



# DEPARTMENT OF ANIMAL SCIENCES



## UNDERGRADUATE PROGRAM

Over 700 students studying various disciplines of animal science, including farm, companion and zoo animal production and biology.

## GRADUATE PROGRAM

70 to 80 students pursuing MS and PhD degrees in the disciplines of animal physiology, genetics, nutrition, management, developmental biology, and food products.

**CONCENTRATIONS**-Biosciences, Behavior/Well-being, pre-veterinary medicine, Products, Agribusiness, Production.

**CAREER SERVICES** office emphasizes job placement, internships, and study abroad/international experiences.

## FIVE SIGNATURE AREAS ACROSS LEARNING / RESEARCH / ENGAGEMENT MISSIONS

Epigenetics  
Transgenic biology  
Embryology  
Comparative animal models of human health & disease

Gene Regulation ,  
Stem Cell &  
Developmental Biology

Nutrient utilization  
Environmental management  
Efficient profitable production  
Food animal product quality

Animal Production &  
Management Systems

### ANIMAL SCIENCES

Animal Health  
&  
Well-Being

Food Safety  
&  
Food Quality

Pre-harvest intervention strategies  
Pathogen transmission & ecology  
Stress & Immunology  
Enhance nutrient profile

Physiological indicators of well-being  
Stress response assessment  
Impact factors of behavior faculty

Molecular  
Animal Physiology &  
Metabolism

Nutrient utilization & partitioning  
Digestive physiology and absorption  
Obesity/Diabetes  
Tissue growth regulation

**Dr. Alan G. Mathew**  
Professor and Head  
(765) 494-4806

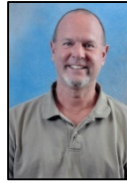
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West Lafayette, IN 47907-2054  
<http://www.ag.purdue.edu/ansc/>

**Department of Animal Sciences**  
**Faculty and Programmatic Administrative/Professional (A/P) Staff**



**Susan Eicher**  
 Adjunct Associate Professor, USDA-ARS  
 Susan.Eicher@ars.usda.gov  
*Immunology, behavior and well-being*

Research includes safeguarding well-being of food producing animals, and handling and transport stress interactions with pathogen biology in swine and cattle.



**Donald Lay**  
 Adjunct Assistant Professor, USDA-ARS  
 don.lay@ars.usda.gov  
*Animal well-being; research leader, USDA-ARS-LBRU*

Research is to discover information that will allow for both optimum animal welfare and animal production. Areas of research include work on pre-natal stress, maternal behavior of sows, and *Salmonella* infection in swine.



**Marisa Erasmus**  
 Assistant Professor of Animal Sciences  
 merasmus@purdue.edu  
*Animal Well-being*

Research will focus on challenges related to food animal well-being and production and to help find solutions to those challenges. Extension is to develop methods to objectively evaluate animal well-being on the farm to help determine how animal welfare, animal production and food quality are related and to transfer that information into educational programs.



**Ron Lemenager**  
 Professor of Animal Sciences  
 rpl@purdue.edu  
*Beef cattle nutrition and management*

Research is to integrate energy and protein resources into a system that will optimize reproductive performance of beef cows and to evaluate nutritional and management factors that can enhance muscle accretion, marbling and tenderness of beef. This research focuses on the factors that impact and mechanisms that control muscle and adipose accretion in beef cattle.



**Dale Forsyth**  
 Associate Professor of Animal Sciences  
 dforsyth@purdue.edu  
*Animal nutrition*

Research involves the economic value of fat in swine diets and development of innovative animal nutrition learning methods.



**Donna Lofgren**  
 Professional Associate in Animal Breeding  
 dlofgren@purdue.edu

Responsibilities include: Indiana Beef Evaluation Program; course instructor for ANSC31100-Animal Breeding, SharePoint and Web development.



**Steve Hendress**  
 Programmatic A/P  
 hendress@purdue.edu  
*Instructor and Dairy Judging Coach*

Instruction of ANSC 37100-Dairy Evaluation and ANSC 47100 Dairy Judging



**Zoltan Machaty**  
 Associate Professor of Animal Sciences  
 zmachaty@purdue.edu  
*Reproductive biology*

Research is to improve reproductive efficiency in domestic animals by understanding the cellular and molecular mechanisms that regulate early embryonic development. The primary goal is to define the signal transduction mechanisms and identify key signaling molecules that are involved in oocyte activation.



**Patricia "Scotti" Hester**  
 Professor of Animal Sciences  
 phester@purdue.edu  
*Poultry physiology and well-being; bone growth*

Research in poultry welfare is focused on osteoporosis in laying hens, which is a progressive decrease in mineralized structural bone leading to skeletal fragility and susceptibility to fracture. A long-term goal is to improve skeletal integrity in egg-type chickens by genetic selection for improved bone mineral density.



