DOUG PARRETT (interim department head)
Dr. Parrett works with beef producers to identify more predictable genetics for their beef herds to improve the sustainability and quality of beef and beef production enterprises. His teaching in Introductory Animal Sciences informs students to the breadth of animal production and research and helps them to discover pathways and opportunities to meet their career goals.

JANICE BAHR (professor emerita)
Dr. Bahr uses the laying hen, the only animal that gets ovarian cancer identical to the human, to develop techniques for the early detection of ovarian cancer. She evaluates the dietary influences of Indian spices, such as curcumin and ashwagandha, which have anti-inflammatory properties on the incidence and severity of ovarian cancer. She also studies how the elevation of the pituitary hormone, follicle stimulating hormone, in postmenopausal women may cause ovarian cancer.

JONATHAN BEEVER (professor)
Dr. Beever is one of the foremost leaders in identifying genetic defects and congenital abnormalities in cattle and sheep. His research and development of DNA testing has equipped livestock producers with tools to eliminate genetic problems in their herds. Gene-editing methods are being used in cattle and pigs to enhance production efficiencies, allowing producers to reduce costs and increase meat quality and flavor.

DUSTIN BOLER (assistant professor)
Dr. Boler is finding ways to increase the efficiency of meat animals and improve the quality of fresh and processed meat products. He works with the pharmaceutical industry to evaluate the effects of on-farm practices on carcass characteristics and yield. Boler also investigates issues related to the fat quality of meats and bacon production.

ISAAC CANN (professor)
Dr. Cann examines genes and corresponding enzymes that catalyze efficient conversion of biomass cellulose to sugars in order to help develop sustainable, renewable energy for the world. He is advancing knowledge in plant cell wall hydrolysis in ruminants, fiber digestion in the human gut, and also DNA replication/repair in single-celled microorganisms to reduce greenhouse gas emissions.

FELIPE CARDOSO (assistant professor)
Dr. Cardoso addresses the most important challenges faced by the dairy industry through his research in nutrition and reproduction. He engages dairy producers to implement data-driven best management practices into their operation. He studies the mechanisms of metabolic adaptation from gestation to lactation and the impact of nutrition on metabolism, reproduction, and health.

MARIA R. C. DE GODOY (assistant professor)
Dr. Godoy is improving the quality of life and wellness of companion animals through research focusing on ingredient evaluation and foodomics, pet food technology, and therapeutic nutrition.

MEGAN DAILEY (assistant professor)
Dr. Dailey is advancing the understanding of regenerative biology and tissue engineering with exciting potential to mitigate disease like obesity and diabetes. Through studying the impact of nutrition on gastrointestinal stem cell proliferation and differentiation, she will be able to better design diets for malfunctioning organs or to produce organs for transplantation.
ANNA DILGER (associate professor)
Dr. Dilger is advancing the use of performance-enhancing technologies in livestock production to provide high-quality meat products to consumers. Her research examines the molecular mechanisms related to increased animal growth, efficiency, and the effects on meat quality.

RYAN DILGER (associate professor)
Dr. Dilger conducts interdisciplinary research involving nutrition, immunology, and neuroscience. Working with pig and chicken models, his research solves practical nutrition issues faced by modern animal agriculture, and use of a translational pig model to study early-life effects of nutrition on the microbiome, immune system, and brain to improve both human and animal health and well-being.

JAMES DRACKLEY (professor)
Dr. Drackley works extensively with dairy and feed industry groups around the world to improve the health and productivity of dairy cattle. He focuses much of his nutrition and metabolism research on the transition period from pregnancy to lactation in cows and the transition from milk-feeding to solid feed intake in calves.

MICHAEL ELLIS (professor)
Dr. Ellis is advancing swine production operations around the world through his applied swine research program. His research tackles a range of production and management issues including managing growth of pigs in wean-to-finish facilities, animal handling and transportation, and pork quality.

JASON EMMERT (professor)
Dr. Emmert seeks nutritional strategies to improve efficiency of nutrient utilization in broiler chicken diets, with the goal of reducing production cost and reducing nutrient excretion. He actively contributes to the teaching program and uses his interactions with animal sciences students to help them understand the depth and breadth of opportunities in the field.

REX GASKINS (professor)
Dr. Gaskins studies cancer metabolism. His current research focuses on the investigation of the biological basis of the increased risk for the development of colorectal cancer associated with consuming a diet high in red meat and saturated fat, and the role of mitochondria in tumor cell migration in patients with brain cancer.

RODNEY JOHNSON (professor; director of DNS)
Dr. Johnson is finding ways to promote, protect, and maintain brain health by studying communication pathways between the immune system and the brain. He investigates how infection, nutrition, and birth weight affect brain and cognitive development. He also studies how aging causes deterioration in brain health.

KEVIN KLINE (professor)
Dr. Kline’s research focuses on the detection of illegal substances in race horses, the effects of feed processing on growth and feed efficiency in young horses, stallion fertility, and detecting osteochondritis in foals. Kline has served as a consultant for state racing commissions and race tracks to maintain the integrity of horse racing.

ROBERT KNOX (professor)
Dr. Knox helps swine producers around the world provide high-quality pork to consumers. A national and international leader in applied swine reproductive management, his research focuses on swine fertility, stress, reproductive diagnostics, hormonal control of reproduction, and fertility of cryopreserved swine sperm.

KENNETH KOELKEBECK (professor)
Dr. Koelkebeck helps poultry producers across the globe provide high-quality eggs and meat for consumers. His research in poultry production, environmental management, waste management, nutrition, and biosecurity impacts small flock and commercial poultry producers.

