of student’s first committee meeting.

ASCI 322. One Health: Zoonoses. 3 Credits.
Zoonoses and vector-born disease account for the majority of emerging and re-emerging diseases. Students will learn about the drivers that influence infection in animals and humans, tools used for disease monitoring and prevention, and policies and programs aimed at prevention. Cross-listed with: PH 322.

ASCI 391. Master’s Thesis Research. 1-10 Credits.

ASCI 395. Special Topics. 1-6 Credits.

ASCI 396. Advanced Special Topics. 1-6 Credits.

ASCI 491. Doctoral Dissertation Research. 1-12 Credits.

ASCI 496. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.