**Alan Mathew**  
 Department Head and Professor of Animal Sciences  
 agmathew@purdue.edu  
*Intestinal microbiology, pre-harvest food safety*

Research interests include strategies to reduce or eliminate potential pathogens, including *Salmonella* and toxigenic *E. coli*, in livestock, and production practices that limit antibiotic resistance in bacteria in livestock systems.



**Yuan "Brad" Kim**  
 Assistant Professor of Animal Sciences  
 bradkim@purdue.edu  
*Muscle biology*

Research focus is to develop both fundamental and applied research in muscle biology and meat sciences particularly focusing on improving meat quality attributes and enhancing functional properties of muscle foods.



**Scott Mills**  
 Associate Professor of Animal Sciences  
 smills@purdue.edu  
*Growth physiology*

Research is on the cellular signals regulating the growth of adipose and muscle tissue for the purpose of identifying tools to modify body composition for productive purposes. Also on fat and meat quality with the goal of improving product quality in lean pigs.



**Shihuan Kuang**  
 Associate Professor of Animal Sciences  
 skuang@purdue.edu  
*Muscle biology*

Research is to explore the signaling mechanisms that differentially regulate subpopulations of satellite cells and how such mechanisms are employed in muscle regeneration. In addition, research is on the mechanisms involved in the asymmetric division of muscle satellite cells. Also, research is on the identification, isolation and manipulation of highly efficient myogenic stem cells for successful stem cell-based therapies to treat neuromuscular diseases.



**William (Bill) Muir**  
 Professor of Animal Sciences  
 bmuir@purdue.edu  
*Population genetics; behavior; transgenic risk assessment*

Research consists of two major research thrusts: genetic methods to improve adaptability, stress resistance, and animal well-being; and the interface of quantitative and molecular genetics.

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**Layi Adeola**  
Professor of Animal Sciences  
ladeola@purdue.edu  
*Monogastric nutrition; amino acid nutrition*

Research emphasizes amino acid nutrition, utilization of energy, and mineral utilization by nonruminants. The total program is aimed at improving the efficiency of lean meat production in nonruminant animals and minimizing nutrient impacts on the environment.



**Kolapo (Kola) Ajuwon**  
Associate Professor of Animal Sciences  
kajuwon@purdue.edu  
*Adipose biology; metabolism*

Research is to determine factors that mediate the insulin resistant phenotype that occurs in the adipose tissue as it transitions from an insulin sensitive tissue to the insulin resistant state in obesity, and how nutritional manipulation can be used to prevent this transformation.



**Rod Allrich**  
Associate Professor of Animal Sciences  
rallrich@purdue.edu  
*Reproductive physiology; immunology*

Development of innovative educational programs in Animal Sciences.



**Chris Bidwell**  
Professor of Animal Sciences  
cbidwell@purdue.edu  
*Molecular genetics; genetics of muscle development*

Using the tools of molecular and cellular biology, research is to identify and isolate genes that are directly involved in growth in mammals based on biochemical properties, tissue-specific expression, and chromosomal location. In fish, research is on the genetics of polyploids and interspecific hybrids as well as genes involved in reproduction.



**Jackie Boudreaux**  
Academic Advisor  
jboudreaux@purdue.edu

Advises Animal Sciences students with plans of study, class registration, and recruitment of new students.



**Birgit Cabot**  
Research Assistant Professor  
cabot@purdue.edu

Reproductive Biology/Early Development  
Research investigates the mechanisms of the SWI/SNF chromatin remodeling factor in early embryo development in swine.



**Ryan Cabot**  
Professor of Animal Sciences  
Assistant Department Head, Graduate Programs Director  
*Reproductive biology; molecular genetics*

Research is focused on learning how the mammalian embryo directs its development from a single cell to a complex group of differentiated tissues and ultimately a fully formed adult organism. Studies are to understand how *in vitro* manipulation procedures affect development of the pig embryo and how this can be circumvented to improve embryo quality and embryo viability.



**Theresa Casey**  
Research Assistant Professor  
theresa-casey@purdue.edu

Research focuses on mammary gland biology and lactation.



**Heng-Wei Cheng**  
Adjunct Associate Professor, USDA-ARS  
Heng-wei.Cheng@ars.usda.gov  
*Poultry well-being; neuroanatomy*  
Research is to study the cellular and molecular mechanisms of stress-induced neuronal plasticity and behavioral adaptation; and to develop neuroanatomical and neurophysiological quantitative indicators of animal well-being. Integrated morphological, molecular biological, pharmacological and behavioral approaches to the goal have been designed.



**Matt Claeys** Programmatic A/P  
claeys@purdue.edu  
*Livestock judging and beef cattle management*  
Research is on evaluation of the use of by-product grains on cattle performance, product quality, and reproduction, and development of management systems for the Midwest U.S. environment.



**Candace Cronney**  
Associate Professor of Animal Sciences  
Director, Purdue Univ. Center for Animal Welfare Science  
ccronney@purdue.edu  
*Animal Behavior & Well-Being*

Research interests include the interactions between animal behavior, cognition and well-being; the effects of rearing environments and enrichment on animal behavior and welfare; the ethical implications of animal care and use decisions; and public perceptions of animal agriculture.



