

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, mammary gland 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, Kaley; 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 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; ASCI 120, ASCI 141, or Instructor permission.

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/Co-requisites: Graduate standing; recommended be taken prior to/ during the semester of student's first committee meeting.

ASCI 390. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

ASCI 391. Master's Thesis Research. 1-10 Credits.**ASCI 393. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

ASCI 394. Independent Graduate Research. 1-18 Credits.

Graduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

ASCI 395. Special Topics. 1-6 Credits.**ASCI 396. Advanced Special Topics. 1-6 Credits.****ASCI 490. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

ASCI 491. Doctoral Dissertation Research. 1-12 Credits.**ASCI 492. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

ASCI 494. Independent Graduate Research. 1-18 Credits.

Graduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

ASCI 496. Advanced Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.