ANNA KUKEKOVA (assistant professor)
Dr. Kukekova studies genetics of social behaviors. She works with unconventional animal models that hold a significant potential for understanding genetic regulation of affiliation, aggression, anxiety, and fear, social behaviors that are consistently associated with human neurological disorders. The identification of genes and gene networks involved in regulation of these behaviors can also be a subject of interest for animal breeding programs focused on selection for behavioral traits.
WHAT WE DO & WHY IT MATTERS, cont’d

Animal Sciences

**JUAN LOOR** (associate professor)
Dr. Loor is an international leader in his field, advancing knowledge to better understand cattle development while helping feed a growing world population. He studies nutritional and physiological genomics during the neonatal, lactation, and rapid growth periods in both beef and dairy cattle.

**RODERICK MACKIE** (professor)
Dr. Mackie is advancing animal health, biofuel production, and food safety through his research in microbiology. His work focuses on anaerobic microbiology and fermentations, molecular microbial ecology in gut ecosystems, degradation of plant cell wall polymers and biomass, nitrogen metabolism, anaerobic waste digestion, and antibiotic resistance genes.

**JOSH MCCANN** (assistant professor)
Dr. McCann studies the influence of nutrition on metabolism and growth of feedlot cattle by characterizing ruminal fermentation, the gut microbiome, and muscle development. His work contributes to the efficiency, sustainability, and profitability of feedlot cattle operations providing high-quality beef to consumers.

**DAVID MILLER** (professor)
Dr. Miller is advancing knowledge in mammalian fertilization and early development. His work has led to novel ways of storing sperm outside of the reproductive tract and greater accuracy in estimating male fertility, allowing livestock producers to improve and control farm animal fertility. His research also helps human medical professionals provide better services to their patients.

**JAN NOVAKOFSKI** (professor)
Dr. Novakofski studies prion diseases or infectious agents composed entirely of protein in animals such as “mad cow disease” and scrapie. His efforts are contributing to better understanding the genetics and transmission of these types of diseases to protect the health of animals and humans.

**ROMANA NOWAK** (professor)
Dr. Nowak is finding new therapeutic strategies to address reproductive diseases in women. Using the chicken as a model, she studies the use of dietary intervention as a way to prevent and treat uterine fibroids. Her research provides insight into important aspects of reproductive biology, including how environmental factors impact reproductive diseases and infertility in women.

**CARL PARSONS** (professor)
Dr. Parsons is developing high-quality feeds to enhance the growth and health of humans and animals. Although his primary focus is on poultry nutrition, he also studies nutrition of humans, ruminants, companion animals, fish, and zoo animals with an emphasis on feed ingredient and foodstuffs evaluation.

**JASON RIDLON** (assistant professor)
Dr. Ridlon is helping find treatment strategies to improve human health and animal well-being. He studies gut microbiology, specifically the biochemistry and molecular biology of steroid and bile acid biotransformations by the gut microbiota. He is trying to understand how microbial metabolites promote gastrointestinal tract diseases such as liver and colorectal cancers, as well as essential hypertension.

**ALFRED ROCA** (associate professor)
Dr. Roca conducts genetic studies on wildlife and domesticated animals. He uses DNA from elephants to determine conservation priorities for the species and to establish the geographic origins of confiscated ivory. He also studies “endogenous” retroviruses, which are retroviral copies that have become permanent components of the DNA of humans and animals, and can impact their health.

**SANDRA RODRIGUEZ-ZAS** (professor)
Dr. Rodriguez-Zas is helping find ways to prevent and cure diseases in both livestock and humans. She uses biostatistics and computational approaches to identify biomarkers and molecular pathways associated with health, reproduction, and performance in livestock species, and cancers in humans.

**JANEEN SALAK-JOHNSON** (associate professor)
Dr. Salak-Johnson’s research on the impact of the environment and stressors on animal well-being has enabled her to implement many changes that help U.S. livestock producers raise healthy animals. Her work focuses on sow housing, prenatal stress, and effects of the environment on immune status and behavior of swine and other livestock.
LAWRENCE SCHOOK (professor)
Dr. Schook is developing the pig as a biomedical cancer model to help medical professionals better understand and treat this life-threatening disease. An international scholar in comparative genomics, he led the pig genome-sequencing project that has provided researchers insights into human cancer and other chronic diseases.

DAN SHIKE (associate professor)
Dr. Shike identifies management and nutritional strategies that not only improve the reproduction and longevity of beef cows, but also optimize growth, efficiency, and carcass traits of the cow's offspring. Collectively this work leads to the efficient, sustainable production of an affordable, abundant food supply.

ANDREW STEELMAN (assistant professor)
Dr. Steelman investigates the impact of environmental factors such as infection, nutrition, and environmental and psychological stress on the intercellular communication pathways between cells of the brain and the immune system.

HANS STEIN (professor)
Dr. Stein evaluates energy and nutrient digestibility and metabolism in monogastric animals and humans. He makes discoveries in the area of energy, mineral, carbohydrate, and amino acid absorption and utilization with applications for pig, as well as for humans.

KELLY SWANSON (professor)
Dr. Swanson's research is contributing to the development of quality feeds for companion animals and dietary guidelines to help prevent obesity and other health-related issues in humans. He studies the effects of nutritional intervention on health outcomes, identifying mechanisms by which nutrients impact gene expression and host physiology, with primary emphasis on gastrointestinal health and obesity.

MATTHEW WHEELER (professor)
Dr. Wheeler is a tireless advocate for using embryo technologies to improve genetics of livestock and reduce food insecurity throughout the world. He is advancing technology in both livestock production and human medicine through his research on embryo/developmental biology, stem cells, cloning, transgenic livestock, reproduction, genomics, and regenerative biology.