**Barry Delks**  
Programmatic A/P  
delks@purdue.edu  
*Career Services Coordinator*

Development of leadership educational programs and career educational materials.



**Shawn Donkin**  
Professor of Animal Sciences  
sdonkin@purdue.edu  
*Ruminant nutrition and metabolism*

Research is to determine factors which constrain the productive efficiency of livestock at the level of nutrient metabolism and to devise methods to circumvent such factors. Research integrates cell biology, molecular biology techniques and whole animal approaches to understand the processes which determine the fate of metabolizable nutrients with a goal of devising practices and technologies to enhance the efficiency of animal growth and/or milk production.



**Paul Ebner**  
Associate Professor of Animal Sciences  
pebner@purdue.edu  
*Microbiology; pre-harvest food safety*

Research is primarily in molecular microbiology. A major focus is on pre-harvest food safety issues, such as the impact of antibiotic use on antibiotic resistance development in pathogenic bacteria. Research is to develop new strategies to more safely reduce pathogen load in food animals prior to slaughter.

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**Lynette Musselman**  
Public Relations Coordinator  
griffi89@purdue.edu

Responsible for public relations and social media for the department, website maintenance, departmental communications/announcements and award nominations.



**Mike Schutz**  
Professor of Animal Sciences  
Assistant Director and Program Leader, Extension  
mschutz@purdue.edu  
*Dairy management, breeding and genetics*

Research is to reduce incidence of mastitis, especially in first lactation heifers, and to improve disease resistance of dairy cattle and milk quality for consumers; to determine the relationships among mastitis, somatic cell counts in milk, and milk yield in first-calf heifers; conformation and health traits in breeding programs, and investigation of disease prevalence in dairy heifers.



**Mike Neary**  
Programmatic A/P  
mneary@purdue.edu  
*Small ruminant management*

Research areas include lamb carcass composition, grazing systems, sheep nutrition and management, and the use of by-product feeds in small ruminant diets.



**John Patterson**  
Associate Professor of Animal Sciences  
jpatters@purdue.edu  
*Intestinal microbiology*

Research is on the influence of dietary additions and stressors on the intestinal microbial community structure and microbial interactions influencing anaerobic digestion of waste biomass and production of hydrogen and methane. Research also is addressing the influence of diet and stressors on interactions between the intestinal microbiota, the mucosal epithelium and the mucosal immune system.



**Kara Stewart**  
Assistant Professor of Animal Sciences  
krstewart@purdue.edu  
*Reproductive Physiology*

Research focus is gestation and neonatal effects on long-term process performance.



**Terry Stewart**  
Professor of Animal Sciences  
tstewart@purdue.edu  
*Quantitative genetics*

Research is on the optimization of genetic evaluation systems and the definition of breeding objectives to maximize the rate of improvement of domestic livestock.



**Scott Radcliffe**  
Associate Professor of Animal Sciences  
jradcliffe@purdue.edu  
*Swine nutrition*

Research focuses on "environmental nutrition" in swine and poultry. Specifically, research is investigating dietary additives that reduce nutrient excretion and that might serve as potential replacements for subtherapeutic levels of antibiotics in the diet.



**Ashley York**  
Programmatic A/P  
Director of Academic Advising & Student Services  
ashleyyork@purdue.edu

Coordinates the leadership for directing academic advising plans of study, class registration, and recruitment of new students.



**Brian Richert**  
Associate Professor of Animal Sciences  
brichert@purdue.edu  
*Swine nutrition and management*

Research is on the use of energy by-product feeds on pig performance, products, nutrient excretion, and odor production. In addition, research is on environmental nutrition impacts and alternatives to antibiotics.



**Stacy Zuelly**  
Assistant Professor of Animal Sciences  
szuelly@purdue.edu  
*Meat Scientist*

Teaching focus is processed meats and the relationship between carcass composition, processing, and product quality. Extension focus is educational opportunities for processors and consumers to help optimize meat quality and palatability.



**Allan Schinckel**  
Professor of Animal Sciences  
aschinck@purdue.edu  
*Swine breeding and genetics*

Research is to genetically increase swine lean growth and model the optimal nutrition and environment to maximize lean efficiency; the evaluation of genotypes for lean growth rate, feed intake, and carcass composition; alternative methods to estimate whole body and carcass composition; and statistical methods to increase the accuracy of compositional growth curves and reduce genotype prediction biases.



**Jon Schoonmaker**  
Associate Professor of Animal Sciences  
jschoonm@purdue.edu  
*Beef cattle nutrition*

Research is on lifetime nutritional factors affecting intramuscular fat deposition, muscle growth, health status, and production efficiency in beef cattle.

**For more information about  
Purdue Animal Sciences, please visit:  
<http://www.ag.purdue.edu/ansc/>**